

## Switching Devices – Soft Starters and Solid-State Switching Devices

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[www.siemens.com/sirius/conversion-tool](http://www.siemens.com/sirius/conversion-tool)

# Switching Devices – Soft Starters and Solid-State Switching Devices

## Soft Starters

### Introduction

### Overview



3RW30

3RW40

3RW44

#### 3RW soft starters

##### 3RW soft starters for standard applications

##### 3RW30 soft starters

- SIRIUS 3RW30 soft starters for soft starting of three-phase asynchronous motors
- Current range of up to 106 A
- Performance range of up to 55 kW (at 400 V), up to 75 hp (at 460 V)

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3RW30

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##### 3RW40 soft starters

- SIRIUS 3RW40 soft starters with the integral functions
  - solid-state motor overload and intrinsic device protection and
  - adjustable current limiting
 for the soft starting and stopping of three-phase asynchronous motors
- Current range of up to 432 A
- Performance range of up to 250 kW (at 400 V), up to 300 hp (at 460 V)

3RW40

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##### 3RW soft starters for High-Feature applications

##### 3RW44 soft starters

- In addition to soft starting and soft ramp-down, the solid-state SIRIUS 3RW44 soft starters provide numerous functions for higher-level requirements
- Current range of up to 1 214 A
- Performance range
  - in inline circuit: up to 710 kW (at 400 V), up to 950 hp (at 460 V)
  - in inside-delta circuit: up to 1 200 kW (at 400 V), up to 1 700 hp (at 460 V)

3RW44

6/37

#### SIRIUS 3RW soft starters

SIRIUS 3RW soft starters permit soft starting and soft ramp-down of three-phase asynchronous motors. Depending on the scope of functions required it is possible to choose between:

- Soft starters for standard applications
- Soft starters for High-Feature applications

#### SIRIUS 3RW – Service-proven in many applications

Functions of the SIRIUS soft starters include:

- Soft starting and ramp-down
- Stepless starting
- Torque control and limitation

#### Cost-efficient operation

The advantages of SIRIUS soft starters at a glance:

- Reduction of current peaks
- Avoidance of mains voltage fluctuations during starting
- Reduced load on the power supply network
- Reduction of the mechanical load in the operating mechanism
- Considerable space savings and reduced wiring compared with conventional starters
- Maintenance-free switching
- Very easy handling
- Fits perfectly in the SIRIUS modular system (3RW30 and 3RW40)

# Switching Devices – Soft Starters and Solid-State Switching Devices

## Solid-State Switching Devices

### Introduction



|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                        | Article No.                                    | Page                 |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------|
| <b>SIRIUS solid-state switching devices for switching resistive/inductive loads</b> |                                                                                                                                                                                                                                                                                                                                                                        |                                                |                      |
| <b>Solid-state relays</b>                                                           |                                                                                                                                                                                                                                                                                                                                                                        |                                                |                      |
| <b>Solid-state relays</b>                                                           | <ul style="list-style-type: none"> <li>• Widths of 22.5 mm and 45 mm</li> <li>• Compact and space-saving design</li> <li>• "Zero-point switching" version</li> <li>• Mounting onto existing heat sinks</li> </ul>                                                                                                                                                      | <b>3RF21</b><br><b>3RF20</b><br><b>3RF22</b>   | 6/72<br>6/77<br>6/81 |
| <b>Solid-state contactors</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                        |                                                |                      |
| <b>Solid-state contactors</b>                                                       | <ul style="list-style-type: none"> <li>• Complete units comprising a solid-state relay and an optimized heat sink, "ready to use"</li> <li>• Compact and space-saving design</li> <li>• Versions for resistive loads "zero-point switching" and inductive loads "instantaneous switching"</li> <li>• Special versions "Low Noise" and "Short-Circuit Proof"</li> </ul> | <b>3RF23</b><br><b>3RF24</b>                   | 6/85<br>6/94         |
| <b>Function modules</b>                                                             |                                                                                                                                                                                                                                                                                                                                                                        |                                                |                      |
| <b>Converters</b>                                                                   | For extending the functionality of the 3RF21 solid-state relays and the 3RF23 solid-state contactors for many different applications: <ul style="list-style-type: none"> <li>• For converting an analog input signal into an on/off ratio; can also be used on 3RF22 and 3RF24 three-phase switching devices</li> </ul>                                                | <b>3RF2900-0EA18</b>                           | 6/105                |
| <b>Load monitoring</b>                                                              | <ul style="list-style-type: none"> <li>• For load monitoring of one or more loads (partial loads)</li> </ul>                                                                                                                                                                                                                                                           | <b>3RF29...-0FA08,</b><br><b>3RF29.0-0GA..</b> | 6/106                |
| <b>Heating current monitoring</b>                                                   | <ul style="list-style-type: none"> <li>• For load monitoring of one or more loads (partial loads); remote teach</li> </ul>                                                                                                                                                                                                                                             | <b>3RF29...-0JA..</b>                          | 6/107                |
| <b>Power controllers</b>                                                            | <ul style="list-style-type: none"> <li>• For supplying the current by means of a solid-state switching device depending on a setpoint value. There is a choice of full-wave control and generalized phase control</li> </ul>                                                                                                                                           | <b>3RF29...-0KA.</b>                           | 6/108                |
| <b>Power regulators</b>                                                             | <ul style="list-style-type: none"> <li>• For supplying the current by means of a solid-state switching device depending on a setpoint value. Closed-loop control: full-wave control or generalized phase control</li> </ul>                                                                                                                                            | <b>3RF29.0-0HA..</b>                           | 6/109                |
| <b>SIRIUS solid-state switching devices for switching motors</b>                    |                                                                                                                                                                                                                                                                                                                                                                        |                                                |                      |
| <b>Solid-state contactors</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                        |                                                |                      |
| <b>Solid-state contactors, solid-state reversing contactors</b>                     | <ul style="list-style-type: none"> <li>• Complete units in the insulated enclosure with integrated heat sink, "ready to use"</li> <li>• Compact and space-saving design</li> <li>• Version for motors, "instantaneous switching"</li> </ul>                                                                                                                            | <b>3RF34</b><br><b>3RF34</b>                   | 6/113<br>6/117       |

## Switching Devices – Soft Starters and Solid-State Switching Devices

### Solid-State Switching Devices

#### Introduction

#### **SIRIUS 3RF solid-state switching devices**



Three-phase solid-state contactor and single-phase solid-state relay

The SIRIUS 3RF2 solid-state switching devices reliably switch a wide range of different loads with alternating voltages in 50 and 60 Hz systems.

SIRIUS 3RF2 solid-state switching devices for resistive loads:

- Solid-state relays
- Solid-state contactors
- Function modules

SIRIUS 3RF3 solid-state switching devices for switching motors:

- Solid-state contactors
- Solid-state reversing contactors

#### SIRIUS 3RF2 – for almost unending activity

Conventional electromechanical controlgear is often overtaxed by the rise in the number of switching operations. A high switching frequency results in frequent failure and short replacement cycles. However, this does not have to be the case, because with the latest generation of our SIRIUS 3RF2 solid-state switching devices we provide you with solid-state relays and contactors with a particularly long endurance – for almost unending activity even under the toughest conditions and under high mechanical load, but also in noise-sensitive areas.

#### Proved time and again in service

SIRIUS 3RF2 solid-state switching devices have firmly established in industrial applications. They are used above all in applications where loads are switched frequently – mainly with resistive load controllers, with the control of electrical heat or the control of valves and motors in conveyor systems. In addition to its use in areas with high switching frequencies, their silent switching means that SIRIUS is also ideally suited for use in noise-sensitive areas, such as offices or hospitals.

#### The most reliable solution for any application

Compared to mechanical controlgear, our SIRIUS 3RF2 solid-state switching devices stand out due to their considerably longer service life. Thanks to the high product quality, their switching is extremely precise, reliable and, above all, insusceptible to faults. With its variable connection methods and a wide spread of control voltages, the SIRIUS 3RF2 family is universally applicable. Depending on the individual requirements of the application, our modular controlgear can also be quite easily expanded by the addition of standardized function modules.

#### Ideal for operation with heating control systems

The 3RF2 solid-state switching devices can be used for example in the SIPLUS HCS300I heating control system. They are optimally connected to the digital output module of the HCS300I by means of preassembled cables. This saves considerable wiring outlay in the control circuit and shortens mounting time.

The HCS300I is a modular heating control system for the optimization of plastic processing machines. It enables individual solutions for many different heating control applications. With each basic unit it is possible to use up to four 6-channel digital outputs to control solid-state switching devices and four 4-channel temperature measuring modules. Current or current-and-voltage measuring modules can be used to monitor the loads. Communication with the higher-level control system is performed via PROFIBUS DP.

See also Chapter 15, "SIPLUS HCS Heating Control Systems" → "SIPLUS HCS300I heating controller".



SIPLUS heating control system

#### Also for switching motors

In order to achieve higher productivity, the switching frequency is continuously increased. It is no problem for our SIRIUS solid-state contactors to switch motors. With three-phase motors up to 7.5 kW, they can reliably withstand even the highest switching frequencies. Even a continuous change in the direction of rotation is possible with the solid-state reversing contactors.

Both versions can be perfectly combined with components from the SIRIUS modular system. Connecting with SIRIUS motor starter protectors or SIRIUS overload relay can be implemented without any further steps.

#### Always on the sunny side with SIRIUS

Because SIRIUS 3RF2 offers even more:

- The space-saving and compact side-by-side mounting ensure reliable operation up to an ambient temperature of +60 °C
- Thanks to fast configuration and the ease of mounting and start up, you save not only time but also expenses

#### **Connection methods**

The solid-state switching devices are available with screw terminals (box terminals), spring-type terminals or ring terminal lugs.



Screw terminals



Spring-type terminals



Ring terminal lug connections

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

## Overview



|                                                      |           | SIRIUS 3RW30<br>Standard applications                                                             | SIRIUS 3RW40<br>Standard applications | SIRIUS 3RW44<br>High-Feature applications |
|------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------|
| <b>Rated current at 40 °C</b>                        | <b>A</b>  | <b>3 ... 106</b>                                                                                  | <b>12.5 ... 432</b>                   | <b>29 ... 1 214</b>                       |
| <b>Rated operational voltage</b>                     | <b>V</b>  | 200 ... 480                                                                                       | 200 ... 600                           | 200 ... 690 <sup>8)</sup>                 |
| <b>Motor rating at 400 V</b>                         |           |                                                                                                   |                                       |                                           |
| • Inline circuit                                     | kW        | 1.5 ... 55                                                                                        | 5.5 ... 250                           | 15 ... 710                                |
|                                                      | hp        | 1.5 ... 75                                                                                        | 7.5 ... 300                           | 15 ... 950                                |
| • Inside-delta circuit                               | kW        | --                                                                                                | --                                    | 22 ... 1 200                              |
|                                                      | hp        | --                                                                                                | --                                    | 30 ... 1 700                              |
| <b>Ambient temperature</b>                           | <b>°C</b> | -25 ... +60                                                                                       | -25 ... +60                           | 0 ... +60                                 |
| <b>Soft starting/ramp-down</b>                       |           | ✓ <sup>1)</sup>                                                                                   | ✓                                     | ✓                                         |
| <b>Voltage ramp</b>                                  |           | ✓                                                                                                 | ✓                                     | ✓                                         |
| <b>Starting/stopping voltage</b>                     | <b>%</b>  | 40 ... 100                                                                                        | 40 ... 100                            | 20 ... 100                                |
| <b>Starting and ramp-down time</b>                   | <b>s</b>  | 0 ... 20 <sup>1)</sup>                                                                            | 0 ... 20                              | 0 ... 360                                 |
| <b>Torque control</b>                                |           | --                                                                                                | --                                    | ✓                                         |
| <b>Starting/stopping torque</b>                      | <b>%</b>  | --                                                                                                | --                                    | 20 ... 100                                |
| <b>Torque limit</b>                                  | <b>%</b>  | --                                                                                                | --                                    | 20 ... 200                                |
| <b>Integral bypass contact system</b>                |           | ✓                                                                                                 | ✓                                     | ✓                                         |
| <b>Intrinsic device protection</b>                   |           | --                                                                                                | ✓                                     | ✓                                         |
| <b>Motor overload protection</b>                     |           | --                                                                                                | ✓ <sup>7)</sup>                       | ✓                                         |
| <b>Thermistor motor protection</b>                   |           | --                                                                                                | ✓ <sup>2)</sup>                       | ✓                                         |
| <b>Integrated remote RESET</b>                       |           | --                                                                                                | ✓ <sup>3)</sup>                       | ✓                                         |
| <b>Adjustable current limiting</b>                   |           | --                                                                                                | ✓                                     | ✓                                         |
| <b>Inside-delta circuit</b>                          |           | --                                                                                                | --                                    | ✓                                         |
| <b>Breakaway pulse</b>                               |           | --                                                                                                | --                                    | ✓                                         |
| <b>Creep speed in both directions of rotation</b>    |           | --                                                                                                | --                                    | ✓                                         |
| <b>Pump ramp-down (torque control)</b>               |           | --                                                                                                | --                                    | ✓ <sup>4)</sup>                           |
| <b>DC braking</b>                                    |           | --                                                                                                | --                                    | ✓ <sup>4)</sup> 5)                        |
| <b>Combined braking</b>                              |           | --                                                                                                | --                                    | ✓ <sup>4)</sup> 5)                        |
| <b>Motor heating</b>                                 |           | --                                                                                                | --                                    | ✓                                         |
| <b>Communications</b>                                |           | --                                                                                                | --                                    | PROFIBUS/PROFINET (optional)              |
| <b>External display and operator module</b>          |           | --                                                                                                | --                                    | (optional)                                |
| <b>Operating measured value display</b>              |           | --                                                                                                | --                                    | ✓                                         |
| <b>Error logbook</b>                                 |           | --                                                                                                | --                                    | ✓                                         |
| <b>Event list</b>                                    |           | --                                                                                                | --                                    | ✓                                         |
| <b>Slave pointer function</b>                        |           | --                                                                                                | --                                    | ✓                                         |
| <b>Trace function</b>                                |           | --                                                                                                | --                                    | ✓ <sup>6)</sup>                           |
| <b>Programmable control inputs and outputs</b>       |           | --                                                                                                | --                                    | ✓                                         |
| <b>Number of parameter sets</b>                      |           | 1                                                                                                 | 1                                     | 3                                         |
| <b>Parameterization software (Soft Starter ES)</b>   |           | --                                                                                                | --                                    | ✓                                         |
| <b>Power semiconductors (thyristors)</b>             |           | 2 controlled phases                                                                               | 2 controlled phases                   | 3 controlled phases                       |
| <b>Screw terminals</b>                               |           | ✓                                                                                                 | ✓                                     | ✓                                         |
| <b>Spring-type terminals</b>                         |           | ✓                                                                                                 | ✓                                     | ✓                                         |
| <b>UL/CSA</b>                                        |           | ✓                                                                                                 | ✓                                     | ✓                                         |
| <b>CE marking</b>                                    |           | ✓                                                                                                 | ✓                                     | ✓                                         |
| <b>Soft starting under heavy starting conditions</b> |           | --                                                                                                | --                                    | ✓ <sup>4)</sup>                           |
| <b>Configuring support</b>                           |           | Electronic selection slider ruler, <a href="#">Technical Assistance</a> , Tel. +49 (911) 895-5900 |                                       |                                           |

✓ Function available, -- Function not available

1) Only soft starting available for 3RW30.

2) Optional up to size S3 (device version).

3) For 3RW402. to 3RW404.; for 3RW405. and 3RW407. optional.

4) Calculate soft starter and motor with size allowance where required.

5) Not possible in inside-delta circuit.

6) Trace function with Soft Starter ES software.

7) When using the motor overload protection according to ATEX, an upstream contactor is required.

8) In inside-delta circuit up to 600 V.

More information, see  
[www.siemens.com/softstarter](http://www.siemens.com/softstarter)

# SIRIUS 3RW Soft Starters

## General data

### Selection aid for soft starters



| Application                                                    | SIRIUS 3RW30<br>Standard applications | SIRIUS 3RW40<br>Standard applications | SIRIUS 3RW44<br>High-Feature applications |
|----------------------------------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------------|
| <b>Normal starting (CLASS 10)</b>                              |                                       |                                       |                                           |
| Pumps                                                          | ●                                     | ●                                     | ●                                         |
| Pumps with special pump ramp-down<br>(to prevent water hammer) |                                       |                                       | ●                                         |
| Heat pumps                                                     | ●                                     | ●                                     | ●                                         |
| Hydraulic pumps                                                | ○                                     | ●                                     | ●                                         |
| Presses                                                        | ○                                     | ●                                     | ●                                         |
| Conveyor belts                                                 | ○                                     | ●                                     | ●                                         |
| Roller conveyors                                               | ○                                     | ●                                     | ●                                         |
| Screw conveyors                                                | ○                                     | ●                                     | ●                                         |
| Escalators                                                     |                                       | ●                                     | ●                                         |
| Piston compressors                                             |                                       | ●                                     | ●                                         |
| Screw compressors                                              |                                       | ●                                     | ●                                         |
| Small fans <sup>1)</sup>                                       |                                       | ●                                     | ●                                         |
| Centrifugal blowers                                            |                                       | ●                                     | ●                                         |
| Bow thrusters                                                  |                                       | ●                                     | ●                                         |
| <b>Heavy starting (CLASS 20)</b>                               |                                       |                                       |                                           |
| Stirrers                                                       |                                       | ○                                     | ●                                         |
| Extruders                                                      |                                       | ○                                     | ●                                         |
| Lathes                                                         |                                       | ○                                     | ●                                         |
| Milling machines                                               |                                       | ○                                     | ●                                         |
| <b>Very heavy starting (CLASS 30)</b>                          |                                       |                                       |                                           |
| Large fans <sup>2)</sup>                                       |                                       |                                       | ●                                         |
| Circular saws/bandsaws                                         |                                       |                                       | ●                                         |
| Centrifuges                                                    |                                       |                                       | ●                                         |
| Mills                                                          |                                       |                                       | ●                                         |
| Breakers                                                       |                                       |                                       | ●                                         |

● Recommended soft starter

○ Possible soft starter

<sup>1)</sup> The mass inertia of the fan is <10 times the mass inertia of the motor.

<sup>2)</sup> The mass inertia of the fan is ≥10 times the mass inertia of the motor.

### Boundary conditions

| Type                                  | Maximum starting time | Current loading | Starts per hour |
|---------------------------------------|-----------------------|-----------------|-----------------|
|                                       | s                     | %               | 1/h             |
| <b>Normal starting (CLASS 10)</b>     |                       |                 |                 |
| • 3RW30                               | 3                     | 300             | 20              |
| • 3RW40/44                            | 10                    | 300             | 5               |
| <b>Heavy starting (CLASS 20)</b>      |                       |                 |                 |
| • 3RW402., 3RW403., 3RW404.           | 20                    | 300             | 5               |
| • 3RW405., 3RW407., 3RW44             | 40                    | 350             | 1               |
| <b>Very heavy starting (CLASS 30)</b> |                       |                 |                 |
| • 3RW44                               | 60                    | 350             | 1               |

The motor ratings listed in the Selection and Ordering Data are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor. 3RW soft starters are designed for easy starting conditions. In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see "Manuals":  
<http://support.automation.siemens.com/WW/view/en/38752095>  
<http://support.automation.siemens.com/WW/view/en/21772518>

For the configuration of soft starters for motors with high starting current conditions (typically  $I/I_e \geq 8$ ), we recommend consulting our Siemens Technical Assistance  
 Tel.: +49 911 895-5900  
 E-mail: [technical-assistance@siemens.com](mailto:technical-assistance@siemens.com)

Motor rating data in kW and hp are based on IEC 60947-4-1.

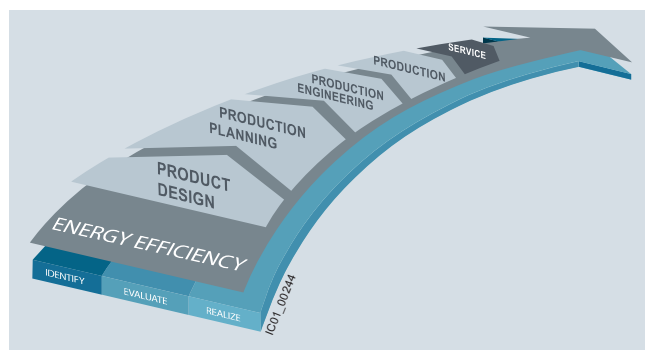
**Article No. scheme**

| Digit of the article No.                                                          | 1st - 3rd    | 4th      | 5th      | 6th      | 7th      |          | 8th      | 9th      | 10th     | 11th     | 12th     |   | 13th | 14th | 15th | 16th |
|-----------------------------------------------------------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|------|------|------|------|
|                                                                                   | □□□          | □        | □        | □        | □        | –        | □        | □        | □        | □        | □        | – | □    | □    | □    | □    |
| <b>SIRIUS soft starters</b>                                                       | <b>3 R W</b> |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>SIRIUS soft starter generation</b> (30/40/44)                                  | □ □          |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Size</b> (e.g. for 3RW30/40: 1 = S00, 2 = S0, 3 = S2, 4 = S3, 5 = S6, 7 = S12) | □            |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Rated operational current <math>I_e</math></b>                                 | □            |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Connection type</b> (screw terminals/spring-type terminals)                    | □            |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Soft starter functionality</b> (bypass, thermistor, etc.)                      | □ □          |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Rated control supply voltage <math>U_s</math></b>                              | □            |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Rated operational voltage <math>U_e</math></b>                                 | □            |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Special versions</b>                                                           | □ □ □ □      |          |          |          |          |          |          |          |          |          |          |   |      |      |      |      |
| <b>Example</b>                                                                    | <b>3 R W</b> | <b>4</b> | <b>0</b> | <b>2</b> | <b>4</b> | <b>–</b> | <b>1</b> | <b>B</b> | <b>B</b> | <b>1</b> | <b>4</b> |   |      |      |      |      |

**Note:**

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

**Benefits****Advantages through energy efficiency**

Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

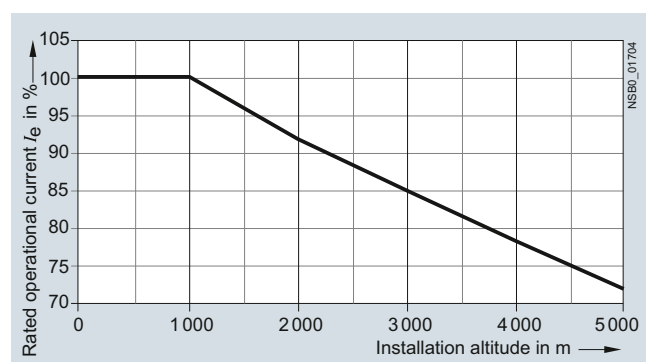
The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see [www.siemens.com/sirius/energysaving](http://www.siemens.com/sirius/energysaving)).

The soft starters contribute to energy efficiency throughout the plant as follows:

- **Energy management**  
Provision of energy data such as current, voltage and power (3RW44) by bus to higher-level systems
- **Current management**  
Avoidance of current peaks, thus reducing the load on the grid and the mechanical system
- **Reduced heating of the control cabinet**  
Technology-reduced inherent power loss as speed-controlled drive systems, resulting in lower cooling costs and a more compact design. All sizes are equipped with bypass contactor, resulting in lower power losses after start up

**Product advantages**

- Soft starting and ramp-down (only soft starting available for 3RW30)
- Stepless starting
- Reduction of current peaks
- Avoidance of mains voltage fluctuations during starting
- Reduced load on the power supply network
- Reduction of the mechanical load in the operating mechanism
- Considerable space savings and reduced wiring compared with conventional starters
- Maintenance-free switching
- Very easy handling
- Fits perfectly in the SIRIUS modular system

**Technical specifications****Permissible installation altitude**

At an installation altitude above 2000 m, max. permissible operational voltage is reduced to 460 V.

## SIRIUS 3RW Soft Starters

### 3RW30, 3RW40 for Standard Applications

#### 3RW30

#### Overview

The SIRIUS 3RW30 soft starters reduce the motor voltage through variable phase control and increase it in ramp-like mode from a selectable starting voltage up to mains voltage. During starting, these devices limit the torque as well as the current and prevent the shocks which arise during direct starts or wye-delta starts. In this way, mechanical loads and mains voltage dips can be reliably reduced.

Soft starting reduces the stress on the connected equipment and results in lower wear and therefore longer periods of trouble-free production. The selectable start value means that the soft starters can be adjusted individually to the requirements of the application in question and unlike wye-delta starters are not restricted to two-stage starting with fixed voltage ratios.

The SIRIUS 3RW30 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that no power loss has to be taken into the bargain at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

Various versions of the SIRIUS 3RW30 soft starters are available:

- Standard version for fixed-speed three-phase motors, sizes S00, S0, S2 and S3, with integrated bypass contact system
- Version for fixed-speed three-phase motors in a 22.5 mm enclosure without bypass

Soft starters rated up to 55 kW (at 400 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple commissioning are just three of the many advantages of this soft starter.

#### Functionality

The space required by the compact SIRIUS 3RW30 soft starter is often only about one third of that required by a contactor assembly for wye-delta starting of comparable rating. This not only saves space in the control cabinet and on the standard mounting rail but also does away completely with the wiring work needed for wye-delta starters. This is notable in particular for higher motor ratings which are only rarely available as fully wired solutions.

At the same time the number of cables from the starter to the motor is reduced from six to three. Compact dimensions, short start-up times, easy wiring and fast commissioning make themselves felt as clear-cut cost advantages.

The bypass contacts of these soft starters are protected during operation by an integrated solid-state arc quenching system. This prevents damage to the bypass contacts in the event of a fault, e.g. brief disconnection of the control voltage, mechanical hocks or life-related component defects on the coil operating mechanism or main contact spring.

The new series of devices comes with the "polarity balancing" control method, which is designed to prevent direct current components in two-phase controlled soft starters. On two-phase controlled soft starters the current resulting from superimposition of the two controlled phases flows in the uncontrolled phase. This results for physical reasons in an asymmetric distribution of the three phase currents during the motor ramp-up. This phenomenon cannot be influenced, but in most applications it is non-critical.

Controlling the power semiconductors results not only in this asymmetry, however, but also in the previously mentioned direct current components which can cause severe noise generation on the motor at starting voltages of less than 50 %. The control method used for these soft starters eliminates these direct current components during the ramp-up phase and prevents the braking torque which they can cause.

It creates a motor ramp-up that is uniform in speed, torque and current rise, thus permitting a particularly gentle, two-phase starting of the motors. At the same time the acoustic quality of the starting operation comes close to the quality of a three-phase controlled soft starter. This is made possible by the on-going dynamic harmonizing and balancing of current half-waves of different polarity during the motor ramp-up. Hence the name "polarity balancing".

- Soft starting with voltage ramp; the starting voltage setting range  $U_s$  ranges from 40 to 100 %, and the ramp time  $t_R$  can be set from 0 to 20 s
- Integrated bypass contact system to minimize power loss
- Setting with two potentiometers
- Simple mounting and commissioning
- Mains voltages 50/60 Hz, 200 to 480 V
- Two control voltage versions 24 V AC/DC and 110 to 230 V AC/DC
- Wide temperature range from -25 to +60 °C
- The built-in auxiliary contact ensures user-friendly control and possible further processing within the system (for status graphs, [see page 6/18](#)).

#### Application

The 3RW30 soft starters are suitable for soft starting of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time. Due to continuous voltage influencing, the current and torque peaks which are unavoidable in the case of wye-delta starters for instance do not occur.

#### Application areas

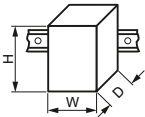
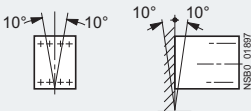
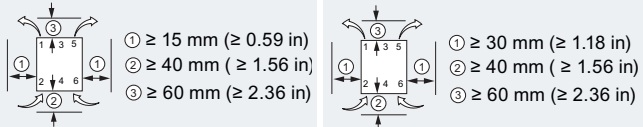
See "Selection aid for soft starters", page 6/6.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

3RW30

### Technical specifications

| Type                                                                                   |                                                                                   | 3RW301.                                                                                | 3RW302.                                                                            | 3RW303.        | 3RW304.        |                |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------|----------------|----------------|
| <b>Mechanics and environment</b>                                                       |                                                                                   |                                                                                        |                                                                                    |                |                |                |
| <b>Mounting dimensions (W x H x D)</b><br>• Screw terminals<br>• Spring-type terminals |  | mm                                                                                     | 45 x 95 x 151                                                                      | 45 x 125 x 151 | 55 x 144 x 168 | 70 x 160 x 186 |
|                                                                                        |                                                                                   | mm                                                                                     | 45 x 117 x 151                                                                     | 45 x 150 x 151 | 55 x 144 x 168 | 70 x 160 x 186 |
| <b>Permissible ambient temperature</b>                                                 |                                                                                   |                                                                                        |                                                                                    |                |                |                |
| During operation                                                                       | °C                                                                                | -25 ... +60; (derating from +40)                                                       |                                                                                    |                |                |                |
| During storage                                                                         | °C                                                                                | -40 ... +80                                                                            |                                                                                    |                |                |                |
| <b>Weight</b>                                                                          | kg                                                                                | 0.58                                                                                   | 0.69                                                                               | 1.20           | 1.71           |                |
| <b>Permissible mounting position<sup>1)</sup></b><br>(auxiliary fan not available)     |                                                                                   |      |                                                                                    |                |                |                |
| <b>Installation type<sup>1)</sup></b>                                                  |                                                                                   | Stand-alone installation                                                               |  |                |                |                |
| <b>Permissible installation altitude</b>                                               | m                                                                                 | 5 000<br>(derating from 1000, see "Characteristic Curves" page 6/7); higher on request |                                                                                    |                |                |                |
| <b>Degree of protection</b>                                                            |                                                                                   | IP20 for 3RW301. and 3RW302.;<br>IP00 for 3RW303. and 3RW304.                          |                                                                                    |                |                |                |

<sup>1)</sup> Please note derating information in case of deviations, see the Manual in Chapter "Configuration":  
<http://support.automation.siemens.com/WW/view/en/38752095>

| Type                         |                   | 3RW301., 3RW302. | 3RW303., 3RW304. |
|------------------------------|-------------------|------------------|------------------|
| <b>Control electronics</b>   |                   |                  |                  |
| <b>Rated values</b>          | Terminal<br>A1/A2 | V                |                  |
|                              |                   |                  |                  |
| Rated control supply voltage |                   | 24               | 110 ... 230      |
| • Tolerance                  |                   | ±20              | -15/+10          |
| Rated frequency              |                   | 50/60            |                  |
| • Tolerance                  |                   | ±10              |                  |

| Type                                                       |      | 3RW301.           | 3RW302. | 3RW303. | 3RW304. |
|------------------------------------------------------------|------|-------------------|---------|---------|---------|
| <b>Power electronics</b>                                   |      |                   |         |         |         |
| <b>Rated operational voltage</b>                           | V AC | 200 ... 480       |         |         |         |
|                                                            |      | -15/+10           |         |         |         |
| <b>Rated frequency</b>                                     | Hz   | 50/60             |         |         |         |
|                                                            |      | ±10               |         |         |         |
| <b>Uninterrupted duty</b> at 40 °C (% of $I_e$ )           | %    | 115               |         |         |         |
| <b>Minimum load</b> (% of $I_e$ )                          | %    | 10 (at least 1 A) |         |         |         |
| <b>Maximum cable length</b> between soft starter and motor | m    | 300               |         |         |         |

| Type                                                                                                       |     | 3RW3013   | 3RW3014   | 3RW3016 | 3RW3017     | 3RW3018     |
|------------------------------------------------------------------------------------------------------------|-----|-----------|-----------|---------|-------------|-------------|
| <b>Power electronics</b>                                                                                   |     |           |           |         |             |             |
| <b>Load rating with rated operational current <math>I_e</math></b>                                         |     |           |           |         |             |             |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                              |     |           |           |         |             |             |
| - At 40 °C                                                                                                 | A   | 3.6       | 6.5       | 9       | 12.5        | 17.6        |
| - At 50 °C                                                                                                 | A   | 3.3       | 6         | 8       | 12          | 17          |
| - At 60 °C                                                                                                 | A   | 3         | 5.5       | 7       | 11          | 14          |
| <b>Power loss</b>                                                                                          |     |           |           |         |             |             |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx.       |     |           |           |         |             |             |
| W                                                                                                          |     | 0.25      | 0.5       | 1       | 2           | 4           |
| • During starting with 300 % $I_M$ (40 °C)                                                                 |     |           |           |         |             |             |
| W                                                                                                          |     | 24        | 52        | 80      | 80          | 116         |
| <b>Permissible rated motor current and starts per hour for normal starting (CLASS 10) at 40 °C / 50 °C</b> |     |           |           |         |             |             |
| - Rated motor current $I_M^{(2)}$ , starting time 3 s                                                      | A   | 3.6 / 3.3 | 6.5 / 6.0 | 9 / 8   | 12.5 / 12.0 | 17.6 / 17.0 |
| - Starts per hour <sup>3)</sup>                                                                            | 1/h | 200 / 150 | 87 / 60   | 50 / 50 | 85 / 70     | 62 / 46     |
| - Rated motor current $I_M^{(2)}$ , starting time 4 s                                                      | A   | 3.6 / 3.3 | 6.5 / 6.0 | 9 / 8   | 12.5 / 12.0 | 17.6 / 17.0 |
| - Starts per hour <sup>3)</sup>                                                                            | 1/h | 150 / 100 | 64 / 46   | 35 / 35 | 62 / 47     | 45 / 32     |

<sup>1)</sup> Measurement at 60 °C according to UL/CSA not required.

<sup>2)</sup> With 300 %  $I_M$ ,  $T_U = 40 °C / 50 °C$ .

<sup>3)</sup> For intermittent duty S4 with ON period = 30 %,  $T_U = 40 °C / 50 °C$ , stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW30

| Type                                                                                                       |     | 3RW3026 | 3RW3027 | 3RW3028 |
|------------------------------------------------------------------------------------------------------------|-----|---------|---------|---------|
| <b>Power electronics</b>                                                                                   |     |         |         |         |
| <b>Load rating with rated operational current <math>I_e</math></b>                                         |     |         |         |         |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                              |     |         |         |         |
| - At 40 °C                                                                                                 | A   | 25.3    | 32.2    | 38      |
| - At 50 °C                                                                                                 | A   | 23      | 29      | 34      |
| - At 60 °C                                                                                                 | A   | 21      | 26      | 31      |
| <b>Power loss</b>                                                                                          |     |         |         |         |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx.       | W   | 8       | 13      | 19      |
| • During starting with 300 % $I_M$ (40 °C)                                                                 | W   | 188     | 220     | 256     |
| <b>Permissible rated motor current and starts per hour for normal starting (CLASS 10) at 40 °C / 50 °C</b> |     |         |         |         |
| - Rated motor current $I_M^{(2)}$ , starting time 3 s                                                      | A   | 25 / 23 | 32 / 29 | 38 / 34 |
| - Starts per hour <sup>3)</sup>                                                                            | 1/h | 23 / 23 | 23 / 23 | 19 / 19 |
| - Rated motor current $I_M^{(2)}$ , starting time 4 s                                                      | A   | 25 / 23 | 32 / 29 | 38 / 34 |
| - Starts per hour <sup>3)</sup>                                                                            | 1/h | 15 / 15 | 16 / 16 | 12 / 12 |

1) Measurement at 60 °C according to UL/CSA not required.

2) With 300 %  $I_M$ ,  $T_U = 40 °C / 50 °C$ .

3) For intermittent duty S4 with ON period = 30 %,  $T_U = 40 °C / 50 °C$ , stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency with deviating mounting position, direct mounting, side-by-side mounting, see the Manual in Chapter "Configuration":  
<http://support.automation.siemens.com/WW/view/en/38752095>

| Type                                                                                                       |     | 3RW3036 | 3RW3037 | 3RW3038 | 3RW3046 | 3RW3047   |
|------------------------------------------------------------------------------------------------------------|-----|---------|---------|---------|---------|-----------|
| <b>Power electronics</b>                                                                                   |     |         |         |         |         |           |
| <b>Load rating with rated operational current <math>I_e</math></b>                                         |     |         |         |         |         |           |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                              |     |         |         |         |         |           |
| - At 40 °C                                                                                                 | A   | 45      | 65      | 72      | 80      | 106       |
| - At 50 °C                                                                                                 | A   | 42      | 58      | 62.1    | 73      | 98        |
| - At 60 °C                                                                                                 | A   | 39      | 53      | 60      | 66      | 90        |
| <b>Power loss</b>                                                                                          |     |         |         |         |         |           |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx.       | W   | 6       | 12      | 15      | 12      | 21        |
| • During starting with 300 % $I_M$ (40 °C)                                                                 | W   | 316     | 444     | 500     | 576     | 768       |
| <b>Permissible rated motor current and starts per hour for normal starting (CLASS 10) at 40 °C / 50 °C</b> |     |         |         |         |         |           |
| - Rated motor current $I_M^{(2)}$ , starting time 3 s                                                      | A   | 45 / 42 | 63 / 58 | 72 / 62 | 80 / 73 | 106 / 108 |
| - Starts per hour <sup>3)</sup>                                                                            | 1/h | 38 / 38 | 23 / 23 | 22 / 22 | 22 / 22 | 15 / 15   |
| - Rated motor current $I_M^{(2)}$ , starting time 4 s                                                      | A   | 45 / 42 | 63 / 58 | 72 / 62 | 80 / 73 | 106 / 98  |
| - Starts per hour <sup>3)</sup>                                                                            | 1/h | 26 / 26 | 15 / 15 | 15 / 15 | 15 / 15 | 10 / 10   |

1) Measurement at 60 °C according to UL/CSA not required.

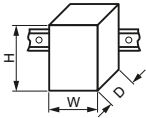
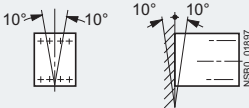
2) With 300 %  $I_M$ ,  $T_U = 40 °C / 50 °C$ .

3) For intermittent duty S4 with ON period = 30 %,  $T_U = 40 °C / 50 °C$ , stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

3RW30

| Type                                                                                                                                                                                                                                 | 3RW3003-1CB54                                                                      |                                                                                                              | 3RW3003-2CB54                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Mechanics and environment                                                                                                                                                                                                            |                                                                                    |                                                                                                              |                                              |
| <b>Mounting dimensions (W x H x D)</b><br>• Screw terminals<br>• Spring-type terminals                                                                                                                                               |   | mm<br>mm                                                                                                     | 22.5 x 100 x 120<br>--<br>22.5 x 101.6 x 120 |
| <b>Permissible ambient temperature</b><br>During operation<br>During storage                                                                                                                                                         | °C<br>°C                                                                           | -25 ... +60; (derating from +40)<br>-40 ... +80                                                              |                                              |
| <b>Weight</b>                                                                                                                                                                                                                        | kg                                                                                 | 0.207                                                                                                        | 0.188                                        |
| <b>Permissible mounting position</b>                                                                                                                                                                                                 |  |                                                                                                              |                                              |
| <b>Permissible installation altitude</b>                                                                                                                                                                                             | m                                                                                  | 5 000<br>(derating from 1 000, <a href="#">see "Characteristic Curves", page 6/7</a> );<br>higher on request |                                              |
| <b>Degree of protection</b> acc. to IEC 60529                                                                                                                                                                                        | IP20 (IP00 terminal compartment)                                                   |                                                                                                              |                                              |
| Control electronics                                                                                                                                                                                                                  |                                                                                    |                                                                                                              |                                              |
| <b>Rated values</b><br>Rated control supply voltage<br>• Tolerance<br>Rated frequency at AC<br>• Tolerance                                                                                                                           | V<br>%<br>Hz<br>%                                                                  | 24 ... 230 AC/DC<br>± 10<br>50/60<br>± 10                                                                    |                                              |
| Power electronics                                                                                                                                                                                                                    |                                                                                    |                                                                                                              |                                              |
| <b>Rated operational voltage</b><br>Tolerance                                                                                                                                                                                        | V AC<br>%                                                                          | 200 ... 400<br>± 10                                                                                          |                                              |
| <b>Rated frequency</b><br>Tolerance                                                                                                                                                                                                  | Hz<br>%                                                                            | 50/60<br>±10                                                                                                 |                                              |
| <b>Uninterrupted duty</b> (% of $I_e$ )                                                                                                                                                                                              | %                                                                                  | 100                                                                                                          |                                              |
| <b>Minimum load<sup>1)</sup></b> (% of $I_e$ ); at 40 °C                                                                                                                                                                             | %                                                                                  | 9                                                                                                            |                                              |
| <b>Maximum conductor length</b> between soft starter and motor                                                                                                                                                                       | m                                                                                  | 100 <sup>2)</sup>                                                                                            |                                              |
| <b>Load rating with rated operational current <math>I_e</math></b><br>• According to IEC and UL/CSA for individual mounting at 40/50/60 °C, AC-53a<br>• According to IEC and UL/CSA for side-by-side-mounting at 40/50/60 °C, AC-53a | A<br>A                                                                             | 3 / 2.6 / 2.2<br>2.6 / 2.2 / 1.8                                                                             |                                              |
| <b>Power loss</b><br>• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.<br>• At utilization of maximum switching frequency                                                         | W<br>W                                                                             | 6.5<br>3                                                                                                     |                                              |
| <b>Permissible starts per hour (cannot be increased by using a fan)</b><br>• For intermittent duty S4 $T_u = 40$ °C, stand-alone installation vertical<br>• ON period = 70 % for 300 % $I_e$                                         | 1/h<br>1/s                                                                         | 1 500<br>0.2                                                                                                 |                                              |
| <b>Dead time after uninterrupted duty</b><br>With $I_a$ before restart                                                                                                                                                               | s                                                                                  | 0                                                                                                            |                                              |

<sup>1)</sup> The rated motor current (specified on the motor's name plate) should at least amount to the specified percentage of the SIRIUS soft starter unit's rated operational current  $I_e$ .

<sup>2)</sup> If this value is exceeded, problems with line capacities may arise, which can result in false firing.

## SIRIUS 3RW Soft Starters

### 3RW30, 3RW40 for Standard Applications

#### 3RW30

##### Motor feeders with soft starters

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, then semiconductor fuses must be fitted in the motor feeder.

**ToC 1**

Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

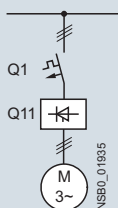
**ToC 2**

Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

#### Fuseless version



| Soft starters            |                 | Motor starter protectors <sup>1)</sup> |                 |      |
|--------------------------|-----------------|----------------------------------------|-----------------|------|
| <b>ToC 1</b>             | Nominal current | 400 V + 10 %                           | Rated current   |      |
| Q11                      | A               | Q1                                     | $I_{q \max}$ kA | A    |
| Type                     | A               | Type                                   | kA              | A    |
| Type of coordination "1" |                 |                                        |                 |      |
| 3RW3003                  | 3               | 3RV2011-1EA                            | 50              | 4    |
| 3RW3013                  | 3.6             | 3RV2011-1FA                            | 5               | 5    |
| 3RW3014                  | 6.5             | 3RV2011-1HA                            | 5               | 8    |
| 3RW3016                  | 9               | 3RV2011-1JA                            | 5               | 10   |
| 3RW3017                  | 12.5            | 3RV2011-1KA                            | 5               | 12.5 |
| 3RW3018                  | 17.6            | 3RV2021-4BA                            | 5               | 20   |
| 3RW3026                  | 25              | 3RV2021-4DA                            | 55              | 25   |
| 3RW3027                  | 32              | 3RV2021-4EA                            | 55              | 32   |
| 3RW3028                  | 38              | 3RV2021-4FA                            | 55              | 40   |
| 3RW3036                  | 45              | 3RV1031-4GA10                          | 20              | 45   |
| 3RW3037                  | 63              | 3RV1041-4JA10                          | 20              | 63   |
| 3RW3038                  | 72              | 3RV1041-4KA10                          | 20              | 75   |
| 3RW3046                  | 80              | 3RV1041-4LA10                          | 11              | 90   |
| 3RW3047                  | 106             | 3RV1041-4MA10                          | 11              | 100  |

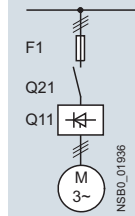
<sup>1)</sup> The rated motor current must be considered when selecting the devices.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

3RW30

### Fused version (line protection only)



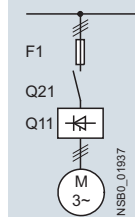
| Soft starters<br>ToC 1                                                                   | Nominal current | Line protection, maximum |                 |      | Line contactors (optional) |
|------------------------------------------------------------------------------------------|-----------------|--------------------------|-----------------|------|----------------------------|
|                                                                                          |                 | F1 Type                  | Rated current A | Size |                            |
| Q11 Type                                                                                 | A               | F1 Type                  | A               |      | Q21 Type                   |
| Type of coordination "1" <sup>1)</sup> : $I_q = 65 \text{ kA at } 480 \text{ V} + 10 \%$ |                 |                          |                 |      |                            |
| 3RW3003 <sup>2)</sup>                                                                    | 3               | 3NA3805 <sup>3)</sup>    | 20              | 000  | 3RT2015                    |
| 3RW3013                                                                                  | 3.6             | 3NA3803-6                | 10              | 000  | 3RT2015                    |
| 3RW3014                                                                                  | 6.5             | 3NA3805-6                | 16              | 000  | 3RT2015                    |
| 3RW3016                                                                                  | 9               | 3NA3807-6                | 20              | 000  | 3RT2016                    |
| 3RW3017                                                                                  | 12.5            | 3NA3810-6                | 25              | 000  | 3RT2018                    |
| 3RW3018                                                                                  | 17.6            | 3NA3814-6                | 35              | 000  | 3RT2026                    |
| 3RW3026                                                                                  | 25              | 3NA3822-6                | 63              | 00   | 3RT2026                    |
| 3RW3027                                                                                  | 32              | 3NA3824-6                | 80              | 00   | 3RT2027                    |
| 3RW3028                                                                                  | 38              | 3NA3824-6                | 80              | 00   | 3RT2028                    |
| 3RW3036                                                                                  | 45              | 3NA3130-6                | 100             | 1    | 3RT1036                    |
| 3RW3037                                                                                  | 63              | 3NA3132-6                | 125             | 1    | 3RT1044                    |
| 3RW3038                                                                                  | 72              | 3NA3132-6                | 125             | 1    | 3RT1045                    |
| 3RW3046                                                                                  | 80              | 3NA3136-6                | 160             | 1    | 3RT1045                    |
| 3RW3047                                                                                  | 106             | 3NA3136-6                | 160             | 1    | 3RT1046                    |

<sup>1)</sup> The type of coordination "1" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

<sup>2)</sup>  $I_q = 50 \text{ kA at } 400 \text{ V}$ .

<sup>3)</sup> 3NA3805-1 (NH00), 5SB261 (DIAZED), 5SE2201-6 (NEOZED).

### Fused version with 3NE1 SITOR fuses (semiconductor and line protection)



Matching fuse bases, see Catalog LV 10

- Chapter 5 "Fuse Systems" → "SITOR Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters<br>ToC 2                                                                   | Nominal current | All-range fuses         |                 |      | Line contactors (optional) |
|------------------------------------------------------------------------------------------|-----------------|-------------------------|-----------------|------|----------------------------|
|                                                                                          |                 | F1 Type                 | Rated current A | Size |                            |
| Q11 Type                                                                                 | A               | F1 Type                 | A               |      | Q21 Type                   |
| Type of coordination "2" <sup>1)</sup> : $I_q = 65 \text{ kA at } 480 \text{ V} + 10 \%$ |                 |                         |                 |      |                            |
| 3RW3003 <sup>2)</sup>                                                                    | 3               | 3NE1813-0 <sup>3)</sup> | 16              | 000  | 3RT2015                    |
| 3RW3013                                                                                  | 3.6             | 3NE1813-0               | 16              | 000  | 3RT2015                    |
| 3RW3014                                                                                  | 6.5             | 3NE1813-0               | 16              | 000  | 3RT2015                    |
| 3RW3016                                                                                  | 9               | 3NE1813-0               | 16              | 000  | 3RT2016                    |
| 3RW3017                                                                                  | 12.5            | 3NE1813-0               | 16              | 000  | 3RT2018                    |
| 3RW3018                                                                                  | 17.6            | 3NE1814-0               | 20              | 000  | 3RT2026                    |
| 3RW3026                                                                                  | 25              | 3NE1803-0               | 35              | 000  | 3RT2026                    |
| 3RW3027                                                                                  | 32              | 3NE1020-2               | 80              | 00   | 3RT2027                    |
| 3RW3028                                                                                  | 38              | 3NE1020-2               | 80              | 00   | 3RT2028                    |
| 3RW3036                                                                                  | 45              | 3NE1020-2               | 80              | 00   | 3RT1036                    |
| 3RW3037                                                                                  | 63              | 3NE1820-0               | 80              | 000  | 3RT1044                    |
| 3RW3038                                                                                  | 72              | 3NE1820-0               | 80              | 000  | 3RT1045                    |
| 3RW3046                                                                                  | 80              | 3NE1021-0               | 100             | 00   | 3RT1045                    |
| 3RW3047                                                                                  | 106             | 3NE1022-0               | 125             | 00   | 3RT1046                    |

<sup>1)</sup> The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

<sup>2)</sup>  $I_q = 50 \text{ kA at } 400 \text{ V}$ .

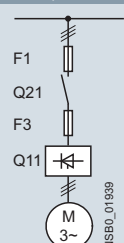
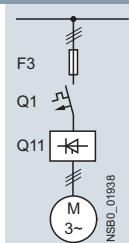
<sup>3)</sup> No SITOR fuse required!  
Alternatively: 3NA3803 (NH00), 5SB221 (DIAZED), 5SE2206 (NEOZED).

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW30

**Fused version with 3NE3 SITOR fuses** (semiconductor protection by fuse, line and overload protection by motor starter protector; alternatively, installation with contactor and overload relay possible)



Matching fuse bases, see [Catalog LV 10](#)

- Chapter 5 "Fuse Systems" → "SITOR Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters<br><div>TC<br/>2</div>                                            | Nominal current | Semiconductor fuses, minimum |                    |      | Semiconductor fuses, maximum |                    |      | Semiconductor fuses, minimum |                    |      |
|---------------------------------------------------------------------------------|-----------------|------------------------------|--------------------|------|------------------------------|--------------------|------|------------------------------|--------------------|------|
|                                                                                 |                 | F3<br>Type                   | Rated current<br>A | Size | F3<br>Type                   | Rated current<br>A | Size | F3<br>Type                   | Rated current<br>A | Size |
| Q11<br>Type                                                                     | A               | F3<br>Type                   | A                  |      | F3<br>Type                   | A                  |      | F3<br>Type                   | A                  |      |
| Type of coordination "2" <sup>1)</sup> : I <sub>q</sub> = 65 kA at 480 V + 10 % |                 |                              |                    |      |                              |                    |      |                              |                    |      |
| 3RW3003 <sup>2)</sup>                                                           | 3               | --                           | --                 | --   | --                           | --                 | --   | --                           | --                 | --   |
| 3RW3013                                                                         | 3.6             | --                           | --                 | --   | --                           | --                 | --   | 3NE4101                      | 32                 | 0    |
| 3RW3014                                                                         | 6.5             | --                           | --                 | --   | --                           | --                 | --   | 3NE4101                      | 32                 | 0    |
| 3RW3016                                                                         | 9               | --                           | --                 | --   | --                           | --                 | --   | 3NE4101                      | 32                 | 0    |
| 3RW3017                                                                         | 12.5            | --                           | --                 | --   | --                           | --                 | --   | 3NE4101                      | 32                 | 0    |
| 3RW3018                                                                         | 17.6            | --                           | --                 | --   | 3NE3221                      | 100                | 1    | 3NE4101                      | 32                 | 0    |
| 3RW3026                                                                         | 25              | --                           | --                 | --   | 3NE3221                      | 100                | 1    | 3NE4102                      | 40                 | 0    |
| 3RW3027                                                                         | 32              | --                           | --                 | --   | 3NE3222                      | 125                | 1    | 3NE4118                      | 63                 | 0    |
| 3RW3028                                                                         | 38              | --                           | --                 | --   | 3NE3222                      | 125                | 1    | 3NE4118                      | 63                 | 0    |
| 3RW3036                                                                         | 45              | --                           | --                 | --   | 3NE3224                      | 160                | 1    | 3NE4120                      | 80                 | 0    |
| 3RW3037                                                                         | 63              | --                           | --                 | --   | 3NE3225                      | 200                | 1    | 3NE4121                      | 100                | 0    |
| 3RW3038                                                                         | 72              | 3NE3221                      | 100                | 1    | 3NE3227                      | 250                | 1    | --                           | --                 | --   |
| 3RW3046                                                                         | 80              | 3NE3222                      | 125                | 1    | 3NE3225                      | 200                | 1    | --                           | --                 | --   |
| 3RW3047                                                                         | 106             | 3NE3224                      | 160                | 1    | 3NE3231                      | 350                | 1    | --                           | --                 | --   |

| Soft starters<br>Q11<br>Type                                                    | Nominal<br>current<br>A | Semiconductor fuses max. |                    |      | Semiconductor fuses min. |                    |      | Semiconductor fuses max. |                    |      | Cylindrical fuses |                    |
|---------------------------------------------------------------------------------|-------------------------|--------------------------|--------------------|------|--------------------------|--------------------|------|--------------------------|--------------------|------|-------------------|--------------------|
|                                                                                 |                         | F3<br>Type               | Rated current<br>A | Size | F3<br>Type               | Rated current<br>A | Size | F3<br>Type               | Rated current<br>A | Size | F3<br>Type        | Rated current<br>A |
| Type of coordination "2" <sup>1)</sup> : I <sub>q</sub> = 65 kA at 480 V + 10 % |                         |                          |                    |      |                          |                    |      |                          |                    |      |                   |                    |
| 3RW3003 <sup>2)</sup>                                                           | 3                       | --                       | --                 | --   | 3NE8015-1                | 25                 | 00   | 3NE8015-1                | 25                 | 00   | 3NC1010           | 10                 |
| 3RW3013                                                                         | 3.6                     | --                       | --                 | --   | 3NE8015-1                | 25                 | 00   | 3NE8015-1                | 25                 | 00   | 3NC2220           | 20                 |
| 3RW3014                                                                         | 6.5                     | --                       | --                 | --   | 3NE8015-1                | 25                 | 00   | 3NE8015-1                | 25                 | 00   | 3NC2220           | 20                 |
| 3RW3016                                                                         | 9                       | --                       | --                 | --   | 3NE8015-1                | 25                 | 00   | 3NE8015-1                | 25                 | 00   | 3NC2220           | 20                 |
| 3RW3017                                                                         | 12.5                    | --                       | --                 | --   | 3NE8015-1                | 25                 | 00   | 3NE8018-1                | 63                 | 00   | 3NC2250           | 50                 |
| 3RW3018                                                                         | 17.6                    | --                       | --                 | --   | 3NE8003-1                | 35                 | 00   | 3NE8021-1                | 100                | 00   | 3NC2263           | 63                 |
| 3RW3026                                                                         | 25                      | 3NE4117                  | 50                 | 0    | 3NE8017-1                | 50                 | 00   | 3NE8021-1                | 100                | 00   | 3NC2263           | 63                 |
| 3RW3027                                                                         | 32                      | 3NE4118                  | 63                 | 0    | 3NE8018-1                | 63                 | 00   | 3NE8022-1                | 125                | 00   | 3NC2280           | 80                 |
| 3RW3028                                                                         | 38                      | 3NE4118                  | 63                 | 0    | 3NE8020-1                | 80                 | 00   | 3NE8022-1                | 125                | 00   | 3NC2280           | 80                 |
| 3RW3036                                                                         | 45                      | 3NE4120                  | 80                 | 0    | 3NE8020-1                | 80                 | 00   | 3NE8024-1                | 160                | 00   | 3NC2280           | 80                 |
| 3RW3037                                                                         | 63                      | 3NE4121                  | 100                | 0    | 3NE8021-1                | 100                | 00   | 3NE8024-1                | 160                | 00   | --                | --                 |
| 3RW3038                                                                         | 72                      | --                       | --                 | --   | 3NE8022-1                | 125                | 00   | 3NE8024-1                | 160                | 00   | --                | --                 |
| 3RW3046                                                                         | 80                      | --                       | --                 | --   | 3NE8022-1                | 125                | 00   | 3NE8024-1                | 160                | 00   | --                | --                 |
| 3RW3047                                                                         | 106                     | --                       | --                 | --   | 3NE8024-1                | 160                | 00   | 3NE8024-1                | 160                | 00   | --                | --                 |

| Soft starters<br><div>ToC<br/>2</div>                                           | Nominal<br>current | Line contactors | Motor starter protectors |               | Line protection, maximum |               |      |
|---------------------------------------------------------------------------------|--------------------|-----------------|--------------------------|---------------|--------------------------|---------------|------|
|                                                                                 |                    | (optional)      | 400 V + 10 %             | Rated current |                          | Rated current | Size |
| Q11<br>Type                                                                     | A                  | Q21             | Q1<br>Type               | A             | F1<br>Type               | A             |      |
| Type of coordination "2" <sup>1)</sup> : I <sub>q</sub> = 65 kA at 480 V + 10 % |                    |                 |                          |               |                          |               |      |
| 3RW3003 <sup>2)</sup>                                                           | 3                  | 3RT2015         | 3RV2011-1EA              | 4             | 3NA3805 <sup>3)</sup>    | 20            | 000  |
| 3RW3013                                                                         | 3.6                | 3RT2015         | 3RV2011-1FA              | 5             | 3NA3803-6                | 10            | 000  |
| 3RW3014                                                                         | 6.5                | 3RT2015         | 3RV2011-1HA              | 8             | 3NA3805-6                | 16            | 000  |
| 3RW3016                                                                         | 9                  | 3RT2016         | 3RV2011-1JA              | 10            | 3NA3807-6                | 20            | 000  |
| 3RW3017                                                                         | 12.5               | 3RT2018         | 3RV2011-1KA              | 12.5          | 3NA3810-6                | 25            | 000  |
| 3RW3018                                                                         | 17.6               | 3RT2026         | 3RV2021-4BA              | 20            | 3NA3814-6                | 35            | 000  |
| 3RW3026                                                                         | 25                 | 3RT2026         | 3RV2021-4DA              | 25            | 3NA3822-6                | 63            | 00   |
| 3RW3027                                                                         | 32                 | 3RT2027         | 3RV2021-4EA              | 32            | 3NA3824-6                | 80            | 00   |
| 3RW3028                                                                         | 38                 | 3RT2028         | 3RV2021-4FA              | 40            | 3NA3824-6                | 80            | 00   |
| 3RW3036                                                                         | 45                 | 3RT1036         | 3RV1031-4GA10            | 45            | 3NA3130-6                | 100           | 1    |
| 3RW3037                                                                         | 63                 | 3RT1044         | 3RV1041-4JA10            | 63            | 3NA3132-6                | 125           | 1    |
| 3RW3038                                                                         | 72                 | 3RT1045         | 3RV1041-4KA10            | 75            | 3NA3132-6                | 125           | 1    |
| 3RW3046                                                                         | 80                 | 3RT1045         | 3RV1041-4LA10            | 90            | 3NA3136-6                | 160           | 1    |
| 3RW3047                                                                         | 106                | 3RT1046         | 3RV1041-4MA10            | 100           | 3NA3136-6                | 160           | 1    |

<sup>1)</sup> The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

<sup>2)</sup>  $I_q = 50 \text{ kA at } 400 \text{ V}$ .

<sup>3)</sup> 3NA3805-1 (NH00), 5SB261 (DIAZED).

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

3RW30

### Selection and ordering data



3RW301.1



3RW302.2



3RW303.3



3RW304.4



3RW3003-2CB54

| 3RW ambient temperature 40 °C                 |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       | Size        | DT <sup>1)</sup> | Configurator  | PU<br>(UNIT,<br>SET, M) | PS* | PG     |     |
|-----------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|-------------|------------------|--------------------------------------------------------------------------------------------------|-------------------------|-----|--------|-----|
| Rated values of<br>three-phase motors         |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |             |                  |                                                                                                  |                         |     |        |     |
| Operational<br>current $I_e$                  | Rating at<br>operational voltage $U_e$ |       |       | Operational<br>current $I_e$          | Rating at<br>operational voltage $U_e$ |       |       | Article No. | Price<br>per PU  |                                                                                                  |                         |     |        |     |
|                                               | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V |             |                  | 575 V                                                                                            |                         |     |        |     |
| A                                             | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    | hp          |                  |                                                                                                  |                         |     |        |     |
| Rated operational voltage $U_e$ 200 ... 480 V |                                        |       |       |                                       |                                        |       |       |             |                  |                                                                                                  |                         |     |        |     |
| 3.6                                           | 0.75                                   | 1.5   | --    | 3                                     | 0.5                                    | 0.5   | 1.5   | --          | S00              | A                                                                                                | 3RW3013-□BB□4           | 1   | 1 unit | 42G |
| 6.5                                           | 1.5                                    | 3     | --    | 6                                     | 1                                      | 1     | 3     | --          | S00              | A                                                                                                | 3RW3014-□BB□4           | 1   | 1 unit | 42G |
| 9                                             | 2.2                                    | 4     | --    | 8                                     | 2                                      | 2     | 5     | --          | S00              | A                                                                                                | 3RW3016-□BB□4           | 1   | 1 unit | 42G |
| 12.5                                          | 3                                      | 5.5   | --    | 12                                    | 3                                      | 3     | 7.5   | --          | S00              | A                                                                                                | 3RW3017-□BB□4           | 1   | 1 unit | 42G |
| 17.6                                          | 4                                      | 7.5   | --    | 17                                    | 3                                      | 3     | 10    | --          | S00              | A                                                                                                | 3RW3018-□BB□4           | 1   | 1 unit | 42G |
| 25                                            | 5.5                                    | 11    | --    | 23                                    | 5                                      | 5     | 15    | --          | S0               | A                                                                                                | 3RW3026-□BB□4           | 1   | 1 unit | 42G |
| 32                                            | 7.5                                    | 15    | --    | 29                                    | 7.5                                    | 7.5   | 20    | --          | S0               | A                                                                                                | 3RW3027-□BB□4           | 1   | 1 unit | 42G |
| 38                                            | 11                                     | 18.5  | --    | 34                                    | 10                                     | 10    | 25    | --          | S0               | A                                                                                                | 3RW3028-□BB□4           | 1   | 1 unit | 42G |
| 45                                            | 11                                     | 22    | --    | 42                                    | 10                                     | 15    | 30    | --          | S2               | A                                                                                                | 3RW3036-□BB□4           | 1   | 1 unit | 42G |
| 63                                            | 18.5                                   | 30    | --    | 58                                    | 15                                     | 20    | 40    | --          | S2               | A                                                                                                | 3RW3037-□BB□4           | 1   | 1 unit | 42G |
| 72                                            | 22                                     | 37    | --    | 62                                    | 20                                     | 20    | 40    | --          | S2               | A                                                                                                | 3RW3038-□BB□4           | 1   | 1 unit | 42G |
| 80                                            | 22                                     | 45    | --    | 73                                    | 20                                     | 25    | 50    | --          | S3               | A                                                                                                | 3RW3046-□BB□4           | 1   | 1 unit | 42G |
| 106                                           | 30                                     | 55    | --    | 98                                    | 30                                     | 30    | 75    | --          | S3               | A                                                                                                | 3RW3047-□BB□4           | 1   | 1 unit | 42G |

Article No. supplement for connection types

• With screw terminals

• With spring-type terminals<sup>2)</sup>

Article No. supplement for rated control supply voltage  $U_s$

• 24 V AC/DC

• 110 ... 230 V AC/DC

1

2

0

1

#### Article No. supplement for connection types

- With screw terminals
- With spring-type terminals<sup>2)</sup>

#### Article No. supplement for rated control supply voltage $U_s$

- 24 V AC/DC
- 110 ... 230 V AC/DC

#### Soft starters for easy starting conditions and high switching frequency, rated operational voltage $U_e$ 200 ... 400 V, rated control supply voltage $U_s$ 24 ... 230 V AC/DC

|   |      |     |    |     |     |     |    |    |         |  |               |  |   |        |     |
|---|------|-----|----|-----|-----|-----|----|----|---------|--|---------------|--|---|--------|-----|
| 3 | 0.55 | 1.1 | -- | 2.6 | 0.5 | 0.5 | -- | -- | 22.5 mm |  | 3RW3003-1CB54 |  | 1 | 1 unit | 42G |
|   |      |     |    |     |     |     |    |    |         |  | 3RW3003-2CB54 |  | 1 | 1 unit | 42G |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

- 1) Soft starter with screw terminals: delivery time class ► (preferred type).  
 2) Main circuit connection: screw terminals.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The SIRIUS 3RW30 solid-state soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 3
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 20
- Stand-alone installation (side-by-side, see manual, <http://support.automation.siemens.com/WW/view/en/38752095>)

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW30

#### Accessories

| Conductor cross-section | Solid or stranded | Finely stranded with end sleeve | AWG cables, solid or stranded | Tightening torque | For soft starters size | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------------|-------------------|---------------------------------|-------------------------------|-------------------|------------------------|----|-------------|--------------|-------------------|-----|----|
|                         |                   |                                 |                               |                   |                        |    |             |              |                   |     |    |
| mm²                     | mm²               | mm²                             | AWG                           | Nm                |                        |    |             |              |                   |     |    |

#### Three-phase infeed terminals



3RV2925-5AB

|            |            |          |         |                               |   |                    |  |  |   |        |     |
|------------|------------|----------|---------|-------------------------------|---|--------------------|--|--|---|--------|-----|
| 2.5 ... 25 | 2.5 ... 16 | 10 ... 4 | 3 ... 4 | S00 (3RW301.)<br>S0 (3RW302.) | ► | <b>3RV2925-5AB</b> |  |  | 1 | 1 unit | 41E |
|------------|------------|----------|---------|-------------------------------|---|--------------------|--|--|---|--------|-----|

| For soft starters | Type | Size | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|------|------|----|-------------|--------------|-------------------|-----|----|
|                   |      |      |    |             |              |                   |     |    |

#### Auxiliary terminals



3RT1946-4F

|                                    |           |  |   |                   |  |   |        |     |
|------------------------------------|-----------|--|---|-------------------|--|---|--------|-----|
| <b>Auxiliary terminals, 3-pole</b> |           |  |   |                   |  |   |        |     |
| 3RW304.                            | <b>S3</b> |  | B | <b>3RT1946-4F</b> |  | 1 | 1 unit | 41B |

#### Covers for soft starters



3RT2936-4EA2

**Terminal covers for box terminals**  
Additional touch protection to be fitted at the box terminals (2 units required per device)

|         |           |            |   |                     |  |   |        |     |
|---------|-----------|------------|---|---------------------|--|---|--------|-----|
| 3RW303. | <b>S2</b> | <b>NEW</b> | B | <b>3RT2936-4EA2</b> |  | 1 | 1 unit | 41B |
| 3RW304. | <b>S3</b> |            | ► | <b>3RT1946-4EA2</b> |  | 1 | 1 unit | 41B |



3RT1946-4EA1

**Terminal covers for cable lugs and busbar connections**  
For complying with the voltage clearances and as touch protection if box terminal is removed (2 units required per device)

|         |           |  |   |                     |  |   |        |     |
|---------|-----------|--|---|---------------------|--|---|--------|-----|
| 3RW304. | <b>S3</b> |  | B | <b>3RT1946-4EA1</b> |  | 1 | 1 unit | 41B |
|---------|-----------|--|---|---------------------|--|---|--------|-----|

| For motor starter protectors | For soft starters | Version                                                      | DT | Article No.          | Price per PU | PU (UNIT, SET, M) | PS*      | PG  |
|------------------------------|-------------------|--------------------------------------------------------------|----|----------------------|--------------|-------------------|----------|-----|
| Size                         | Size              |                                                              |    |                      |              |                   |          |     |
| --                           | S0                | For pushing onto the busbar adapter, including fixing screws | A  | <b>8US1998-7CB45</b> |              | 1                 | 10 units | 14O |

#### Standard mounting rail adapters **NEW**

|    |    |                                                                                                                                 |   |                      |  |   |        |     |
|----|----|---------------------------------------------------------------------------------------------------------------------------------|---|----------------------|--|---|--------|-----|
|    |    | For mechanical fixing of motor starter protector and soft starter; for snapping onto standard mounting rail or for screw fixing |   |                      |  |   |        |     |
| S2 | S2 | <b>Single-unit packaging</b>                                                                                                    | A | <b>3RA2932-1CA00</b> |  | 1 | 1 unit | 41B |

#### Manual for SIRIUS 3RW30/3RW40 soft starters<sup>1)</sup>

The manual can be downloaded free of charge in PDF format from the Internet, see <http://support.automation.siemens.com/WW/view/en/38752095>

<sup>1)</sup> The operating instructions for 3RW30 (3ZX1012-0RW30-2DA1) are included in the scope of supply of the soft starter or are available – like the manual – as a PDF download from the Service&Support portal at [www.siemens.com/industrial-controls/support](http://www.siemens.com/industrial-controls/support). Search the section "Switching Devices" → "Soft Starters and Solid-State Switching Devices" → "SIRIUS 3RW Soft Starters".

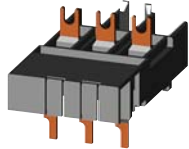
# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

3RW30

| For soft starters | Motor starter protectors | DT   | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|--------------------------|------|-------------|--------------|-------------------|-----|----|
| Type              | Size                     | Size |             |              |                   |     |    |

### Link modules to motor starter protectors<sup>1)</sup>



3RA2921-1BA00

- With screw terminals

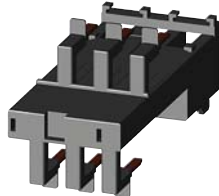
|                       |            |               |
|-----------------------|------------|---------------|
| 3RW301.               | <b>S00</b> | <b>S00</b>    |
| 3RW302.               | <b>S0</b>  | <b>S00/S0</b> |
| 3RW3036.              | <b>S2</b>  | <b>S2</b>     |
| 3RW3046.,<br>3RW3047. | <b>S3</b>  | <b>S3</b>     |

NEW

A  
A  
A  
▶

**3RA2921-1BA00**  
**3RA2921-1BA00**  
**3RA2931-1AA00**  
**3RA1941-1AA00**

1 1 unit 41B  
 1 1 unit 41B  
 1 1 unit 41B  
 1 1 unit 41B



3RA2921-2GA00

- With spring-type terminals

|         |            |            |
|---------|------------|------------|
| 3RW301. | <b>S00</b> | <b>S00</b> |
| 3RW302. | <b>S0</b>  | <b>S0</b>  |

▶  
▶

**3RA2911-2GA00**  
**3RA2921-2GA00**

1 1 unit 41B  
 1 1 unit 41B

- <sup>1)</sup> Can be used in size S0 up to maximum 32 A.  
 Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1AC00 standard mounting rail adapter (specially for soft starters).  
 Can be used in size S3 only for 3RW1 motor starter protectors.

| Version | Functionality Functions | Use | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---------|-------------------------|-----|----|-------------|--------------|-------------------|-----|----|
|---------|-------------------------|-----|----|-------------|--------------|-------------------|-----|----|

### Covers and push-in lugs (only for 3RW30 03)



3RP1902

**Sealable covers** For securing against unauthorized adjustment of setting knobs

For devices with 1 or 2 CO contacts

B

**3RP1902**

1 5 units 41H



3RP1903

**Push-in lugs**  
 For screw fixings

For devices with 1 or 2 CO contacts

B

**3RP1903**

1 10 units 41H

| Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---------|----|-------------|--------------|-------------------|-----|----|
|---------|----|-------------|--------------|-------------------|-----|----|

### Tool for opening spring-type terminals in sizes S00 and S0



3RA2908-1A

**Screwdrivers**  
 For all SIRIUS devices with spring-type terminals length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated

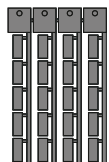
A

### Spring-type terminals

**3RA2908-1A**

1 1 unit 41B

### Blank labels



3RT2900-1SB20

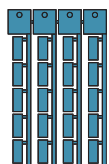
### Unit labeling plates<sup>1)</sup>

- 20 mm x 7 mm, titanium gray

D

**3RT2900-1SB20**

100 340 units 41B



3RT1900-1SB20

- 20 mm x 7 mm, pastel turquoise

D

**3RT1900-1SB20**

100 340 units 41B

<sup>1)</sup> PC labeling systems for individual inscription of unit labeling plates are available from: murrplastik Systemtechnik GmbH

(see Chapter 16, "Appendix" → "External Partners").

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW30

#### More information

#### Application examples for normal starting (CLASS 10)

**Normal starting CLASS 10** (up to 20 s with 300 %  $I_{n \text{ motor}}$ , one start per hour)

The soft starter rating can be selected to be as high as the rating of the motor used

| Application                         |   | Conveyor belts | Roller conveyors | Compressors | Small fans <sup>1)</sup> | Pumps | Hydraulic pumps |
|-------------------------------------|---|----------------|------------------|-------------|--------------------------|-------|-----------------|
| <b>Starting parameters</b>          |   |                |                  |             |                          |       |                 |
| • Voltage ramp and current limiting |   |                |                  |             |                          |       |                 |
| - Starting voltage                  | % | 70             | 60               | 50          | 40                       | 40    | 40              |
| - Starting time                     | s | 10             | 10               | 20          | 20                       | 10    | 10              |

<sup>1)</sup> The mass inertia of the fan is <10 times the mass inertia of the motor.

#### Note:

These tables present sample set values and device dimensions. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during commissioning.

The soft starter dimensions should be checked where necessary with the help of Technical Assistance.

#### Configuration

The 3RW solid-state motor controllers are designed for easy starting conditions. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device.

If necessary, an overload relay for heavy starting must be selected where long starting times are involved. PTC sensors are recommended.

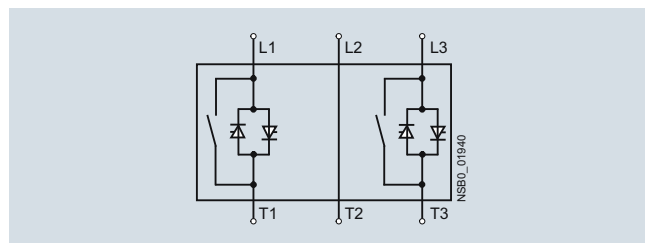
No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses, controls and overload relays) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately. Please observe the maximum switching frequencies specified in the technical specifications.

#### Note:

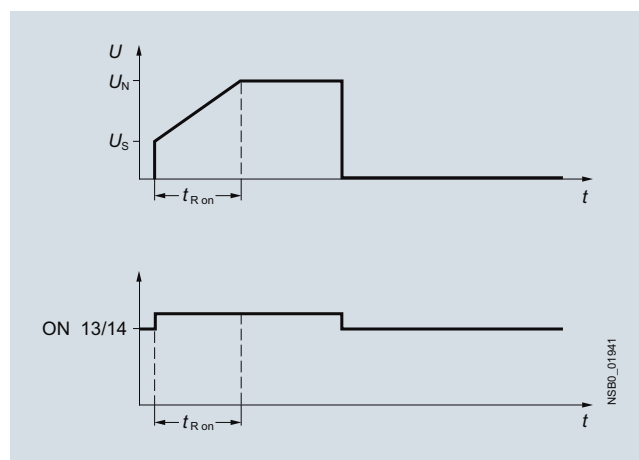
When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

#### Schematic circuit diagram of power electronics



A bypass contact system is already integrated in the 3RW30 soft starter and therefore does not have to be ordered separately.

#### Status graphs



#### Manual for SIRIUS 3RW30/40

In addition to relevant configuration, commissioning, and service information, the manual also contains example circuits and technical specifications for all devices:

<http://support.automation.siemens.com/WW/view/en/38752095>

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### General data

#### Overview

SIRIUS 3RW40 soft starters have all the same advantages as the 3RW30 soft starters.

The SIRIUS 3RW40 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that no power loss has to be taken into the bargain at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

At the same time this soft starter comes with additional integrated functions such as adjustable current limiting, motor overload and intrinsic device protection, and optional thermistor motor protection. The higher the motor rating, the more important these functions because they make it unnecessary to purchase and install protection equipment such as overload relays.

Internal intrinsic device protection prevents the thermal overloading of the thyristors and the power section defects this can cause. As an option the thyristors can also be protected by semiconductor fuses from short-circuiting.

Thanks to integrated status monitoring and fault monitoring, this compact soft starter offers many different diagnostics options. Up to four LEDs and relay outputs permit differentiated monitoring and diagnostics of the operating mechanism by indicating the operating state as well as for example mains or phase failure, missing load, non-permissible tripping time/CLASS setting, thermal overloading or device faults.

Soft starters rated up to 250 kW (at 400 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple start up are just three of the many advantages of the SIRIUS 3RW40 soft starters.

#### **"Increased safety" type of protection EEx e according to ATEX directive 94/9/EC**

The 3RW40 soft starter sizes S0 to S12 are suitable for the starting of explosion-proof motors with "increased safety" type of protection EEx e.

#### **Functionality**

The space required by the compact SIRIUS 3RW40 soft starter is often only about one third of that required by a contactor assembly for wye-delta starting of comparable rating. This not only saves space in the control cabinet and on the standard mounting rail but also does away completely with the wiring work needed for wye-delta starters. This is notable in particular for higher motor ratings which are only rarely available as fully wired solutions.

At the same time the number of cables from the starter to the motor is reduced from six to three. Compact dimensions, short start-up times, easy wiring and fast commissioning make themselves felt as clear-cut cost advantages.

The bypass contacts of these soft starters are protected during operation by an integrated solid-state arc quenching system. This prevents damage to the bypass contacts in the event of a fault, e.g. brief disconnection of the control voltage, mechanical shocks or life-related component defects on the coil operating mechanism or main contact spring.

The starting current of particularly powerful operating mechanisms can place an unjustifiable load on the local supply system. Soft starters reduce this starting current by means of their voltage ramp. Thanks to the adjustable current limiting, the SIRIUS 3RW40 soft starter takes even more pressure off the supply system. It leaves the set start ramp during the ramp-up – the ramp gradient is fixed by the starting voltage and the ramp time – as soon as the selected current limit is reached. From this moment the voltage of the soft starter is controlled so that the current supplied to the motor remains constant. This process is ended either by completion of the motor ramp-up or by tripping by the intrinsic device protection or the motor overload protection. As the result of this function the actual motor ramp-up can well take longer than the ramp time selected on the soft starter.

Thanks to the integrated motor overload protection according to IEC 60947-4-2, there is no need for an additional overload relay on the new soft starters. The rated motor current, the setting of the overload tripping time (CLASS times) and the reset of the motor overload protection function can be adjusted easily and quickly. Using a 4-step rotary potentiometer it is possible to set different overload tripping times on the soft starter. In addition to CLASS 10, 15 and 20 it is also possible to switch off the motor overload protection if a different motor management control device is to be used for this function, e.g. with connection to PROFIBUS.

Device versions with thermistor motor protection evaluation are available up to a rating of 55 kW (at 400 V). A "Thermoclick" measuring probe can be connected directly, as can a PTC of type A. Thermal overloading of the motor, open circuits and short circuits in the sensor circuit all result in the direct disconnection of the soft starter. And if ever the soft starter trips, various reset options are available the same as with intrinsic device protection and motor load protection: manually with the reset button, automatically or remotely through brief disconnection of the control voltage.

The new series of devices comes with the "polarity balancing" control method, which is designed to prevent direct current components in two-phase controlled soft starters. On two-phase controlled soft starters the current resulting from superimposition of the two controlled phases flows in the uncontrolled phase. This results for physical reasons in an asymmetric distribution of the three phase currents during the motor ramp-up. This phenomenon cannot be influenced, but in most applications it is non-critical.

Controlling the power semiconductors results not only in this asymmetry, however, but also in the previously mentioned direct current components which can cause severe noise generation on the motor at starting voltages of less than 50 %.

The control method used for these soft starters eliminates these direct current components during the ramp-up phase and prevents the braking torque which they can cause. It creates a motor ramp-up that is uniform in speed, torque and current rise, thus permitting a particularly gentle, two-phase starting of the motors. At the same time the acoustic quality of the starting operation comes close to the quality of a three-phase controlled soft starter. This is made possible by the on-going dynamic harmonizing and balancing of current half-waves of different polarity during the motor ramp-up. Hence the name "polarity balancing".

#### **Application**

The SIRIUS 3RW40 solid-state soft starters are used for the soft starting and stopping of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time and disturbing direct current components are eliminated in addition. This not only enables the two-phase starting of motors up to 250 kW (at 400 V) but also avoids the current and torque peaks which occur e.g. with wye-delta starters.

#### **Application areas**

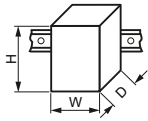
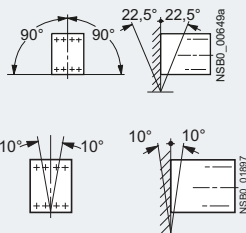
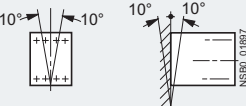
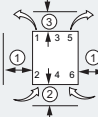
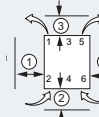
See "Selection aid for soft starters" on page 6/6.

# SIRIUS 3RW Soft Starters

3RW30, 3RW40 for Standard Applications  
3RW40

## General data

### Technical specifications

| Type                                                 |                                                                                    | 3RW402.                                                                              | 3RW403.                                                                                | 3RW404.                                                                 | 3RW405.                  | 3RW407.                                 |                 |
|------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------|-----------------------------------------|-----------------|
| Mechanics and environment                            |                                                                                    |                                                                                      |                                                                                        |                                                                         |                          |                                         |                 |
| Mounting dimensions (W x H x D)                      |                                                                                    |                                                                                      |                                                                                        |                                                                         |                          |                                         |                 |
| • Screw terminals                                    |   | mm                                                                                   | 45 x 125 x 154                                                                         | 55 x 144 x 170                                                          | 70 x 160 x 188           | 120 x 198 x 250                         | 160 x 230 x 278 |
| • Spring-type terminals                              |                                                                                    | mm                                                                                   | 45 x 150 x 154                                                                         | 55 x 144 x 170                                                          | 70 x 160 x 188           | 120 x 198 x 250                         | 160 x 230 x 278 |
| Permissible ambient temperature                      |                                                                                    |                                                                                      |                                                                                        |                                                                         |                          |                                         |                 |
| During operation                                     | °C                                                                                 | -25 ... +60; (derating from +40)                                                     |                                                                                        |                                                                         |                          |                                         |                 |
| During storage                                       | °C                                                                                 | -40 ... +80                                                                          |                                                                                        |                                                                         |                          |                                         |                 |
| Weight                                               | kg                                                                                 | 0.77                                                                                 | 1.35                                                                                   | 1.9                                                                     | 4.9 (.55.)<br>6.9 (.56.) | 8.9                                     |                 |
| Permissible mounting position <sup>1)</sup>          |                                                                                    |                                                                                      |                                                                                        |                                                                         |                          |                                         |                 |
| • With auxiliary fan<br>(for 3RW402. ... 3RW404.)    |  |                                                                                      |                                                                                        |                                                                         |                          |                                         |                 |
| • Without auxiliary fan<br>(for 3RW402. ... 3RW404.) |  |                                                                                      |                                                                                        |                                                                         |                          | -- (fan integrated in the soft starter) |                 |
| Installation type <sup>1)</sup>                      |                                                                                    | Stand-alone installation                                                             |                                                                                        |                                                                         |                          |                                         |                 |
|                                                      |                                                                                    | 3RW402.                                                                              |                                                                                        | 3RW405., 3RW407.                                                        |                          |                                         |                 |
|                                                      |                                                                                    |    |                                                                                        | ① ≥ 5 mm (≥ 0.2 in)<br>② ≥ 75 mm (≥ 3 in)<br>③ ≥ 100 mm (≥ 4 in)        |                          |                                         |                 |
|                                                      |                                                                                    | ① ≥ 15 mm (≥ 0.59 in)<br>② ≥ 40 mm (≥ 1.56 in)<br>③ ≥ 60 mm (≥ 2.36 in)              |                                                                                        |                                                                         |                          |                                         |                 |
|                                                      |                                                                                    | 3RW403., 3RW404.                                                                     |                                                                                        |                                                                         |                          |                                         |                 |
|                                                      |                                                                                    |  |                                                                                        | ① ≥ 30 mm (≥ 1.18 in)<br>② ≥ 40 mm (≥ 1.56 in)<br>③ ≥ 60 mm (≥ 2.36 in) |                          |                                         |                 |
| Permissible installation altitude                    |                                                                                    | m                                                                                    | 5 000<br>(derating from 1000, see "Characteristic Curves" page 6/7); higher on request |                                                                         |                          |                                         |                 |
| Degree of protection                                 |                                                                                    | IP20 for 3RW402.; all others IP00                                                    |                                                                                        |                                                                         |                          |                                         |                 |

<sup>1)</sup> Please note derating information in case of deviations, see the Manual in Chapter "Configuration":  
<http://support.automation.siemens.com/WW/view/en/38752095>

| Type                         |                | 3RW402., 3RW403., 3RW404. | 3RW405., 3RW407. |
|------------------------------|----------------|---------------------------|------------------|
| <b>Control electronics</b>   |                |                           |                  |
| <b>Rated values</b>          | Terminal A1/A2 | V                         |                  |
|                              |                |                           |                  |
| Rated control supply voltage |                | 24 DC/AC                  | 115 AC 230 AC    |
| • Tolerance                  |                | ±20                       | -15/+10          |
| Rated frequency              |                | 50/60                     |                  |
| • Tolerance                  |                | ±10                       |                  |

| Type                                                                            |      | 3RW402.-..B.4,<br>3RW403.-..B.4,<br>3RW404.-..B.4 | 3RW402.-..B.5,<br>3RW403.-..B.5,<br>3RW404.-..B.5 | 3RW405.-..BB.4,<br>3RW407.-..BB.4 | 3RW405.-..BB.5,<br>3RW407.-..BB.5 |
|---------------------------------------------------------------------------------|------|---------------------------------------------------|---------------------------------------------------|-----------------------------------|-----------------------------------|
| <b>Power electronics</b>                                                        |      |                                                   |                                                   |                                   |                                   |
| <b>Rated operational voltage</b>                                                | V AC | 200 ... 480                                       | 400 ... 600                                       | 200 ... 460                       | 400 ... 600                       |
|                                                                                 |      |                                                   |                                                   |                                   |                                   |
| Tolerance                                                                       | %    | -15/+10                                           | -15/+10                                           | -15/+10                           | -15/+10                           |
| <b>Maximum blocking voltage (thyristor)</b>                                     | V AC | 1 600                                             |                                                   | 1 400                             | 1 800                             |
| <b>Rated frequency</b>                                                          | Hz   | 50/60                                             |                                                   |                                   |                                   |
|                                                                                 |      |                                                   |                                                   |                                   |                                   |
| Tolerance                                                                       | %    | ±10                                               |                                                   |                                   |                                   |
| <b>Uninterrupted duty at 40 °C (% of I<sub>e</sub>)</b>                         | %    | 115                                               |                                                   |                                   |                                   |
| <b>Minimum load (% of minimum selectable rated motor current I<sub>M</sub>)</b> | %    | 20 (at least 2 A)                                 |                                                   |                                   |                                   |
| <b>Maximum cable length between soft starter and motor</b>                      | m    | 300                                               |                                                   |                                   |                                   |

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### General data

| Type                                                                                                 |     | 3RW4024   | 3RW4026 | 3RW4027 | 3RW4028 |
|------------------------------------------------------------------------------------------------------|-----|-----------|---------|---------|---------|
| <b>Power electronics</b>                                                                             |     |           |         |         |         |
| <b>Load rating with rated operational current <math>I_e</math></b>                                   |     |           |         |         |         |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                        |     |           |         |         |         |
| - At 40 °C                                                                                           | A   | 12.5      | 25.3    | 32.2    | 38      |
| - At 50 °C                                                                                           | A   | 11        | 23      | 29      | 34      |
| - At 60 °C                                                                                           | A   | 10        | 21      | 26      | 31      |
| <b>Smallest adjustable rated motor current <math>I_M</math></b>                                      |     |           |         |         |         |
| For the motor overload protection                                                                    | A   | 5         | 10      | 17      | 23      |
| <b>Power loss</b>                                                                                    |     |           |         |         |         |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W   | 2         | 8       | 13      | 19      |
| • During starting with current limit set to 300 % $I_M$ (40 °C)                                      | W   | 68        | 188     | 220     | 256     |
| <b>Permissible rated motor current and starts per hour at 40 °C / 50 °C</b>                          |     |           |         |         |         |
| <b>• For normal starting (CLASS 10)</b>                                                              |     |           |         |         |         |
| - Rated motor current $I_M^{(2)}$ , starting time 3 s                                                | A   | 12.5 / 11 | 25 / 23 | 32 / 29 | 38 / 34 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 50 / 50   | 23 / 23 | 23 / 23 | 19 / 19 |
| - Rated motor current $I_M^{(2)}$ , starting time 4 s                                                | A   | 12.5 / 11 | 25 / 23 | 32 / 29 | 38 / 34 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 36 / 36   | 15 / 15 | 16 / 16 | 12 / 12 |
| <b>• For heavy starting (CLASS 15)</b>                                                               |     |           |         |         |         |
| - Rated motor current $I_M^{(2)}$ , starting time 4.5 s                                              | A   | 11 / 10   | 23 / 21 | 30 / 27 | 34 / 31 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 49 / 49   | 21 / 21 | 18 / 18 | 18 / 18 |
| - Rated motor current $I_M^{(2)}$ , starting time 6 s                                                | A   | 11 / 10   | 23 / 21 | 30 / 27 | 34 / 31 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 36 / 36   | 14 / 14 | 13 / 13 | 13 / 13 |
| <b>• For heavy starting (CLASS 20)</b>                                                               |     |           |         |         |         |
| - Rated motor current $I_M^{(2)}$ , starting time 6 s                                                | A   | 10 / 9    | 21 / 19 | 27 / 24 | 31 / 28 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 47 / 47   | 21 / 21 | 20 / 20 | 18 / 18 |
| - Rated motor current $I_M^{(2)}$ , starting time 8 s                                                | A   | 10 / 9    | 21 / 19 | 27 / 24 | 31 / 28 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 34 / 34   | 15 / 15 | 14 / 14 | 13 / 13 |

1) Measurement at 60 °C according to UL/CSA not required.

2) Current limit on soft starter set to 300 %  $I_M$ ,  $T_u = 40 °C / 50 °C$ .  
Maximum adjustable rated motor current  $I_M$  dependent on CLASS setting.

3) For intermittent duty S4 with ON period = 30 %,  $T_u = 40 °C / 50 °C$ , stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see the Manual in Chapter "Configuration":  
<http://support.automation.siemens.com/WW/view/en/38752095>

| Type                                                                                                 |     | 3RW4036 | 3RW4037 | 3RW4038 | 3RW4046 | 3RW4047  |
|------------------------------------------------------------------------------------------------------|-----|---------|---------|---------|---------|----------|
| <b>Power electronics</b>                                                                             |     |         |         |         |         |          |
| <b>Load rating with rated operational current <math>I_e</math></b>                                   |     |         |         |         |         |          |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                        |     |         |         |         |         |          |
| - At 40 °C                                                                                           | A   | 45      | 63      | 72      | 80      | 106      |
| - At 50 °C                                                                                           | A   | 42      | 58      | 62.1    | 73      | 98       |
| - At 60 °C                                                                                           | A   | 39      | 53      | 60      | 66      | 90       |
| <b>Smallest adjustable rated motor current <math>I_M</math></b>                                      |     |         |         |         |         |          |
| For the motor overload protection                                                                    | A   | 23      | 26      | 35      | 43      | 46       |
| <b>Power loss</b>                                                                                    |     |         |         |         |         |          |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W   | 6       | 12      | 15      | 12      | 21       |
| • During starting with current limit set to 300 % $I_M$ (40 °C)                                      | W   | 316     | 444     | 500     | 576     | 768      |
| <b>Permissible rated motor current and starts per hour at 40 °C / 50 °C</b>                          |     |         |         |         |         |          |
| <b>• For normal starting (CLASS 10)</b>                                                              |     |         |         |         |         |          |
| - Rated motor current $I_M^{(2)}$ , starting time 3 s                                                | A   | 45 / 42 | 63 / 58 | 72 / 62 | 80 / 73 | 106 / 98 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 38 / 38 | 23 / 23 | 22 / 22 | 22 / 22 | 15 / 15  |
| - Rated motor current $I_M^{(2)}$ , starting time 4 s                                                | A   | 45 / 42 | 63 / 58 | 72 / 62 | 80 / 73 | 106 / 98 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 26 / 26 | 15 / 15 | 15 / 15 | 15 / 15 | 10 / 10  |
| <b>• For heavy starting (CLASS 15)</b>                                                               |     |         |         |         |         |          |
| - Rated motor current $I_M^{(2)}$ , starting time 4.5 s                                              | A   | 42 / 38 | 50 / 46 | 56 / 52 | 70 / 64 | 84 / 77  |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 30 / 30 | 34 / 34 | 34 / 34 | 24 / 24 | 23 / 23  |
| - Rated motor current $I_M^{(2)}$ , starting time 6 s                                                | A   | 42 / 38 | 50 / 46 | 56 / 52 | 70 / 64 | 84 / 77  |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 21 / 21 | 24 / 24 | 24 / 24 | 16 / 16 | 17 / 17  |
| <b>• For heavy starting (CLASS 20)</b>                                                               |     |         |         |         |         |          |
| - Rated motor current $I_M^{(2)}$ , starting time 6 s                                                | A   | 38 / 34 | 46 / 42 | 50 / 46 | 64 / 58 | 77 / 70  |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 30 / 30 | 31 / 31 | 34 / 34 | 23 / 23 | 23 / 23  |
| - Rated motor current $I_M^{(2)}$ , starting time 8 s                                                | A   | 38 / 34 | 46 / 42 | 50 / 46 | 64 / 58 | 77 / 70  |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 21 / 21 | 22 / 22 | 24 / 24 | 16 / 16 | 16 / 16  |

1) Measurement at 60 °C according to UL/CSA not required.

2) Current limit on soft starter set to 300 %  $I_M$ ,  $T_u = 40 °C / 50 °C$ .  
Maximum adjustable rated motor current  $I_M$  dependent on CLASS setting.

3) For intermittent duty S4 with ON period = 30 %,  $T_u = 40 °C / 50 °C$ , stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see the Manual in Chapter "Configuration":  
<http://support.automation.siemens.com/WW/view/en/38752095>

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### General data

| Type                                                                                                 |     | 3RW4055   | 3RW4056   | 3RW4073   | 3RW4074   | 3RW4075   | 3RW4076   |
|------------------------------------------------------------------------------------------------------|-----|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Power electronics</b>                                                                             |     |           |           |           |           |           |           |
| <b>Load rating with rated operational current <math>I_e</math></b>                                   |     |           |           |           |           |           |           |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                        |     |           |           |           |           |           |           |
| - At 40 °C                                                                                           | A   | 134       | 162       | 230       | 280       | 356       | 432       |
| - At 50 °C                                                                                           | A   | 117       | 145       | 205       | 248       | 315       | 385       |
| - At 60 °C                                                                                           | A   | 100       | 125       | 180       | 215       | 280       | 335       |
| <b>Smallest adjustable rated motor current <math>I_M</math></b>                                      |     |           |           |           |           |           |           |
| For the motor overload protection                                                                    | A   | 59        | 87        | 80        | 130       | 131       | 207       |
| <b>Power loss</b>                                                                                    |     |           |           |           |           |           |           |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. |     | W         | 60        | 75        | 75        | 90        | 125       |
| • During starting with current limit set to 350 % <sup>2)</sup> $I_M$ (40 °C)                        |     | W         | 1043      | 1355      | 2448      | 3257      | 3277      |
| <b>Permissible rated motor current and starts per hour at 40 °C / 50 °C</b>                          |     |           |           |           |           |           |           |
| • <b>For normal starting (CLASS 10)</b>                                                              |     |           |           |           |           |           |           |
| - Rated motor current $I_M^{(2)}$ , starting time 10 s                                               | A   | 134 / 117 | 162 / 145 | 230 / 205 | 280 / 248 | 356 / 315 | 432 / 385 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 20 / 20   | 8 / 8     | 14 / 14   | 20 / 20   | 16 / 16   | 17 / 17   |
| - Rated motor current $I_M^{(2)}$ , starting time 20 s                                               | A   | 134 / 117 | 162 / 145 | 230 / 205 | 280 / 248 | 356 / 315 | 432 / 385 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 7 / 7     | 1.4 / 1.4 | 3 / 3     | 8 / 8     | 5 / 5     | 5 / 5     |
| • <b>For heavy starting (CLASS 15)</b>                                                               |     |           |           |           |           |           |           |
| - Rated motor current $I_M^{(2)}$ , starting time 15 s                                               | A   | 134 / 117 | 152 / 140 | 210 / 200 | 250 / 220 | 341 / 315 | 402 / 385 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 11 / 11   | 8 / 8     | 11 / 11   | 13 / 13   | 11 / 11   | 12 / 12   |
| - Rated motor current $I_M^{(2)}$ , starting time 30 s                                               | A   | 134 / 117 | 152 / 140 | 210 / 200 | 250 / 220 | 341 / 315 | 402 / 385 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 1.2 / 1.2 | 1.7 / 1.7 | 1 / 1     | 6 / 6     | 2 / 2     | 2 / 2     |
| • <b>For heavy starting (CLASS 20)</b>                                                               |     |           |           |           |           |           |           |
| - Rated motor current $I_M^{(2)}$ , starting time 20 s                                               | A   | 124 / 112 | 142 / 132 | 200 / 185 | 230 / 205 | 311 / 280 | 372 / 340 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 12 / 12   | 9 / 9     | 10 / 10   | 10 / 10   | 10 / 10   | 10 / 10   |
| - Rated motor current $I_M^{(2)}$ , starting time 40 s                                               | A   | 124 / 112 | 142 / 132 | 200 / 185 | 230 / 205 | 311 / 280 | 372 / 340 |
| - Starts per hour <sup>3)</sup>                                                                      | 1/h | 2 / 2     | 2 / 2     | 1 / 1     | 5 / 5     | 1 / 1     | 1 / 1     |

<sup>1)</sup> Measurement at 60 °C according to UL/CSA not required.

<sup>2)</sup> Current limit on soft starter set to 350 %  $I_M$ ,  $T_u = 40 °C / 50 °C$ .  
Maximum adjustable rated motor current  $I_M$  dependent on CLASS setting.

<sup>3)</sup> For intermittent duty S4 with ON period = 70 %,  $T_u = 40 °C / 50 °C$ , stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### General data

#### Motor feeders with soft starters

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, then semiconductor fuses must be fitted in the motor feeder.

**ToC 1**

Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

**ToC 2**

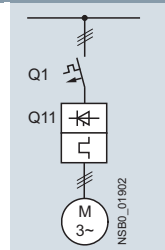
Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

6

#### Fuseless version



| Soft starters                   |      | Motor starter protectors <sup>1)</sup>       |                                              |              |               |               |               |     |    |
|---------------------------------|------|----------------------------------------------|----------------------------------------------|--------------|---------------|---------------|---------------|-----|----|
| <b>ToC 1</b>                    |      | Nominal current                              | 400 V + 10 %                                 | 400 V + 10 % | Rated current | 575 V + 10 %  | Rated current |     |    |
| Q11                             |      |                                              | Q1                                           | Q1           | $I_{q \max}$  | Q1            | $I_{q \max}$  |     |    |
| Type                            | A    | Type                                         | Type                                         | kA           | A             | Type          | kA            | A   |    |
| <b>Type of coordination "1"</b> |      |                                              |                                              |              |               |               |               |     |    |
| <b>3RW4024</b>                  | 12.5 | 3RV2021-4AA/<br>3RV2011-4AA<br>(in size S00) | 3RV2321-4AC/<br>3RV2311-4AC<br>(in size S00) | 55           | 16            | --            | --            | --  | -- |
| <b>3RW4026</b>                  | 25   | 3RV2021-4DA                                  | 3RV2321-4DC                                  | 55           | 25            | --            | --            | --  | -- |
| <b>3RW4027</b>                  | 32   | 3RV2021-4EA                                  | 3RV2321-4EC                                  | 55           | 32            | --            | --            | --  | -- |
| <b>3RW4028</b>                  | 38   | 3RV2021-4FA                                  | 3RV2321-4FC                                  | 55           | 40            | --            | --            | --  | -- |
| <b>3RW4036</b>                  | 45   | 3RV1031-4GA10                                | 3RV1331-4GC10                                | 20           | 45            | --            | --            | --  | -- |
| <b>3RW4037</b>                  | 63   | 3RV1041-4JA10                                | 3RV1341-4JC10                                | 20           | 63            | --            | --            | --  | -- |
| <b>3RW4038</b>                  | 72   | 3RV1041-4KA10                                | 3RV1341-4KC10                                | 20           | 75            | --            | --            | --  | -- |
| <b>3RW4046</b>                  | 80   | 3RV1041-4LA10                                | 3RV1341-4LC10                                | 11           | 90            | --            | --            | --  | -- |
| <b>3RW4047</b>                  | 106  | 3RV1041-4MA10                                | 3RV1341-4MC10                                | 11           | 100           | --            | --            | --  | -- |
| <b>3RW4055</b>                  | 134  | 3VL3720-2DC36                                | --                                           | 35           | 200           | 3VL3720-1DC36 | 12            | 200 |    |
| <b>3RW4056</b>                  | 162  | 3VL3720-2DC36                                | --                                           | 35           | 200           | 3VL3720-1DC36 | 12            | 200 |    |
| <b>3RW4073</b>                  | 230  | 3VL4731-2DC36                                | --                                           | 65           | 315           | 3VL5731-3DC36 | 35            | 315 |    |
| <b>3RW4074</b>                  | 280  | 3VL4731-2DC36                                | --                                           | 65           | 315           | 3VL5731-3DC36 | 35            | 315 |    |
| <b>3RW4075</b>                  | 356  | 3VL4740-2DC36                                | --                                           | 65           | 400           | 3VL5740-3DC36 | 35            | 400 |    |
| <b>3RW4076</b>                  | 432  | 3VL5750-2DC36                                | --                                           | 65           | 500           | 3VL5750-3DC36 | 35            | 500 |    |

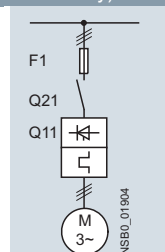
<sup>1)</sup> The rated motor current must be considered when selecting the devices. 3RV13/3RV23 motor starter protectors are designed for starter combinations (without motor protection). Motor protection is provided in this case by the 3RW40 soft starter.

# SIRIUS 3RW Soft Starters

3RW30, 3RW40 for Standard Applications  
3RW40

## General data

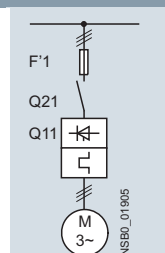
### Fused version (line protection only)



| Soft starters<br>ToC 1                                                                  | Nominal current | Line protection, maximum |                    |      | Line contactors<br>(optional)        |
|-----------------------------------------------------------------------------------------|-----------------|--------------------------|--------------------|------|--------------------------------------|
|                                                                                         |                 | F1 Type                  | Rated current<br>A | Size |                                      |
| Q11 Type                                                                                | A               | F1 Type                  | A                  |      | Q21 Type                             |
| Type of coordination "1" <sup>1)</sup> : $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \%$ |                 |                          |                    |      |                                      |
| 3RW4024                                                                                 | 12.5            | 3NA3 820-6               | 50                 | 00   | 3RT2025/<br>3RT2018<br>(in size S00) |
| 3RW4026                                                                                 | 25              | 3NA3822-6                | 63                 | 00   | 3RT20 26                             |
| 3RW4027                                                                                 | 32              | 3NA3824-6                | 80                 | 00   | 3RT20 27                             |
| 3RW4028                                                                                 | 38              | 3NA3824-6                | 80                 | 00   | 3RT2028                              |
| 3RW4036                                                                                 | 45              | 3NA3130-6                | 100                | 1    | 3RT1036                              |
| 3RW4037                                                                                 | 63              | 3NA3132-6                | 125                | 1    | 3RT1044                              |
| 3RW4038                                                                                 | 72              | 3NA3132-6                | 125                | 1    | 3RT1045                              |
| 3RW4046                                                                                 | 80              | 3NA3136-6                | 160                | 1    | 3RT1045                              |
| 3RW4047                                                                                 | 106             | 3NA3136-6                | 160                | 1    | 3RT1046                              |
| 3RW4055                                                                                 | 134             | 3NA3244-6                | 250                | 2    | 3RT1055-6A.36                        |
| 3RW4056                                                                                 | 162             | 3NA3244-6                | 250                | 2    | 3RT1056-6A.36                        |
| 3RW4073                                                                                 | 230             | 2 x 3NA3354-6            | 2 x 355            | 3    | 3RT1065-6A.36                        |
| 3RW4074                                                                                 | 280             | 2 x 3NA3354-6            | 2 x 355            | 3    | 3RT1066-6A.36                        |
| 3RW4075                                                                                 | 356             | 2 x 3NA3365-6            | 2 x 500            | 3    | 3RT1075-6A.36                        |
| 3RW4076                                                                                 | 432             | 2 x 3NA3365-6            | 2 x 500            | 3    | 3RT1076-6A.36                        |

<sup>1)</sup> The type of coordination "1" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

### Fused version with 3NE1 SITOR fuses (semiconductor and line protection)



Matching fuse bases, see Catalog LV 10

- Chapter 5 "Fuse Systems" → "SITOR Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters<br>ToC 2                                                                  | Nominal current | All-range fuses |                    |      | Line contactors<br>(optional)        |
|-----------------------------------------------------------------------------------------|-----------------|-----------------|--------------------|------|--------------------------------------|
|                                                                                         |                 | F1 Type         | Rated current<br>A | Size |                                      |
| Q11 Type                                                                                | A               | F1 Type         | A                  |      | Q21 Type                             |
| Type of coordination "2" <sup>1)</sup> : $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \%$ |                 |                 |                    |      |                                      |
| 3RW4024                                                                                 | 12.5            | 3NE1814-0       | 20                 | 000  | 3RT2025/<br>3RT2018<br>(in size S00) |
| 3RW4026                                                                                 | 25              | 3NE1803-0       | 35                 | 000  | 3RT2026                              |
| 3RW4027                                                                                 | 32              | 3NE1020-2       | 80                 | 00   | 3RT2027                              |
| 3RW4028                                                                                 | 38              | 3NE1020-2       | 80                 | 00   | 3RT2028                              |
| 3RW4036                                                                                 | 45              | 3NE1020-2       | 80                 | 00   | 3RT1036                              |
| 3RW4037                                                                                 | 63              | 3NE1820-0       | 80                 | 000  | 3RT1044                              |
| 3RW4038                                                                                 | 72              | 3NE1820-0       | 80                 | 000  | 3RT1045                              |
| 3RW4046                                                                                 | 80              | 3NE1021-0       | 100                | 00   | 3RT1045                              |
| 3RW4047                                                                                 | 106             | 3NE1022-0       | 125                | 00   | 3RT1046                              |
| 3RW4055                                                                                 | 134             | 3NE1227-2       | 250                | 1    | 3RT1055-6A.36                        |
| 3RW4056                                                                                 | 162             | 3NE1227-2       | 250                | 1    | 3RT1056-6A.36                        |
| 3RW4073                                                                                 | 230             | 3NE1331-2       | 350                | 2    | 3RT1065-6A.36                        |
| 3RW4074                                                                                 | 280             | 3NE1333-2       | 450                | 2    | 3RT1066-6A.36                        |
| 3RW4075                                                                                 | 356             | 3NE1334-2       | 500                | 2    | 3RT1075-6A.36                        |
| 3RW4076                                                                                 | 432             | 3NE1435-2       | 560                | 3    | 3RT1076-6A.36                        |

<sup>1)</sup> The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

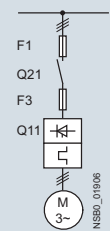
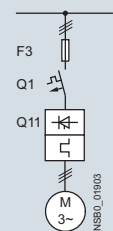
# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### General data

**Fused version with 3NE3 SITOP fuses** (semiconductor protection by fuse, line and overload protection by motor starter protector; alternatively, installation with contactor and overload relay possible)



Matching fuse bases, see Catalog LV 10

- Chapter 5 "Fuse Systems" → "SITOP Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters                                                                                            | Nominal current | Semiconductor fuses, minimum |               |      | Semiconductor fuses, maximum |               |      | Semiconductor fuses, minimum |               |      |
|----------------------------------------------------------------------------------------------------------|-----------------|------------------------------|---------------|------|------------------------------|---------------|------|------------------------------|---------------|------|
|                                                                                                          |                 | F3 Type                      | Rated current | Size | F3 Type                      | Rated current | Size | F3 Type                      | Rated current | Size |
| Q11 Type                                                                                                 | A               |                              | A             |      |                              | A             |      |                              | A             |      |
| Type of coordination "2": $I_q = 65 \text{ kA at } 600 \text{ V} + 5\%$ <sup>(1)</sup> see previous page |                 |                              |               |      |                              |               |      |                              |               |      |
| 3RW4024                                                                                                  | 12.5            | --                           | --            | --   | --                           | --            | --   | 3NE4101                      | 32            | 0    |
| 3RW4026                                                                                                  | 25              | --                           | --            | --   | 3NE3221                      | 100           | 1    | 3NE4102                      | 40            | 0    |
| 3RW4027                                                                                                  | 32              | --                           | --            | --   | 3NE3224                      | 160           | 1    | 3NE4118                      | 63            | 0    |
| 3RW4028                                                                                                  | 38              | --                           | --            | --   | 3NE3224                      | 160           | 1    | 3NE4118                      | 63            | 0    |
| 3RW4036                                                                                                  | 45              | --                           | --            | --   | 3NE3224                      | 160           | 1    | 3NE4120                      | 80            | 0    |
| 3RW4037                                                                                                  | 63              | --                           | --            | --   | 3NE3225                      | 200           | 1    | 3NE4121                      | 100           | 0    |
| 3RW4038                                                                                                  | 72              | 3NE3221                      | 100           | 1    | 3NE3227                      | 250           | 1    | --                           | --            | --   |
| 3RW4046                                                                                                  | 80              | 3NE3222                      | 125           | 1    | 3NE3225                      | 200           | 1    | --                           | --            | --   |
| 3RW4047                                                                                                  | 106             | 3NE3224                      | 160           | 1    | 3NE3231                      | 350           | 1    | --                           | --            | --   |
| 3RW4055                                                                                                  | 134             | 3NE3227                      | 250           | 1    | 3NE3335                      | 560           | 2    | --                           | --            | --   |
| 3RW4056                                                                                                  | 162             | 3NE3227                      | 250           | 1    | 3NE3335                      | 560           | 2    | --                           | --            | --   |
| 3RW4073                                                                                                  | 230             | 3NE3232-0B                   | 400           | 1    | 3NE3333                      | 450           | 2    | --                           | --            | --   |
| 3RW4074                                                                                                  | 280             | 3NE3233                      | 450           | 1    | 3NE3336                      | 630           | 2    | --                           | --            | --   |
| 3RW4075                                                                                                  | 356             | 3NE3335                      | 560           | 2    | 3NE3336                      | 630           | 2    | --                           | --            | --   |
| 3RW4076                                                                                                  | 432             | 3NE3337-8                    | 710           | 2    | 3NE3340-8                    | 900           | 2    | --                           | --            | --   |

| Soft starters                                                                                            | Nominal current | Semiconductor fuses max. |               |      | Semiconductor fuses min. |               |      | Semiconductor fuses max. |               |      | Cylindrical fuses |               |
|----------------------------------------------------------------------------------------------------------|-----------------|--------------------------|---------------|------|--------------------------|---------------|------|--------------------------|---------------|------|-------------------|---------------|
|                                                                                                          |                 | F3 Type                  | Rated current | Size | F3 Type                  | Rated current | Size | F3 Type                  | Rated current | Size | F3 Type           | Rated current |
| Q11 Type                                                                                                 | A               |                          | A             |      |                          | A             |      |                          | A             |      |                   | A             |
| Type of coordination "2": $I_q = 65 \text{ kA at } 600 \text{ V} + 5\%$ <sup>(1)</sup> see previous page |                 |                          |               |      |                          |               |      |                          |               |      |                   |               |
| 3RW4024                                                                                                  | 12.5            | 3NE4117                  | 50            | 0    | 3NE8015-1                | 25            | 00   | 3NE8017-1                | 50            | 00   | 3NC2240           | 40            |
| 3RW4026                                                                                                  | 25              | 3NE4117                  | 50            | 0    | 3NE8017-1                | 50            | 00   | 3NE8021-1                | 100           | 00   | 3NC2263           | 63            |
| 3RW4027                                                                                                  | 32              | 3NE4118                  | 63            | 0    | 3NE8018-1                | 63            | 00   | 3NE8022-1                | 125           | 00   | 3NC2280           | 80            |
| 3RW4028                                                                                                  | 38              | 3NE4118                  | 63            | 0    | 3NE8020-1                | 80            | 00   | 3NE8024-1                | 160           | 00   | 3NC2280           | 80            |
| 3RW4036                                                                                                  | 45              | 3NE4120                  | 80            | 0    | 3NE8020-1                | 80            | 00   | 3NE8024-1                | 160           | 00   | 3NC2280           | 80            |
| 3RW4037                                                                                                  | 63              | 3NE4121                  | 100           | 0    | 3NE8021-1                | 100           | 00   | 3NE8024-1                | 160           | 00   | --                | --            |
| 3RW4038                                                                                                  | 72              | --                       | --            | --   | 3NE8022-1                | 125           | 00   | 3NE8024-1                | 160           | 00   | --                | --            |
| 3RW4046                                                                                                  | 80              | --                       | --            | --   | 3NE8022-1                | 125           | 00   | 3NE8024-1                | 160           | 00   | --                | --            |
| 3RW4047                                                                                                  | 106             | --                       | --            | --   | 3NE8024-1                | 160           | 00   | 3NE8024-1                | 160           | 00   | --                | --            |
| 3RW4055                                                                                                  | 134             | --                       | --            | --   | --                       | --            | --   | --                       | --            | --   | --                | --            |
| 3RW4056                                                                                                  | 162             | --                       | --            | --   | --                       | --            | --   | --                       | --            | --   | --                | --            |
| 3RW4073                                                                                                  | 230             | --                       | --            | --   | --                       | --            | --   | --                       | --            | --   | --                | --            |
| 3RW4074                                                                                                  | 280             | --                       | --            | --   | --                       | --            | --   | --                       | --            | --   | --                | --            |
| 3RW4075                                                                                                  | 356             | --                       | --            | --   | --                       | --            | --   | --                       | --            | --   | --                | --            |
| 3RW4076                                                                                                  | 432             | --                       | --            | --   | --                       | --            | --   | --                       | --            | --   | --                | --            |

| Soft starters                                                                                            | Nominal current | Line contactors                      |  | Motor starter protectors                     |               |              | Line protection, maximum |               |         |
|----------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|--|----------------------------------------------|---------------|--------------|--------------------------|---------------|---------|
|                                                                                                          |                 | (optional)                           |  | 400 V + 10 %                                 | Rated current | 575 V + 10 % | Rated current            |               | Size    |
| Q11 Type                                                                                                 | A               | Q21 Type                             |  | Q1 Type                                      | A             | Q1 Type      | A                        | F1 Type       |         |
| Type of coordination "2": $I_q = 65 \text{ kA at } 600 \text{ V} + 5\%$ <sup>(1)</sup> see previous page |                 |                                      |  |                                              |               |              |                          |               |         |
| 3RW4024                                                                                                  | 12.5            | 3RT2025/<br>3RT2018<br>(in size S00) |  | 3RV2021-4AA/<br>3RV2011-4AA<br>(in size S00) | 16            | --           | --                       | 3NA3820-6     | 50      |
| 3RW4026                                                                                                  | 25              | 3RT2026                              |  | 3RV2021-4DA                                  | 25            | --           | --                       | 3NA3822-6     | 63      |
| 3RW4027                                                                                                  | 32              | 3RT2027                              |  | 3RV2021-4EA                                  | 32            | --           | --                       | 3NA3824-6     | 80      |
| 3RW4028                                                                                                  | 38              | 3RT2028                              |  | 3RV2021-4FA                                  | 40            | --           | --                       | 3NA3824-6     | 80      |
| 3RW4036                                                                                                  | 45              | 3RT1036                              |  | 3RV1031-4GA10                                | 45            | --           | --                       | 3NA3130-6     | 100     |
| 3RW4037                                                                                                  | 63              | 3RT1044                              |  | 3RV1041-4JA10                                | 63            | --           | --                       | 3NA3132-6     | 125     |
| 3RW4038                                                                                                  | 72              | 3RT1045                              |  | 3RV1041-4KA10                                | 75            | --           | --                       | 3NA3132-6     | 125     |
| 3RW4046                                                                                                  | 80              | 3RT1045                              |  | 3RV1041-4LA10                                | 90            | --           | --                       | 3NA3136-6     | 160     |
| 3RW4047                                                                                                  | 106             | 3RT1046                              |  | 3RV1041-4MA10                                | 100           | --           | --                       | 3NA3136-6     | 160     |
| 3RW4055                                                                                                  | 134             | 3RT1055-6A.36                        |  | 3VL3720                                      | 200           | 3VL3720      | 200                      | 3NA3244-6     | 250     |
| 3RW4056                                                                                                  | 162             | 3RT1056-6A.36                        |  | 3VL3720                                      | 200           | 3VL3720      | 200                      | 3NA3244-6     | 250     |
| 3RW4073                                                                                                  | 230             | 3RT1065-6A.36                        |  | 3VL4731                                      | 315           | 3VL5731      | 315                      | 2 x 3NA3354-6 | 2 x 355 |
| 3RW4074                                                                                                  | 280             | 3RT1066-6A.36                        |  | 3VL4731                                      | 315           | 3VL5731      | 315                      | 2 x 3NA3354-6 | 2 x 355 |
| 3RW4075                                                                                                  | 356             | 3RT1075-6A.36                        |  | 3VL4740                                      | 400           | 3VL5740      | 400                      | 2 x 3NA3365-6 | 2 x 500 |
| 3RW4076                                                                                                  | 432             | 3RT1076-6A.36                        |  | 3VL5750                                      | 500           | 3VL5750      | 500                      | 2 x 3NA3365-6 | 2 x 500 |

**SIRIUS 3RW Soft Starters**

3RW30, 3RW40 for Standard Applications  
3RW40

**SIRIUS 3RW40 for normal starting (CLASS 10)****Selection and ordering data**

3RW402.



3RW403.



3RW404.

| 3RW ambient temperature 40 °C                 |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       | Size | DT <sup>1)</sup> | Normal starting (CLASS 10) |                 | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|-----------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|------|------------------|----------------------------|-----------------|-------------------------|--------|-----|
| Rated values of<br>three-phase motors         |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |      |                  | Configurator               |                 |                         |        |     |
| Opera-<br>tional<br>current $I_e$             | Rating at<br>operational voltage $U_e$ |       |       | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |      |                  | Article No.                | Price<br>per PU |                         |        |     |
|                                               | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V |      |                  |                            |                 |                         |        |     |
| A                                             | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    |      |                  |                            |                 |                         |        |     |
| Rated operational voltage $U_e$ 200 ... 480 V |                                        |       |       |                                       |                                        |       |       |      |                  |                            |                 |                         |        |     |
| 12.5                                          | 3                                      | 5.5   | --    | 11                                    | 3                                      | 3     | 7.5   | --   | S0               | A                          | 3RW4024-□BB□4   | 1                       | 1 unit | 42G |
| 25                                            | 5.5                                    | 11    | --    | 23                                    | 5                                      | 5     | 15    | --   | S0               | A                          | 3RW4026-□BB□4   | 1                       | 1 unit | 42G |
| 32                                            | 7.5                                    | 15    | --    | 29                                    | 7.5                                    | 7.5   | 20    | --   | S0               | A                          | 3RW4027-□BB□4   | 1                       | 1 unit | 42G |
| 38                                            | 11                                     | 18.5  | --    | 34                                    | 10                                     | 10    | 25    | --   | S0               | A                          | 3RW4028-□BB□4   | 1                       | 1 unit | 42G |
| 45                                            | 11                                     | 22    | --    | 42                                    | 10                                     | 15    | 30    | --   | S2               | A                          | 3RW4036-□BB□4   | 1                       | 1 unit | 42G |
| 63                                            | 18.5                                   | 30    | --    | 58                                    | 15                                     | 20    | 40    | --   | S2               | A                          | 3RW4037-□BB□4   | 1                       | 1 unit | 42G |
| 72                                            | 22                                     | 37    | --    | 62                                    | 20                                     | 20    | 40    | --   | S2               | A                          | 3RW4038-□BB□4   | 1                       | 1 unit | 42G |
| 80                                            | 22                                     | 45    | --    | 73                                    | 20                                     | 25    | 50    | --   | S3               | A                          | 3RW4046-□BB□4   | 1                       | 1 unit | 42G |
| 106                                           | 30                                     | 55    | --    | 98                                    | 30                                     | 30    | 75    | --   | S3               | A                          | 3RW4047-□BB□4   | 1                       | 1 unit | 42G |
| Rated operational voltage $U_e$ 400 ... 600 V |                                        |       |       |                                       |                                        |       |       |      |                  |                            |                 |                         |        |     |
| 12.5                                          | --                                     | 5.5   | 7.5   | 11                                    | --                                     | --    | 7.5   | 10   | S0               | B                          | 3RW4024-□BB□5   | 1                       | 1 unit | 42G |
| 25                                            | --                                     | 11    | 15    | 23                                    | --                                     | --    | 15    | 20   | S0               | B                          | 3RW4026-□BB□5   | 1                       | 1 unit | 42G |
| 32                                            | --                                     | 15    | 18.5  | 29                                    | --                                     | --    | 20    | 25   | S0               | B                          | 3RW4027-□BB□5   | 1                       | 1 unit | 42G |
| 38                                            | --                                     | 18.5  | 22    | 34                                    | --                                     | --    | 25    | 30   | S0               | B                          | 3RW4028-□BB□5   | 1                       | 1 unit | 42G |
| 45                                            | --                                     | 22    | 30    | 42                                    | --                                     | --    | 30    | 40   | S2               | B                          | 3RW4036-□BB□5   | 1                       | 1 unit | 42G |
| 63                                            | --                                     | 30    | 37    | 58                                    | --                                     | --    | 40    | 50   | S2               | B                          | 3RW4037-□BB□5   | 1                       | 1 unit | 42G |
| 72                                            | --                                     | 37    | 45    | 62                                    | --                                     | --    | 40    | 60   | S2               | B                          | 3RW4038-□BB□5   | 1                       | 1 unit | 42G |
| 80                                            | --                                     | 45    | 55    | 73                                    | --                                     | --    | 50    | 60   | S3               | B                          | 3RW4046-□BB□5   | 1                       | 1 unit | 42G |
| 106                                           | --                                     | 55    | 75    | 98                                    | --                                     | --    | 75    | 75   | S3               | B                          | 3RW4047-□BB□5   | 1                       | 1 unit | 42G |

**Article No. supplement for connection types**

- With screw terminals
- With spring-type terminals<sup>2)</sup>

**Article No. supplement for rated control supply voltage  $U_c$** 

- 24 V AC/DC
- 110 ... 230 V AC/DC

⚙ Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter  $U_e$  200 ... 480 V with screw terminals: delivery time class ► (preferred type).

<sup>2)</sup> Main circuit connection: screw terminals.

**Note:**

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan (Side-by-side, see manual, <http://support.automation.siemens.com/WW/view/en/38752095>, Increase of switching frequency possible with an auxiliary fan)

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### SIRIUS 3RW40 for normal starting (CLASS 10)



3RW402.



3RW403.



3RW404.

| 3RW ambient temperature 40 °C                                                                                                        |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       | Size  | DT <sup>1)</sup> | Normal starting (CLASS 10) | PU<br>(UNIT,<br>SET, M)                                                             | PS*             | PG     |     |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|-------|------------------|----------------------------|-------------------------------------------------------------------------------------|-----------------|--------|-----|
| Rated values of<br>three-phase motors                                                                                                |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |       |                  |                            |                                                                                     |                 |        |     |
| Opera-<br>tional<br>current $I_e$                                                                                                    | Rating at<br>operational voltage $U_e$ |       |       | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |                  | Configurator               |  |                 |        |     |
|                                                                                                                                      | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V | 575 V | Article No.      |                            |                                                                                     | Price<br>per PU |        |     |
| A                                                                                                                                    | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    | hp    |                  |                            |                                                                                     |                 |        |     |
| Rated operational voltage $U_e$ 200 ... 480 V,<br>with thermistor motor protection,<br>rated control supply voltage $U_s$ 24 V AC/DC |                                        |       |       |                                       |                                        |       |       |       |                  |                            |                                                                                     |                 |        |     |
| 12.5                                                                                                                                 | 3                                      | 5.5   | --    | 11                                    | 3                                      | 3     | 7.5   | --    | S0               | B                          | 3RW4024-□TB04                                                                       | 1               | 1 unit | 42G |
| 25                                                                                                                                   | 5.5                                    | 11    | --    | 23                                    | 5                                      | 5     | 15    | --    | S0               | B                          | 3RW4026-□TB04                                                                       | 1               | 1 unit | 42G |
| 32                                                                                                                                   | 7.5                                    | 15    | --    | 29                                    | 7.5                                    | 7.5   | 20    | --    | S0               | B                          | 3RW4027-□TB04                                                                       | 1               | 1 unit | 42G |
| 38                                                                                                                                   | 11                                     | 18.5  | --    | 34                                    | 10                                     | 10    | 25    | --    | S0               | B                          | 3RW4028-□TB04                                                                       | 1               | 1 unit | 42G |
| 45                                                                                                                                   | 11                                     | 22    | --    | 42                                    | 10                                     | 15    | 30    | --    | S2               | B                          | 3RW4036-□TB04                                                                       | 1               | 1 unit | 42G |
| 63                                                                                                                                   | 18.5                                   | 30    | --    | 58                                    | 15                                     | 20    | 40    | --    | S2               | B                          | 3RW4037-□TB04                                                                       | 1               | 1 unit | 42G |
| 72                                                                                                                                   | 22                                     | 37    | --    | 62                                    | 20                                     | 20    | 40    | --    | S2               | B                          | 3RW4038-□TB04                                                                       | 1               | 1 unit | 42G |
| 80                                                                                                                                   | 22                                     | 45    | --    | 73                                    | 20                                     | 25    | 50    | --    | S3               | B                          | 3RW4046-□TB04                                                                       | 1               | 1 unit | 42G |
| 106                                                                                                                                  | 30                                     | 55    | --    | 98                                    | 30                                     | 30    | 75    | --    | S3               | B                          | 3RW4047-□TB04                                                                       | 1               | 1 unit | 42G |
| Rated operational voltage $U_e$ 400 ... 600 V,<br>with thermistor motor protection,<br>rated control supply voltage $U_s$ 24 V AC/DC |                                        |       |       |                                       |                                        |       |       |       |                  |                            |                                                                                     |                 |        |     |
| 12.5                                                                                                                                 | --                                     | 5.5   | 7.5   | 11                                    | --                                     | --    | 7.5   | 10    | S0               | B                          | 3RW4024-□TB05                                                                       | 1               | 1 unit | 42G |
| 25                                                                                                                                   | --                                     | 11    | 15    | 23                                    | --                                     | --    | 15    | 20    | S0               | B                          | 3RW4026-□TB05                                                                       | 1               | 1 unit | 42G |
| 32                                                                                                                                   | --                                     | 15    | 18.5  | 29                                    | --                                     | --    | 20    | 25    | S0               | B                          | 3RW4027-□TB05                                                                       | 1               | 1 unit | 42G |
| 38                                                                                                                                   | --                                     | 18.5  | 22    | 34                                    | --                                     | --    | 25    | 30    | S0               | B                          | 3RW4028-□TB05                                                                       | 1               | 1 unit | 42G |
| 45                                                                                                                                   | --                                     | 22    | 30    | 42                                    | --                                     | --    | 30    | 40    | S2               | B                          | 3RW4036-□TB05                                                                       | 1               | 1 unit | 42G |
| 63                                                                                                                                   | --                                     | 30    | 37    | 58                                    | --                                     | --    | 40    | 50    | S2               | B                          | 3RW4037-□TB05                                                                       | 1               | 1 unit | 42G |
| 72                                                                                                                                   | --                                     | 37    | 45    | 62                                    | --                                     | --    | 40    | 60    | S2               | B                          | 3RW4038-□TB05                                                                       | 1               | 1 unit | 42G |
| 80                                                                                                                                   | --                                     | 45    | 55    | 73                                    | --                                     | --    | 50    | 60    | S3               | B                          | 3RW4046-□TB05                                                                       | 1               | 1 unit | 42G |
| 106                                                                                                                                  | --                                     | 55    | 75    | 98                                    | --                                     | --    | 75    | 75    | S3               | B                          | 3RW4047-□TB05                                                                       | 1               | 1 unit | 42G |

#### Article No. supplement for connection types

- With screw terminals
- With spring-type terminals<sup>2)</sup>

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter  $U_e$  200 ... 480 V with screw terminals: delivery time class ► (preferred type).

<sup>2)</sup> Main circuit connection: screw terminals.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan  
(Side-by-side, see manual,  
<http://support.automation.siemens.com/WW/view/en/38752095>,  
Increase of switching frequency possible with an auxiliary fan)

**SIRIUS 3RW Soft Starters**

3RW30, 3RW40 for Standard Applications  
3RW40

**SIRIUS 3RW40 for normal starting (CLASS 10)**

3RW405.



3RW407.

| 3RW ambient temperature 40 °C                 |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       |       | Size        | DT <sup>1)</sup> | Normal starting (CLASS 10) | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|-----------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|-------|-------------|------------------|----------------------------|-------------------------|--------|-----|
| Rated values of<br>three-phase motors         |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |       |             |                  |                            |                         |        |     |
| Opera-<br>tional<br>current $I_e$             | Rating at<br>operational voltage $U_e$ |       |       | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |             |                  | Configurator               |                         |        |     |
|                                               | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V | 575 V |             |                  |                            |                         |        |     |
| A                                             | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    | hp    | Article No. | Price<br>per PU  |                            |                         |        |     |
| Rated operational voltage $U_e$ 200 ... 460 V |                                        |       |       |                                       |                                        |       |       |       |             |                  |                            |                         |        |     |
| 134                                           | 37                                     | 75    | --    | 117                                   | 30                                     | 40    | 75    | --    | S6          | B                | 3RW4055-□BB□4              | 1                       | 1 unit | 42G |
| 162                                           | 45                                     | 90    | --    | 145                                   | 40                                     | 50    | 100   | --    |             | B                | 3RW4056-□BB□4              | 1                       | 1 unit | 42G |
| 230                                           | 75                                     | 132   | --    | 205                                   | 60                                     | 75    | 150   | --    | S12         | B                | 3RW4073-□BB□4              | 1                       | 1 unit | 42G |
| 280                                           | 90                                     | 160   | --    | 248                                   | 75                                     | 100   | 200   | --    |             | B                | 3RW4074-□BB□4              | 1                       | 1 unit | 42G |
| 356                                           | 110                                    | 200   | --    | 315                                   | 100                                    | 125   | 250   | --    |             | B                | 3RW4075-□BB□4              | 1                       | 1 unit | 42G |
| 432                                           | 132                                    | 250   | --    | 385                                   | 125                                    | 150   | 300   | --    |             | B                | 3RW4076-□BB□4              | 1                       | 1 unit | 42G |
| Rated operational voltage $U_e$ 400 ... 600 V |                                        |       |       |                                       |                                        |       |       |       |             |                  |                            |                         |        |     |
| 134                                           | --                                     | 75    | 90    | 117                                   | --                                     | --    | 75    | 100   | S6          | B                | 3RW4055-□BB□5              | 1                       | 1 unit | 42G |
| 162                                           | --                                     | 90    | 110   | 145                                   | --                                     | --    | 100   | 150   |             | B                | 3RW4056-□BB□5              | 1                       | 1 unit | 42G |
| 230                                           | --                                     | 132   | 160   | 205                                   | --                                     | --    | 150   | 200   | S12         | B                | 3RW4073-□BB□5              | 1                       | 1 unit | 42G |
| 280                                           | --                                     | 160   | 200   | 248                                   | --                                     | --    | 200   | 250   |             | B                | 3RW4074-□BB□5              | 1                       | 1 unit | 42G |
| 356                                           | --                                     | 200   | 250   | 315                                   | --                                     | --    | 250   | 300   |             | B                | 3RW4075-□BB□5              | 1                       | 1 unit | 42G |
| 432                                           | --                                     | 250   | 315   | 385                                   | --                                     | --    | 300   | 400   |             | B                | 3RW4076-□BB□5              | 1                       | 1 unit | 42G |

**Article No. supplement for connection type<sup>2)</sup>**

- With spring-type terminals
- With screw terminals

**Article No. supplement for rated control supply voltage  $U_s$ <sup>3)</sup>**

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter  $U_e$  200 ... 460 V with screw terminals: delivery time class ► (preferred type).

Soft starter  $U_e$  400 ... 600 V with screw terminals: delivery time class A.

<sup>2)</sup> Main circuit connection: busbar connection.

<sup>3)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

**Note:**

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation (side-by-side, see manual, <http://support.automation.siemens.com/WW/view/en/38752095>)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### SIRIUS 3RW40 for heavy starting (CLASS 20)

#### Selection and ordering data



3RW402.



3RW403.



3RW404.

| 3RW ambient temperature 40 °C                 |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       | Size | DT <sup>1)</sup> | Heavy starting (CLASS 20) | PU<br>(UNIT,<br>SET, M) | PS* | PG     |       |
|-----------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|------|------------------|---------------------------|-------------------------|-----|--------|-------|
| Rated values of<br>three-phase motors         |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |      |                  |                           |                         |     |        |       |
| Opera-<br>tional<br>current $I_e$             | Rating at<br>operational voltage $U_e$ |       |       | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |      |                  | Configurator              |                         |     |        |       |
|                                               | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V |      |                  |                           |                         |     |        | 575 V |
| A                                             | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    | hp   |                  | Article No.               | Price<br>per PU         |     |        |       |
| Rated operational voltage $U_e$ 200 ... 480 V |                                        |       |       |                                       |                                        |       |       |      |                  |                           |                         |     |        |       |
| 12.5                                          | 3                                      | 5.5   | --    | 11                                    | 3                                      | 3     | 7.5   | --   | S0               | A                         | 3RW4026-□BB□4           | 1   | 1 unit | 42G   |
| 25                                            | 5.5                                    | 11    | --    | 23                                    | 5                                      | 5     | 15    | --   | S0               | A                         | 3RW4027-□BB□4           | 1   | 1 unit | 42G   |
| 32                                            | 7.5                                    | 15    | --    | 29                                    | 7.5                                    | 7.5   | 20    | --   | S2               | A                         | 3RW4036-□BB□4           | 1   | 1 unit | 42G   |
| 38                                            | 11                                     | 18.5  | --    | 34                                    | 10                                     | 10    | 25    | --   | S2               | A                         | 3RW4037-□BB□4           | 1   | 1 unit | 42G   |
| 45                                            | 11                                     | 22    | --    | 42                                    | 10                                     | 15    | 30    | --   | S2               | A                         | 3RW4037-□BB□4           | 1   | 1 unit | 42G   |
| 63                                            | 18.5                                   | 30    | --    | 58                                    | 15                                     | 20    | 40    | --   | S3               | A                         | 3RW4047-□BB□4           | 1   | 1 unit | 42G   |
| 72                                            | 22                                     | 37    | --    | 62                                    | 20                                     | 20    | 40    | --   | S3               | A                         | 3RW4047-□BB□4           | 1   | 1 unit | 42G   |
| Rated operational voltage $U_e$ 400 ... 600 V |                                        |       |       |                                       |                                        |       |       |      |                  |                           |                         |     |        |       |
| 12.5                                          | --                                     | 5.5   | 7.5   | 11                                    | --                                     | --    | 7.5   | 10   | S0               | B                         | 3RW4026-□BB□5           | 1   | 1 unit | 42G   |
| 25                                            | --                                     | 11    | 15    | 23                                    | --                                     | --    | 15    | 20   | S0               | B                         | 3RW4027-□BB□5           | 1   | 1 unit | 42G   |
| 32                                            | --                                     | 15    | 18.5  | 29                                    | --                                     | --    | 20    | 25   | S2               | B                         | 3RW4036-□BB□5           | 1   | 1 unit | 42G   |
| 38                                            | --                                     | 18.5  | 22    | 34                                    | --                                     | --    | 25    | 30   | S2               | B                         | 3RW4037-□BB□5           | 1   | 1 unit | 42G   |
| 45                                            | --                                     | 22    | 30    | 42                                    | --                                     | --    | 30    | 40   | S2               | B                         | 3RW4037-□BB□5           | 1   | 1 unit | 42G   |
| 63                                            | --                                     | 30    | 37    | 58                                    | --                                     | --    | 40    | 50   | S3               | B                         | 3RW4047-□BB□5           | 1   | 1 unit | 42G   |
| 72                                            | --                                     | 37    | 45    | 62                                    | --                                     | --    | 40    | 60   | S3               | B                         | 3RW4047-□BB□5           | 1   | 1 unit | 42G   |

#### Article No. supplement for connection types

- With screw terminals
- With spring-type terminals<sup>2)</sup>

#### Article No. supplement for rated control supply voltage $U_s$

- 24 V AC/DC
- 110 ... 230 V AC/DC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter  $U_e$  200 ... 480 V with screw terminals: delivery time class ► (preferred type).

<sup>2)</sup> Main circuit connection: screw terminals.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 20
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan (Side-by-side, see manual, <http://support.automation.siemens.com/WW/view/en/38752095>, Increase of switching frequency possible with an auxiliary fan)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual.

**SIRIUS 3RW Soft Starters**

3RW30, 3RW40 for Standard Applications  
3RW40

**SIRIUS 3RW40 for heavy starting (CLASS 20)**

3RW402.



3RW403.



3RW404.

| 3RW ambient temperature 40 °C                                                                                                        |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       | Size  | DT <sup>1)</sup> | Heavy starting (CLASS 20) | PU<br>(UNIT,<br>SET, M) | PS*             | PG     |     |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|-------|------------------|---------------------------|-------------------------|-----------------|--------|-----|
| Rated values of<br>three-phase motors                                                                                                |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |       |                  |                           |                         |                 |        |     |
| Opera-<br>tional<br>current $I_e$                                                                                                    | Rating at<br>operational voltage $U_e$ |       |       | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |                  | Configurator              | Article No.             | Price<br>per PU |        |     |
|                                                                                                                                      | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V | 575 V |                  |                           |                         |                 |        |     |
| A                                                                                                                                    | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    | hp    |                  |                           |                         |                 |        |     |
| Rated operational voltage $U_e$ 200 ... 480 V,<br>with thermistor motor protection,<br>rated control supply voltage $U_s$ 24 V AC/DC |                                        |       |       |                                       |                                        |       |       |       |                  |                           |                         |                 |        |     |
| 12.5                                                                                                                                 | 3                                      | 5.5   | --    | 11                                    | 3                                      | 3     | 7.5   | --    | S0               | B                         | 3RW4026-□TB04           | 1               | 1 unit | 42G |
| 25                                                                                                                                   | 5.5                                    | 11    | --    | 23                                    | 5                                      | 5     | 15    | --    | S0               | B                         | 3RW4027-□TB04           | 1               | 1 unit | 42G |
| 32                                                                                                                                   | 7.5                                    | 15    | --    | 29                                    | 7.5                                    | 7.5   | 20    | --    | S2               | B                         | 3RW4036-□TB04           | 1               | 1 unit | 42G |
| 38                                                                                                                                   | 11                                     | 18.5  | --    | 34                                    | 10                                     | 10    | 25    | --    | S2               | B                         | 3RW4037-□TB04           | 1               | 1 unit | 42G |
| 45                                                                                                                                   | 11                                     | 22    | --    | 42                                    | 10                                     | 15    | 30    | --    | S2               | B                         | 3RW4037-□TB04           | 1               | 1 unit | 42G |
| 63                                                                                                                                   | 18.5                                   | 30    | --    | 58                                    | 15                                     | 20    | 40    | --    | S3               | B                         | 3RW4047-□TB04           | 1               | 1 unit | 42G |
| 72                                                                                                                                   | 22                                     | 37    | --    | 62                                    | 20                                     | 20    | 40    | --    | S3               | B                         | 3RW4047-□TB04           | 1               | 1 unit | 42G |
| Rated operational voltage $U_e$ 400 ... 600 V,<br>with thermistor motor protection,<br>rated control supply voltage $U_s$ 24 V AC/DC |                                        |       |       |                                       |                                        |       |       |       |                  |                           |                         |                 |        |     |
| 12.5                                                                                                                                 | --                                     | 5.5   | 7.5   | 11                                    | --                                     | --    | 7.5   | 10    | S0               | B                         | 3RW4026-□TB05           | 1               | 1 unit | 42G |
| 25                                                                                                                                   | --                                     | 11    | 15    | 23                                    | --                                     | --    | 15    | 20    | S0               | B                         | 3RW4027-□TB05           | 1               | 1 unit | 42G |
| 32                                                                                                                                   | --                                     | 15    | 18.5  | 29                                    | --                                     | --    | 20    | 25    | S2               | B                         | 3RW4036-□TB05           | 1               | 1 unit | 42G |
| 38                                                                                                                                   | --                                     | 18.5  | 22    | 34                                    | --                                     | --    | 25    | 30    | S2               | B                         | 3RW4037-□TB05           | 1               | 1 unit | 42G |
| 45                                                                                                                                   | --                                     | 22    | 30    | 42                                    | --                                     | --    | 30    | 40    | S2               | B                         | 3RW4037-□TB05           | 1               | 1 unit | 42G |
| 63                                                                                                                                   | --                                     | 30    | 37    | 58                                    | --                                     | --    | 40    | 50    | S3               | B                         | 3RW4047-□TB05           | 1               | 1 unit | 42G |
| 72                                                                                                                                   | --                                     | 37    | 45    | 62                                    | --                                     | --    | 40    | 60    | S3               | B                         | 3RW4047-□TB05           | 1               | 1 unit | 42G |

**Article No. supplement for connection types**

- With screw terminals
- With spring-type terminals<sup>2)</sup>

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter  $U_e$  200 ... 480 V with screw terminals: delivery time class ► (preferred type).

<sup>2)</sup> Main circuit connection: screw terminals.

**Note:**

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 20
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan  
(Side-by-side, see manual,  
<http://support.automation.siemens.com/WW/view/en/38752095>,  
Increase of switching frequency possible with an auxiliary fan)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual.

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### SIRIUS 3RW40 for heavy starting (CLASS 20)



3RW405.



3RW407.

| 3RW ambient temperature 40 °C                 |                                        |       |       | 3RW ambient temperature 50 °C         |                                        |       |       | Size  | DT <sup>1)</sup> | Heavy starting (CLASS 20) | PU<br>(UNIT,<br>SET, M)                                                                                                                                                 | PS* | PG     |                                                                                     |
|-----------------------------------------------|----------------------------------------|-------|-------|---------------------------------------|----------------------------------------|-------|-------|-------|------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|-------------------------------------------------------------------------------------|
| Rated values of<br>three-phase motors         |                                        |       |       | Rated values of<br>three-phase motors |                                        |       |       |       |                  |                           |                                                                                                                                                                         |     |        |                                                                                     |
| Opera-<br>tional<br>current $I_e$             | Rating at<br>operational voltage $U_e$ |       |       | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |                  | Configurator              |                                                                                                                                                                         |     |        |  |
|                                               | 230 V                                  | 400 V | 500 V |                                       | 200 V                                  | 230 V | 460 V | 575 V | Article No.      |                           | Price<br>per PU                                                                                                                                                         |     |        |                                                                                     |
| A                                             | kW                                     | kW    | kW    | A                                     | hp                                     | hp    | hp    | hp    |                  |                           |                                                                                                                                                                         |     |        |                                                                                     |
| Rated operational voltage $U_e$ 200 ... 460 V |                                        |       |       |                                       |                                        |       |       |       |                  |                           |                                                                                                                                                                         |     |        |                                                                                     |
| 80                                            | 22                                     | 45    | --    | 73                                    | 20                                     | 25    | 50    | --    | S6               | B                         | 3RW4055-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 106                                           | 30                                     | 55    | --    | 98                                    | 25                                     | 30    | 60    | --    | S6               | B                         | 3RW4055-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 134                                           | 37                                     | 75    | --    | 117                                   | 30                                     | 40    | 75    | --    | S6               | B                         | 3RW4056-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 162                                           | 45                                     | 90    | --    | 145                                   | 40                                     | 50    | 100   | --    | S12              | B                         | 3RW4073-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 230                                           | 75                                     | 132   | --    | 205                                   | 60                                     | 75    | 150   | --    | S12              | B                         | 3RW4074-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 280                                           | 90                                     | 160   | --    | 248                                   | 75                                     | 100   | 200   | --    | S12              | B                         | 3RW4075-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 356                                           | 110                                    | 200   | --    | 315                                   | 100                                    | 125   | 250   | --    | S12              | B                         | 3RW4076-□BB□4                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| Rated operational voltage $U_e$ 400 ... 600 V |                                        |       |       |                                       |                                        |       |       |       |                  |                           |   |     |        |                                                                                     |
| 80                                            | --                                     | 45    | 55    | 73                                    | --                                     | --    | 50    | 60    | S6               | B                         | 3RW4055-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 106                                           | --                                     | 55    | 75    | 98                                    | --                                     | --    | 60    | 75    | S6               | B                         | 3RW4055-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 134                                           | --                                     | 75    | 90    | 117                                   | --                                     | --    | 75    | 100   | S6               | B                         | 3RW4056-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 162                                           | --                                     | 90    | 110   | 145                                   | --                                     | --    | 100   | 150   | S12              | B                         | 3RW4073-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 230                                           | --                                     | 132   | 160   | 205                                   | --                                     | --    | 150   | 200   | S12              | B                         | 3RW4074-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 280                                           | --                                     | 160   | 200   | 248                                   | --                                     | --    | 200   | 250   | S12              | B                         | 3RW4075-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |
| 356                                           | --                                     | 200   | 250   | 315                                   | --                                     | --    | 250   | 300   | S12              | B                         | 3RW4076-□BB□5                                                                                                                                                           | 1   | 1 unit | 42G                                                                                 |

#### Article No. supplement for connection type<sup>2)</sup>

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>3)</sup>

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

1) Soft starter  $U_e$  200 ... 460 V with screw terminals: delivery time class ► (preferred type).

Soft starter  $U_e$  400 ... 600 V with screw terminals: delivery time class A.

2) Main circuit connection: busbar connection.

3) Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1
- Stand-alone installation (side-by-side, see manual, <http://support.automation.siemens.com/WW/view/en/38752095>)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual.

# SIRIUS 3RW Soft Starters

3RW30, 3RW40 for Standard Applications  
3RW40

## Accessories

### Selection and ordering data

|                                                                                     | Conductor<br>Solid or<br>stranded                                                                                                                                                              | cross-section<br>Finely<br>stranded<br>with end<br>sleeve | AWG<br>cables,<br>solid or<br>stranded                      | Tightening<br>torque | For soft<br>starters<br>size | DT    | Article No.   | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG     |     |   |        |     |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------|----------------------|------------------------------|-------|---------------|-----------------|-------------------------|--------|--------|-----|---|--------|-----|
|                                                                                     | mm²                                                                                                                                                                                            | mm²                                                       | AWG                                                         | Nm                   |                              |       |               |                 |                         |        |        |     |   |        |     |
| Three-phase infeed terminals                                                        |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
|    | 2.5 ... 25                                                                                                                                                                                     | 2.5 ... 16                                                | 10 ... 4                                                    | 3 ... 4              | S0<br>(3RW402.)              | ▶     | 3RV2925-5AB   |                 | 1                       | 1 unit | 41E    |     |   |        |     |
|                                                                                     |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
|                                                                                     |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
| For soft starters<br>Type                                                           |                                                                                                                                                                                                | Version<br>Size                                           |                                                             |                      |                              | DT    | Article No.   | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG     |     |   |        |     |
| Box terminal blocks for soft starters                                               |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
|    | For round and ribbon cables<br>(2 units required for each device)                                                                                                                              |                                                           |                                                             |                      |                              |       |               |                 |                         | 1      | 1 unit | 41B |   |        |     |
|                                                                                     | 3RW405.                                                                                                                                                                                        | S6                                                        | • Up to 70 mm²<br>• Up to 120 mm²                           |                      |                              | ▶     | 3RT1955-4G    |                 |                         |        |        |     | 1 | 1 unit | 41B |
|                                                                                     |                                                                                                                                                                                                |                                                           | Auxiliary conductor connection<br>for box terminals         |                      |                              | B     | 3TX7500-0A    |                 |                         |        |        |     | 1 | 1 unit | 41B |
|                                                                                     | 3RW407.                                                                                                                                                                                        | S12                                                       | • Up to 240 mm²<br>(with auxiliary conductor<br>connection) |                      |                              | ▶     | 3RT1966-4G    |                 |                         |        |        |     | 1 | 1 unit | 41B |
| Auxiliary terminals                                                                 |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
| Auxiliary terminals, 3-pole                                                         |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
|                                                                                     | 3RW404.                                                                                                                                                                                        | S3                                                        |                                                             |                      |                              | B     | 3RT1946-4F    |                 | 1                       | 1 unit | 41B    |     |   |        |     |
| Covers for soft starters                                                            |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
|  | Terminal covers for box terminals<br>Additional touch protection to be fitted at the box<br>terminals (2 units required per device)                                                            |                                                           |                                                             |                      |                              |       |               |                 |                         | 1      | 1 unit | 41B |   |        |     |
|                                                                                     | 3RW403.                                                                                                                                                                                        | S2                                                        |                                                             |                      |                              | NEW ▶ | 3RT2936-4EA2  |                 |                         |        |        |     | 1 | 1 unit | 41B |
|                                                                                     | 3RW404.                                                                                                                                                                                        | S3                                                        |                                                             |                      |                              | ▶     | 3RT1946-4EA2  |                 |                         |        |        |     | 1 | 1 unit | 41B |
|                                                                                     | 3RW405.                                                                                                                                                                                        | S6                                                        |                                                             |                      |                              | ▶     | 3RT1956-4EA2  |                 |                         |        |        |     | 1 | 1 unit | 41B |
|                                                                                     | 3RW407.                                                                                                                                                                                        | S12                                                       |                                                             |                      |                              | ▶     | 3RT1966-4EA2  |                 |                         |        |        |     | 1 | 1 unit | 41B |
|  | Terminal covers for cable lugs and busbar connections<br>For complying with the voltage<br>clearances and as touch protec-<br>tion if box terminal is removed<br>(2 units required per device) |                                                           |                                                             |                      |                              |       | B             | 3RT1946-4EA1    | 1                       | 1 unit | 41B    |     |   |        |     |
|                                                                                     | 3RW405.                                                                                                                                                                                        | S6                                                        |                                                             |                      |                              | ▶     | 3RT1956-4EA1  | 1               | 1 unit                  | 41B    |        |     |   |        |     |
|                                                                                     | 3RW407.                                                                                                                                                                                        | S12                                                       |                                                             |                      |                              | ▶     | 3RT1966-4EA1  | 1               | 1 unit                  | 41B    |        |     |   |        |     |
|                                                                                     | Also fits in case of S6 and S12 on mounted box terminals                                                                                                                                       |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
| Sealing covers                                                                      |                                                                                                                                                                                                |                                                           |                                                             |                      |                              |       |               |                 |                         |        |        |     |   |        |     |
|  | 3RW402. to<br>3RW404.                                                                                                                                                                          | S0,<br>S2,<br>S3                                          |                                                             |                      |                              | ▶     | 3RW4900-0PB10 |                 | 1                       | 1 unit | 42G    |     |   |        |     |
|                                                                                     | 3RW405. and<br>3RW407.                                                                                                                                                                         | S6,<br>S12                                                |                                                             |                      |                              | ▶     | 3RW4900-0PB00 |                 | 1                       | 1 unit | 42G    |     |   |        |     |

# SIRIUS 3RW Soft Starters

## 3RW30, 3RW40 for Standard Applications

### 3RW40

#### Accessories

| For motor starter protectors | For soft starters | Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|------------------------------|-------------------|---------|----|-------------|--------------|-------------------|-----|----|
| Size                         | Size              |         |    |             |              |                   |     |    |

#### Standard mounting rail adapters **NEW**

|    |    |                                                                                                                                                                 |   |                      |  |   |        |     |
|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------|--|---|--------|-----|
| S2 | S2 | For mechanical fixing of motor starter protector and soft starter; for snapping onto standard mounting rail or for screw fixing<br><b>Single-unit packaging</b> | A | <b>3RA2932-1CA00</b> |  | 1 | 1 unit | 41B |
|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------|--|---|--------|-----|

| For soft starters | Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|---------|----|-------------|--------------|-------------------|-----|----|
| Type              | Size    |    |             |              |                   |     |    |

#### Modules for RESET<sup>1)</sup>



##### Modules for remote RESET, electrical

Operating range 0.85 ... 1.1 x  $U_N$ ,  
power consumption AC 80 VA, DC 70 W,  
ON period 0.2 ... 4 s,  
switching frequency 60/h

|                     |                          |                                                                       |             |                                                                      |  |             |                            |                   |
|---------------------|--------------------------|-----------------------------------------------------------------------|-------------|----------------------------------------------------------------------|--|-------------|----------------------------|-------------------|
| 3RW405. and 3RW407. | <b>S6,</b><br><b>S12</b> | • 24 ... 30 V AC/DC<br>• 110 ... 127 V AC/DC<br>• 220 ... 250 V AC/DC | A<br>A<br>A | <b>3RU1900-2AB71</b><br><b>3RU1900-2AF71</b><br><b>3RU1900-2AM71</b> |  | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41F<br>41F<br>41F |
|---------------------|--------------------------|-----------------------------------------------------------------------|-------------|----------------------------------------------------------------------|--|-------------|----------------------------|-------------------|



##### Mechanical RESET comprising

|                     |                          |                                                   |   |                      |  |   |        |     |
|---------------------|--------------------------|---------------------------------------------------|---|----------------------|--|---|--------|-----|
| 3RW405. and 3RW407. | <b>S6,</b><br><b>S12</b> | • Resetting plungers, holders and formers         | ▶ | <b>3RU1900-1A</b>    |  | 1 | 1 unit | 41F |
|                     |                          | • Matching pushbutton IP65, Ø 22 mm, 12 mm stroke | B | <b>3SB3000-0EA11</b> |  | 1 | 1 unit | 41J |
|                     |                          | • Extension plungers                              | A | <b>3SX1335</b>       |  | 1 | 1 unit | 41J |



##### Cable releases with holder for RESET

For Ø 6.5 mm holes in the control panel;  
max. control panel thickness 8 mm

|                     |                          |                                    |        |                                        |  |        |                  |            |
|---------------------|--------------------------|------------------------------------|--------|----------------------------------------|--|--------|------------------|------------|
| 3RW405. and 3RW407. | <b>S6,</b><br><b>S12</b> | • Length 400 mm<br>• Length 600 mm | ▶<br>▶ | <b>3RU1900-1B</b><br><b>3RU1900-1C</b> |  | 1<br>1 | 1 unit<br>1 unit | 41F<br>41F |
|---------------------|--------------------------|------------------------------------|--------|----------------------------------------|--|--------|------------------|------------|

<sup>1)</sup> Remote RESET already integrated in the 3RW402. to 3RW404. soft starters.

| For soft starters | DT   | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|------|-------------|--------------|-------------------|-----|----|
| Type              | Size |             |              |                   |     |    |

#### Fan (to increase the switching frequency and for device mounting in positions different from the normal position)



|                  |                         |   |                      |  |   |        |     |
|------------------|-------------------------|---|----------------------|--|---|--------|-----|
| 3RW402.          | <b>S0</b>               | ▶ | <b>3RW4928-8VB00</b> |  | 1 | 1 unit | 42G |
| 3RW403., 3RW404. | <b>S2,</b><br><b>S3</b> | ▶ | <b>3RW4947-8VB00</b> |  | 1 | 1 unit | 42G |

#### Manual for SIRIUS 3RW30/3RW40 soft starters<sup>1)</sup>

The manual can be downloaded free of charge  
in PDF format from the Internet, see  
<http://support.automation.siemens.com/WW/view/en/38752095>

<sup>1)</sup> The relevant operating instructions for 3RW402./3./4. (3ZX1012-0RW40-2DA1) or 3RW405./7. (3ZX1012-0RW40-1AA1) are included in the scope of supply of the soft starter or are available – like the Manual – for download from the Service&Support portal in PDF format:  
[www.siemens.com/industrial-controls/support](http://www.siemens.com/industrial-controls/support) → "Switching Devices"  
→ "Soft Starters and Solid-State Switching Devices" → "SIRIUS 3RW Soft Starters".

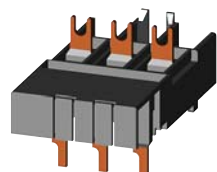
# SIRIUS 3RW Soft Starters

3RW30, 3RW40 for Standard Applications  
3RW40

## Accessories

| For soft starters | Motor starter protectors | DT   | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|--------------------------|------|-------------|--------------|-------------------|-----|----|
| Type              | Size                     | Size |             |              |                   |     |    |

### Link modules to motor starter protectors<sup>1)</sup>



3RA2921-1BA00

- With screw terminals

|                       |           |               |
|-----------------------|-----------|---------------|
| 3RW402.               | <b>S0</b> | <b>S00/S0</b> |
| 3RW4036.              | <b>S2</b> | <b>S2</b>     |
| 3RW4046.,<br>3RW4047. | <b>S3</b> | <b>S3</b>     |

A

NEW A



3RA2921-1BA00

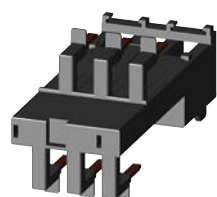
1 1 unit 41B

3RA2931-1AA00

1 1 unit 41B

3RA1941-1AA00

1 1 unit 41B



3RA2921-2GA00

- With spring-type terminals

|         |           |           |
|---------|-----------|-----------|
| 3RW402. | <b>S0</b> | <b>S0</b> |
|---------|-----------|-----------|



3RA2921-2GA00

1 1 unit 41B

- <sup>1)</sup> Can be used in size S0 up to maximum 32 A.  
Can be used in size S2 up to maximum 65 A in combination with  
3RA2932-1AC00 standard mounting rail adapter (specially for soft starters).  
Can be used in size S3 only for 3RV1 motor starter protectors.

| Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---------|----|-------------|--------------|-------------------|-----|----|
|---------|----|-------------|--------------|-------------------|-----|----|

### Tool for opening spring-type terminals in sizes S00 and S0



3RA2908-1A

#### Screwdrivers

For all SIRIUS devices with spring-type terminals  
length approx. 200 mm, 3.0 mm x 0.5 mm,  
titanium gray/black, partially insulated

A

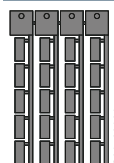
#### Spring-type terminals



3RA2908-1A

1 1 unit 41B

### Blank labels



3RT2900-1SB20

#### Unit labeling plates<sup>1)</sup>

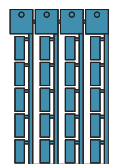
For SIRIUS devices

- 20 mm x 7 mm, titanium gray

D

3RT2900-1SB20

100 340 units 41B



3RT1900-1SB20

- 20 mm x 7 mm, pastel turquoise

D

3RT1900-1SB20

100 340 units 41B

- <sup>1)</sup> PC labeling systems for individual inscription  
of unit labeling plates are available from:  
murrplastik Systemtechnik GmbH  
(see Chapter 16 "Appendix" → "External Partners").

### Spare parts

| For soft starters | Version | DT                                 | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|---------|------------------------------------|-------------|--------------|-------------------|-----|----|
| Type              | Size    | Rated control supply voltage $U_s$ |             |              |                   |     |    |

### Fans



#### Fans

|               |            |          |
|---------------|------------|----------|
| 3RW405.-.BB3. | <b>S6</b>  | 115 V AC |
| 3RW405.-.BB4. | <b>S6</b>  | 230 V AC |
| 3RW407.-.BB3. | <b>S12</b> | 115 V AC |
| 3RW407.-.BB4. | <b>S12</b> | 230 V AC |



3RW4936-8VX30

1 1 unit 42G

3RW4936-8VX40

1 1 unit 42G

3RW4947-8VX30

1 1 unit 42G

3RW4947-8VX40

1 1 unit 42G

### More information

#### Application examples for normal starting (CLASS 10)

**Normal starting CLASS 10** (up to 20 s with 350 %  $I_{n \text{ motor}}$ , one start per hour)

The soft starter rating can be selected to be as high as the rating of the motor used.

| Application                         |   | Conveyor belts | Roller conveyors | Compressors    | Small fans <sup>1)</sup> | Pumps          | Hydraulic pumps |
|-------------------------------------|---|----------------|------------------|----------------|--------------------------|----------------|-----------------|
| <b>Starting parameters</b>          |   |                |                  |                |                          |                |                 |
| • Voltage ramp and current limiting |   |                |                  |                |                          |                |                 |
| - Starting voltage                  | % | 70             | 60               | 50             | 40                       | 40             | 40              |
| - Starting time                     | s | 10             | 10               | 10             | 10                       | 10             | 10              |
| - Current limit value               |   | $5 \times I_M$ | $5 \times I_M$   | $4 \times I_M$ | $4 \times I_M$           | $4 \times I_M$ | $4 \times I_M$  |
| <b>Stopping time</b>                | s | 5              | 5                | 0              | 0                        | 10             | 0               |

<sup>1)</sup> The mass inertia of the fan is <10 times the mass inertia of the motor.

#### Application examples for heavy starting (CLASS 20)

**Heavy starting CLASS 20** (up to 40 s with 350 %  $I_{n \text{ motor}}$ , one start per hour)

The soft starter has to be selected at least one performance class higher than the motor used.

| Application                         |   | Stirrers       | Centrifuges    |
|-------------------------------------|---|----------------|----------------|
| <b>Starting parameters</b>          |   |                |                |
| • Voltage ramp and current limiting |   |                |                |
| - Starting voltage                  | % | 40             | 40             |
| - Starting time                     | s | 20             | 20             |
| - Current limit value               |   | $4 \times I_M$ | $4 \times I_M$ |
| <b>Stopping time</b>                |   | 0              | 0              |

#### Note:

These tables present sample set values and device dimensions. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during commissioning.

The soft starter dimensions should be checked where necessary with the help of Technical Assistance.

## SIRIUS 3RW Soft Starters

3RW30, 3RW40 for Standard Applications  
3RW40

### Accessories

#### Configuration

The solid-state 3RW soft starters are designed for easy starting conditions. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device.

Where long starting times are involved, the integrated electronic overload relay for heavy starting should not be disconnected. PTC sensors are recommended. This also applies for the soft ramp-down because during the ramp down time an additional current loading applies in contrast to coasting down.

In the case of high switching frequencies in S4 mode, Siemens recommends the use of PTC sensors. For relevant device versions with integrated thermistor motor protection or separate thermistor evaluation devices, see Chapter 10 "Monitoring and Control Devices".

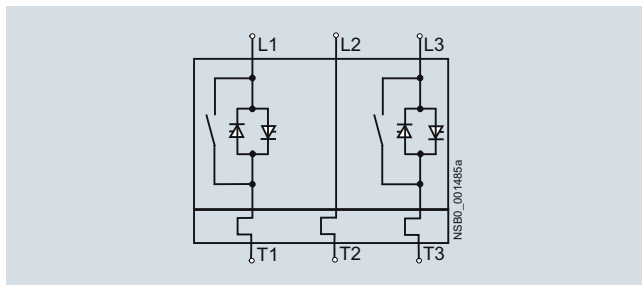
No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and controls) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately. Please observe the maximum switching frequencies specified in the technical specifications.

#### Note:

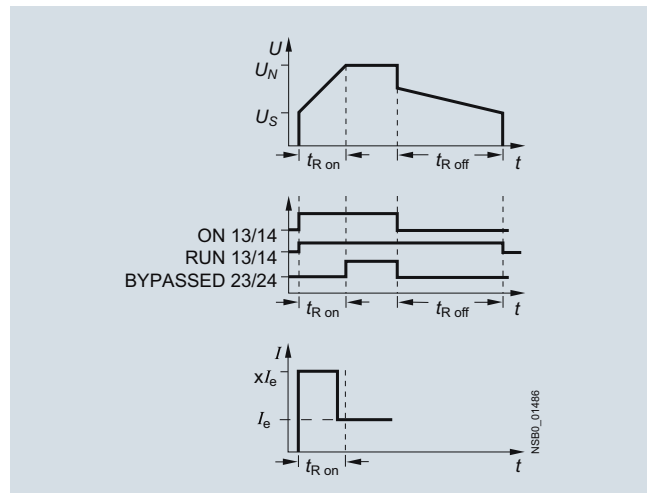
When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

#### Schematic circuit diagram of power electronics



A bypass contact system and electronic overload relay are already integrated in the 3RW40 soft starter and therefore do not have to be ordered separately.

#### Status graphs



#### Manual for SIRIUS 3RW30/40

Besides containing all important information on configuring, commissioning and servicing, the manual also contains example circuits and the technical specifications for all devices.  
<http://support.automation.siemens.com/WW/view/en/38752095>

### Overview



3RW44 soft starter with PROFINET communication module

In addition to soft starting and soft ramp-down, the solid-state SIRIUS 3RW44 soft starters provide numerous functions for higher-level requirements. They cover a performance range up to 710 kW (at 400 V) in the inline circuit and up to 1200 kW (at 400 V) in the inside-delta circuit.

The 3RW44 soft starters are characterized by a compact design for space-saving and clearly arranged control cabinet layouts. For optimized motor starting and stopping the innovative SIRIUS 3RW44 soft starters are an attractive alternative with considerable savings potential compared to applications with a frequency converter. The new torque control and adjustable current limiting enable the High-Feature soft starters to be used in nearly every conceivable task. They guarantee the reliable avoidance of sudden torque applications and current peaks during motor starting and stopping. This creates savings potential when calculating the size of the switchgear and when servicing the machinery installed. Be it for inline circuits or inside-delta circuits – the SIRIUS 3RW44 soft starter offers savings especially in terms of size and equipment costs.

The bypass contacts already integrated in the soft starter bypass the thyristors after a motor ramp-up is detected. This results in a further great reduction in the heat loss occurring during operation of the soft starter at rated value.

Combinations of various starting, operating and ramp-down possibilities ensure an optimum adaptation to the application-specific requirements. Operation and commissioning can be performed with the menu-controlled keypad and a menu-prompted, multi-line graphic display with background lighting. The optimized motor ramp-up and ramp-down can be effected quickly, easily and reliably by means of just a few settings with a previously selected language. Four-key operation and plain-text displays for each menu point guarantee full clarity at every moment of the parameterization and operation.

#### Applicable standards

- IEC 60947-4-2
- UL/CSA

#### Functionality

Equipped with modern, ergonomic user prompting the 3RW44 soft starters can be commissioned quickly and easily using a keypad and a menu-prompted, multi-line graphic display with background lighting. The optimized motor ramp-up and ramp-down can be effected quickly, easily and reliably by means of just a few settings with a selectable language. Four-key operation and plain-text displays for each menu point guarantee full clarity at every moment of the parameterization and operation. During operation and when control voltage is applied, the display field continuously presents measured values and operating values as well as warnings and fault messages. An external display and operator module can be connected by means of a connection cable to the soft starter, thus enabling active indications and the like to be read directly from the control cabinet door.

The SIRIUS 3RW44 soft starters are equipped with optimum functionality. An integral bypass contact system reduces the power loss of the soft starter during operation. This reliably prevents heating of the switchgear environment. The SIRIUS 3RW44 soft starters have internal intrinsic device protection. This prevents thermal overloading of the power section's thyristors, e.g. due to unacceptably high closing operations.

Wiring outlay for installing an additional motor overload relay is no longer needed as the SIRIUS 3RW44 soft starters perform this function too. In addition they offer adjustable trip classes and a thermistor motor protection function. As an option the thyristors can also be protected by SITOP semiconductor fuses from short-circuiting so that the soft starter is still functional after a short circuit (type of coordination "2"). And even inrush current peaks are reliably avoided thanks to adjustable current limiting.

Optionally, SIRIUS 3RW44 soft starters can be upgraded with a PROFIBUS DP or PROFINET module. Thanks to their communication capability and their programmable control inputs and relay outputs the SIRIUS 3RW44 soft starters can be very easily and quickly integrated in higher-level controllers.

In addition a creep speed function is available for positioning and setting jobs. With this function the motor can be controlled in both directions of rotation with reduced torque and an adjustable, low speed.

On the other hand the SIRIUS 3RW44 soft starters offer a new, combined DC braking function for the fast stopping of driving loads.

#### Highlights

- Soft starting with breakaway pulse, torque control or voltage ramp, adjustable torque or current limiting as well as any combination of these, depending on load type
- Integrated bypass contact system to minimize power loss
- Various setting options for the starting parameters such as starting torque, starting voltage, ramp-up and ramp-down time, and much more in three separate parameter sets
- Start-up detection
- Inside-delta circuit for savings in terms of size and equipment costs
- Various ramp-down modes selectable: coasting down, torque-controlled pump stop, combined DC braking
- Solid-state motor overload and intrinsic device protection
- Thermistor motor protection
- Keypad with a menu-prompted, multi-line graphic display with background lighting
- Interface for communication with the PC for more accurate setting of the parameters as well as for control and monitoring
- Simple integration to the motor feeder
- Simple mounting and commissioning
- Display of operating states and fault messages
- Connection to PROFIBUS and PROFINET with optional PROFIBUS DP or PROFINET module
- External display and operator module
- Mains voltages from 200 to 690 V, 50 to 60 Hz
- Can be used up to 60 °C (derating from 40 °C)

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

#### Soft Starter ES parameterization software<sup>1)</sup>

Soft Starter ES software is used for the parameterization, monitoring and service diagnostics of SIRIUS 3RW44 High-Feature soft starters.

#### SIRIUS 3RW44 Soft Starter block library for SIMATIC PCS 7<sup>1)</sup>

The SIRIUS 3RW44 Soft Starter PCS 7 block library can be used for simple and easy integration of SIRIUS 3RW44 soft starters into the SIMATIC PCS 7 process control system.

<sup>1)</sup> See Chapter 14 "Parameterization, Configuration and Visualization".

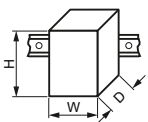
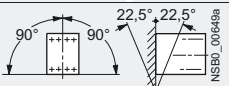
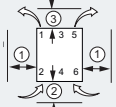
### Application

The SIRIUS 3RW44 solid-state soft starters are suitable for the torque-controlled soft starting and ramp-down as well as braking of three-phase asynchronous motors.

#### Application areas

See "Selection aid for soft starters" on page 6/6.

### Technical specifications

| Type                                                                               |                                                                                   | 3RW442.                                                                                                                                                                             | 3RW443. | 3RW444. | 3RW445. | 3RW446. |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|
| <b>Mechanics and environment</b>                                                   |                                                                                   |                                                                                                                                                                                     |         |         |         |         |
| <b>Mounting dimensions (WxHxD)</b><br>• Screw terminals<br>• Spring-type terminals |  | mm                                                                                                                                                                                  | mm      | mm      | mm      | mm      |
|                                                                                    |                                                                                   |                                                                                                                                                                                     |         |         |         |         |
| <b>Permissible ambient temperature</b>                                             |                                                                                   |                                                                                                                                                                                     |         |         |         |         |
| During operation                                                                   | °C                                                                                | 0 ... +60; (derating from +40)                                                                                                                                                      |         |         |         |         |
| During storage                                                                     | °C                                                                                | -25 ... +80                                                                                                                                                                         |         |         |         |         |
| <b>Weight</b>                                                                      | kg                                                                                | 6.5                                                                                                                                                                                 | 7.9     | 11.5    | 50      | 78      |
| <b>Permissible mounting position</b>                                               |                                                                                   |                                                                                                    |         |         |         |         |
| <b>Installation type</b>                                                           |                                                                                   | Stand-alone installation<br><br>① ≥ 5 mm (≥ 0.2 in)<br>② ≥ 75 mm (≥ 3 in)<br>③ ≥ 100 mm (≥ 4 in) |         |         |         |         |
| <b>Permissible installation altitude</b>                                           | m                                                                                 | 5 000 (derating from 1000, see Characteristic Curves page 6/7); higher on request                                                                                                   |         |         |         |         |
| <b>Degree of protection</b>                                                        |                                                                                   | IP00                                                                                                                                                                                |         |         |         |         |

| Type                         | Terminal |    | 3RW44...BC3. | 3RW44...BC4. |
|------------------------------|----------|----|--------------|--------------|
| Control electronics          |          |    |              |              |
| <b>Rated values</b>          |          |    |              |              |
| Rated control supply voltage | A1/A2/PE | V  | 115 AC       | 230 AC       |
| • Tolerance                  |          | %  | -15/+10      | -15/+10      |
| Rated frequency              |          | Hz | 50 ... 60    | 50 ... 60    |
| • Tolerance                  |          | %  | ±10          | ±10          |

| Type                                                       |      | 3RW44...BC.4      | 3RW44...BC.5 | 3RW44...BC.6 |
|------------------------------------------------------------|------|-------------------|--------------|--------------|
| <b>Power electronics</b>                                   |      |                   |              |              |
| <b>Rated operational voltage for inline circuit</b>        | V AC | 200 ... 460       | 400 ... 600  | 400 ... 690  |
| Tolerance                                                  | %    | -15/+10           | -15/+10      | -15/+10      |
| <b>Maximum blocking voltage (thyristor)</b>                | V AC | 1 400             | 1 800        | 1 800        |
| <b>Rated operational voltage for inside-delta circuit</b>  | V AC | 200 ... 460       | 400 ... 600  | 400 ... 600  |
| Tolerance                                                  | %    | -15/+10           | -15/+10      | -15/+10      |
| <b>Rated frequency</b>                                     | Hz   | 50 ... 60         |              |              |
| Tolerance                                                  | %    | ±10               |              |              |
| <b>Uninterrupted duty</b> at 40 °C (% of $I_e$ )           | %    | 115               |              |              |
| <b>Minimum load</b> (% of set motor current $I_M$ )        | %    | 8                 |              |              |
| <b>Maximum cable length</b> between soft starter and motor | m    | 500 <sup>1)</sup> |              |              |

<sup>1)</sup> At the project configuration stage, it is important to make allowance for the voltage drop on the motor cable up to the motor connection. If necessary, higher values for the rated operational voltage or current must be calculated accordingly for the soft starter.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

| Type                                                                                                                                                                                                                               |  | 3RW4422 | 3RW4423      | 3RW4424        | 3RW4425      | 3RW4426      | 3RW4427      |              |              |                |              |              |              |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------|--------------|----------------|--------------|--------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|--------------|
| Power electronics                                                                                                                                                                                                                  |  |         |              |                |              |              |              |              |              |                |              |              |              |              |
| Rated operational current $I_e$                                                                                                                                                                                                    |  | 29      | 36           | 47             | 57           | 77           | 93           |              |              |                |              |              |              |              |
| Load rating with rated operational current $I_e$<br>• According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a<br>- At 40 / 50 / 60 °C                                                                          |  | A       | 29 / 26 / 23 | 36 / 32 / 29   | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |              |                |              |              |              |              |
| Smallest adjustable rated motor current $I_M$<br>For the motor overload protection                                                                                                                                                 |  | A       | 5            | 7              | 9            | 11           | 15           | 18           |              |                |              |              |              |              |
| Power loss<br>• In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60°C) approx.<br>• During starting with current limit set to 350 % $I_M$ (40 / 50 / 60 °C)                           |  | W       | 8 / 7.5 / 7  | 10 / 9 / 8.5   | 32 / 31 / 29 | 36 / 34 / 31 | 45 / 41 / 37 | 55 / 51 / 47 |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | W       | 400/345/290  | 470/410/355    | 600/515/440  | 725/630/525  | 940/790/660  | 1160/980/830 |              |                |              |              |              |              |
| Permissible rated motor current and starts per hour at<br>40 °C / 50 °C / 60 °C                                                                                                                                                    |  |         |              |                |              |              |              |              |              |                |              |              |              |              |
| • For normal starting (CLASS 5)<br>- Rated motor current $I_M^{(2)}$ , starting time 5 s<br>- Starts per hour <sup>3)</sup><br><br>- Rated motor current $I_M^{(2)}$ , starting time 10 s<br>- Starts per hour <sup>3)</sup>       |  |         |              |                |              |              |              | A            | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |
|                                                                                                                                                                                                                                    |  | 1/h     | 41           | 34             | 41           | 41           | 41           | 41           |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | A       | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | 1/h     | 20           | 15             | 20           | 20           | 20           | 20           |              |                |              |              |              |              |
| • For normal starting (CLASS 10)<br>- Rated motor current $I_M^{(2)}$ , starting time 10 s<br>- Starts per hour <sup>3)</sup><br><br>- Rated motor current $I_M^{(2)}$ , starting time 20 s<br>- Starts per hour <sup>3)</sup>     |  |         |              |                |              |              |              | A            | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |
|                                                                                                                                                                                                                                    |  | 1/h     | 20           | 15             | 20           | 20           | 20           | 20           |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | A       | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | 1/h     | 10           | 6              | 10           | 10           | 8            | 8            |              |                |              |              |              |              |
| • For normal starting (CLASS 15)<br>- Rated motor current $I_M^{(2)}$ , starting time 15 s<br>- Starts per hour <sup>3)</sup><br><br>- Rated motor current $I_M^{(2)}$ , starting time 30 s<br>- Starts per hour <sup>3)</sup>     |  |         |              |                |              |              |              | A            | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |
|                                                                                                                                                                                                                                    |  | 1/h     | 13           | 9              | 13           | 13           | 13           | 13           |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | A       | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 93 / 82 / 72 |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | 1/h     | 6            | 4              | 6            | 6            | 6            | 6            |              |                |              |              |              |              |
| • For heavy starting (CLASS 20)<br>- Rated motor current $I_M^{(2)}$ , starting time 20 s<br>- Starts per hour <sup>3)</sup><br><br>- Rated motor current $I_M^{(2)}$ , starting time 40 s<br>- Starts per hour <sup>3)</sup>      |  |         |              |                |              |              |              | A            | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 88 / 80 / 72 |
|                                                                                                                                                                                                                                    |  | 1/h     | 10           | 6              | 10           | 10           | 10           | 10           |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | A       | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 77 / 68 / 59 | 88 / 80 / 72 |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | 1/h     | 4            | 2              | 4            | 5            | 1.8          | 0.8          |              |                |              |              |              |              |
| • For very heavy starting (CLASS 30)<br>- Rated motor current $I_M^{(2)}$ , starting time 30 s<br>- Starts per hour <sup>3)</sup><br><br>- Rated motor current $I_M^{(2)}$ , starting time 60 s<br>- Starts per hour <sup>3)</sup> |  |         |              |                |              |              |              | A            | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 65 / 60 / 54 | 77 / 70 / 63 |
|                                                                                                                                                                                                                                    |  | 1/h     | 6            | 4              | 6            | 6            | 6            | 6            |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | A       | 29 / 26 / 23 | 36 / 32.5 / 29 | 47 / 42 / 37 | 57 / 51 / 45 | 65 / 60 / 54 | 77 / 70 / 63 |              |                |              |              |              |              |
|                                                                                                                                                                                                                                    |  | 1/h     | 1.8          | 0.8            | 3.3          | 1.5          | 2            | 1            |              |                |              |              |              |              |

<sup>1)</sup> Measurement at 60 °C according to UL/CSA not required.

<sup>2)</sup> Current limit on soft starter set to 350 %  $I_M$ , ON period = 70 %. Maximum adjustable rated motor current  $I_M$ , dependent on CLASS setting.

<sup>3)</sup> For intermittent duty S4 with ON period = 70 %,  $T_U$  = 40 / 50 / 60 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

| Type                                                                                                                                                                        |     | 3RW4434           | 3RW4435            | 3RW4436            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------|--------------------|--------------------|
| <b>Power electronics</b>                                                                                                                                                    |     |                   |                    |                    |
| <b>Rated operational current <math>I_e</math></b>                                                                                                                           |     | 113               | 134                | 162                |
| <b>Load rating with rated operational current <math>I_e</math></b><br>• According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a<br>- At 40 / 50 / 60 °C | A   | 113 / 100 / 88    | 134 / 117 / 100    | 162 / 145 / 125    |
| <b>Smallest adjustable rated motor current <math>I_M</math></b><br>For the motor overload protection                                                                        | A   | 22                | 26                 | 32                 |
| <b>Power loss</b>                                                                                                                                                           |     |                   |                    |                    |
| • In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60 °C) approx.                                                              | W   | 64 / 58 / 53      | 76 / 67 / 58       | 95 / 83 / 71       |
| • During starting with current limit set to 350 % $I_M$ (40 / 50 / 60 °C)                                                                                                   | W   | 1350 / 1140 / 970 | 1700 / 1400 / 1140 | 2460 / 1980 / 1620 |
| <b>Permissible rated motor current and starts per hour at 40 °C / 50 °C / 60 °C</b>                                                                                         |     |                   |                    |                    |
| • <b>For normal starting (CLASS 5)</b>                                                                                                                                      |     |                   |                    |                    |
| - Rated motor current $I_M^{(2)}$ , starting time 5 s                                                                                                                       | A   | 113 / 100 / 88    | 134 / 117 / 100    | 162 / 145 / 125    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 41                | 39                 | 41                 |
| - Rated motor current $I_M^{(2)}$ , starting time 10 s                                                                                                                      | A   | 113 / 100 / 88    | 134 / 117 / 100    | 162 / 145 / 125    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 20                | 15                 | 20                 |
| • <b>For normal starting (CLASS 10)</b>                                                                                                                                     |     |                   |                    |                    |
| - Rated motor current $I_M^{(2)}$ , starting time 10 s                                                                                                                      | A   | 113 / 100 / 88    | 134 / 117 / 100    | 162 / 145 / 125    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 20                | 15                 | 20                 |
| - Rated motor current $I_M^{(2)}$ , starting time 20 s                                                                                                                      | A   | 113 / 100 / 88    | 134 / 117 / 100    | 162 / 145 / 125    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 9                 | 6                  | 7                  |
| • <b>For normal starting (CLASS 15)</b>                                                                                                                                     |     |                   |                    |                    |
| - Rated motor current $I_M^{(2)}$ , starting time 15 s                                                                                                                      | A   | 113 / 100 / 88    | 134 / 117 / 100    | 162 / 145 / 125    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 13                | 9                  | 12                 |
| - Rated motor current $I_M^{(2)}$ , starting time 30 s                                                                                                                      | A   | 113 / 100 / 88.3  | 134 / 117 / 100    | 162 / 145 / 125    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 6                 | 6                  | 1                  |
| • <b>For heavy starting (CLASS 20)</b>                                                                                                                                      |     |                   |                    |                    |
| - Rated motor current $I_M^{(2)}$ , starting time 20 s                                                                                                                      | A   | 106 / 97 / 88     | 125 / 113 / 100    | 147 / 134 / 122    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 9                 | 9                  | 10                 |
| - Rated motor current $I_M^{(2)}$ , starting time 40 s                                                                                                                      | A   | 106 / 97 / 88     | 125 / 113 / 100    | 147 / 134 / 122    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 1.5               | 2                  | 1                  |
| • <b>For very heavy starting (CLASS 30)</b>                                                                                                                                 |     |                   |                    |                    |
| - Rated motor current $I_M^{(2)}$ , starting time 30 s                                                                                                                      | A   | 91 / 84 / 76      | 110 / 100 / 90     | 120 / 110 / 100    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 6                 | 6                  | 6                  |
| - Rated motor current $I_M^{(2)}$ , starting time 60 s                                                                                                                      | A   | 91 / 84 / 76      | 110 / 100 / 90     | 120 / 110 / 100    |
| - Starts per hour <sup>3)</sup>                                                                                                                                             | 1/h | 2                 | 2                  | 2                  |

<sup>1)</sup> Measurement at 60 °C according to UL/CSA not required.

<sup>2)</sup> Current limit on soft starter set to 350 %  $I_M$ , ON period = 70 %. Maximum adjustable rated motor current  $I_M$ , dependent on CLASS setting.

<sup>3)</sup> For intermittent duty S4 with ON period = 70 %,  $T_U = 40 / 50 / 60$  °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

| Type                                                                                                          |     | 3RW4443         | 3RW4444         | 3RW4445         | 3RW4446         | 3RW4447         |
|---------------------------------------------------------------------------------------------------------------|-----|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Power electronics</b>                                                                                      |     |                 |                 |                 |                 |                 |
| <b>Rated operational current <math>I_e</math></b>                                                             |     | 203             | 250             | 313             | 356             | 432             |
| <b>Load rating with rated operational current <math>I_e</math></b>                                            |     |                 |                 |                 |                 |                 |
| • According to IEC and UL/CSA <sup>1)</sup> , for individual mounting, AC-53a                                 |     |                 |                 |                 |                 |                 |
| - At 40 / 50 / 60 °C                                                                                          | A   | 203 / 180 / 156 | 250 / 215 / 185 | 313 / 280 / 250 | 356 / 315 / 280 | 432 / 385 / 335 |
| <b>Smallest adjustable rated motor current <math>I_M</math></b>                                               | A   | 40              | 50              | 62              | 71              | 86              |
| For the motor overload protection                                                                             |     |                 |                 |                 |                 |                 |
| <b>Power loss</b>                                                                                             |     |                 |                 |                 |                 |                 |
| • In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60°C) approx. | W   | 89 / 81 / 73    | 110 / 94 / 83   | 145 / 126 / 110 | 174 / 147 / 126 | 232 / 194 / 159 |
| • During starting with current limit set to 350 % $I_M$ (40 / 50 / 60 °C)                                     | W   | 3350/2600/2150  | 4000/2900/2350  | 4470/4000/3400  | 5350/4050/3500  | 5860/5020/4200  |
| <b>Permissible rated motor current and starts per hour at 40 °C / 50 °C / 60 °C</b>                           |     |                 |                 |                 |                 |                 |
| <b>• For normal starting (CLASS 5)</b>                                                                        |     |                 |                 |                 |                 |                 |
| - Rated motor current $I_M^{(2)}$ , starting time 5 s                                                         | A   | 203 / 180 / 156 | 250 / 215 / 185 | 313 / 280 / 250 | 356 / 315 / 280 | 432 / 385 / 335 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 41              | 41              | 41              | 41              | 39              |
| - Rated motor current $I_M^{(2)}$ , starting time 10 s                                                        | A   | 203 / 180 / 156 | 250 / 215 / 185 | 313 / 280 / 250 | 356 / 315 / 280 | 432 / 385 / 335 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 20              | 20              | 19              | 17              | 16              |
| <b>• For normal starting (CLASS 10)</b>                                                                       |     |                 |                 |                 |                 |                 |
| - Rated motor current $I_M^{(2)}$ , starting time 10 s                                                        | A   | 203 / 180 / 156 | 250 / 215 / 185 | 313 / 280 / 250 | 356 / 315 / 280 | 432 / 385 / 335 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 20              | 20              | 19              | 17              | 16              |
| - Rated motor current $I_M^{(2)}$ , starting time 20 s                                                        | A   | 203 / 180 / 156 | 250 / 215 / 185 | 313 / 280 / 250 | 356 / 315 / 280 | 432 / 385 / 335 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 9               | 10              | 6               | 4               | 5               |
| <b>• For normal starting (CLASS 15)</b>                                                                       |     |                 |                 |                 |                 |                 |
| - Rated motor current $I_M^{(2)}$ , starting time 15 s                                                        | A   | 203 / 180 / 156 | 240 / 215 / 185 | 313 / 280 / 250 | 325 / 295 / 265 | 402 / 385 / 335 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 13              | 13              | 10              | 13              | 11              |
| - Rated motor current $I_M^{(2)}$ , starting time 30 s                                                        | A   | 203 / 180 / 156 | 240 / 215 / 185 | 313 / 280 / 250 | 325 / 295 / 265 | 402 / 385 / 335 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 3               | 6               | 1               | 2               | 1               |
| <b>• For heavy starting (CLASS 20)</b>                                                                        |     |                 |                 |                 |                 |                 |
| - Rated motor current $I_M^{(2)}$ , starting time 20 s                                                        | A   | 195 / 175 / 155 | 215 / 195 / 180 | 275 / 243 / 221 | 285 / 263 / 240 | 356 / 326 / 295 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 10              | 10              | 10              | 10              | 10              |
| - Rated motor current $I_M^{(2)}$ , starting time 40 s                                                        | A   | 195 / 175 / 155 | 215 / 195 / 180 | 275 / 243 / 221 | 285 / 263 / 240 | 356 / 326 / 295 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 1               | 5               | 1               | 3               | 1               |
| <b>• For very heavy starting (CLASS 30)</b>                                                                   |     |                 |                 |                 |                 |                 |
| - Rated motor current $I_M^{(2)}$ , starting time 30 s                                                        | A   | 162 / 148 / 134 | 180 / 165 / 150 | 220 / 201 / 182 | 240 / 223 / 202 | 285 / 260 / 235 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 6               | 6               | 6               | 6               | 6               |
| - Rated motor current $I_M^{(2)}$ , starting time 60 s                                                        | A   | 162 / 148 / 134 | 180 / 165 / 150 | 220 / 201 / 182 | 240 / 223 / 202 | 285 / 260 / 235 |
| - Starts per hour <sup>3)</sup>                                                                               | 1/h | 3               | 3               | 3               | 2               | 1               |

<sup>1)</sup> Measurement at 60 °C according to UL/CSA not required.

<sup>2)</sup> Current limit on soft starter set to 350 %  $I_M$ , ON period = 70 %. Maximum adjustable rated motor current  $I_M$ , dependent on CLASS setting.

<sup>3)</sup> For intermittent duty S4 with ON period = 70 %,  $T_U = 40 / 50 / 60$  °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

| Type                                                                                                                |     | 3RW4453     | 3RW4454     | 3RW4455     | 3RW4456     | 3RW4457     | 3RW4458     | 3RW4465      | 3RW4466       |
|---------------------------------------------------------------------------------------------------------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| <b>Power electronics</b>                                                                                            |     |             |             |             |             |             |             |              |               |
| <b>Rated operational current <math>I_e</math></b>                                                                   |     | 551         | 615         | 693         | 780         | 880         | 970         | 1076         | 1214          |
| <b>Load rating with rated operational current <math>I_e</math></b>                                                  |     |             |             |             |             |             |             |              |               |
| • According to IEC and UL/CSA <sup>1)</sup> ,<br>for individual mounting, AC-53a<br>- At 40 / 50 / 60 °C            | A   | 551/494/438 | 615/551/489 | 693/615/551 | 780/693/615 | 880/780/693 | 970/850/760 | 1076/970/880 | 1214/1076/970 |
| <b>Smallest adjustable rated motor current <math>I_M</math></b>                                                     | A   | 110         | 123         | 138         | 156         | 176         | 194         | 215          | 242           |
| For the motor overload protection                                                                                   |     |             |             |             |             |             |             |              |               |
| <b>Power loss</b>                                                                                                   |     |             |             |             |             |             |             |              |               |
| • In operation after completed starting with<br>uninterrupted rated operational current<br>(40 / 50 / 60°C) approx. | W   | 159/135/113 | 186/156/130 | 220/181/152 | 214/176/146 | 250/204/168 | 270/215/179 | 510/420/360  | 630/510/420   |
| • During starting with current limit set to<br>350 % $I_M$                                                          |     |             |             |             |             |             |             |              |               |
| - At 40 °C                                                                                                          | W   | 7 020       | 8 100       | 9 500       | 11 100      | 13 100      | 15 000      | 15 000       | 17 500        |
| - At 50 °C                                                                                                          | W   | 6 111       | 7 020       | 8 100       | 9 500       | 11 000      | 12 500      | 13 000       | 15 000        |
| - At 60 °C                                                                                                          | W   | 5 263       | 5 996       | 7 020       | 8 100       | 8 100       | 10 700      | 11 500       | 13 000        |
| <b>Permissible rated motor current and starts<br/>per hour at 40 °C / 50 °C / 60 °C</b>                             |     |             |             |             |             |             |             |              |               |
| <b>• For normal starting (CLASS 5)</b>                                                                              |     |             |             |             |             |             |             |              |               |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 5 s                                                            | A   | 551/494/438 | 615/551/489 | 693/615/551 | 780/693/615 | 880/780/693 | 970/850/760 | 1076/970/880 | 1214/1076/970 |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 41          | 41          | 37          | 33          | 22          | 17          | 30           | 20            |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 10 s                                                           | A   | 551/494/438 | 615/551/489 | 693/615/551 | 780/693/615 | 880/780/693 | 970/850/760 | 1076/970/880 | 1214/1076/970 |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 20          | 20          | 16          | 13          | 8           | 5           | 10           | 6             |
| <b>• For normal starting (CLASS 10)</b>                                                                             |     |             |             |             |             |             |             |              |               |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 10 s                                                           | A   | 551/494/438 | 615/551/489 | 693/615/551 | 780/693/615 | 880/780/693 | 970/850/760 | 1076/970/880 | 1214/1076/970 |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 20          | 20          | 16          | 13          | 8           | 5           | 11           | 6             |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 20 s                                                           | A   | 551/494/438 | 615/551/489 | 693/615/551 | 780/693/615 | 880/780/693 | 970/850/760 | 1076/970/880 | 1214/1076/970 |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 10          | 9           | 6           | 4           | 0.3         | 0.3         | 3            | 0.5           |
| <b>• For normal starting (CLASS 15)</b>                                                                             |     |             |             |             |             |             |             |              |               |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 15 s                                                           | A   | 551/494/438 | 615/551/489 | 666/615/551 | 723/693/615 | 780/710/650 | 821/755/693 | 1020/950/850 | 1090/1000/920 |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 13          | 13          | 11          | 9           | 8           | 8           | 7            | 5             |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 30 s                                                           | A   | 551/494/438 | 615/551/489 | 666/615/551 | 723/693/615 | 780/710/650 | 821/755/693 | 1020/950/850 | 1090/1000/920 |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 6           | 4           | 3           | 1           | 0.4         | 0.5         | 1            | 1             |
| <b>• For heavy starting (CLASS 20)</b>                                                                              |     |             |             |             |             |             |             |              |               |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 20 s                                                           | A   | 551/494/438 | 591/551/489 | 633/615/551 | 670/634/576 | 710/650/590 | 740/685/630 | 970/880/810  | 1030/940/860  |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 10          | 10          | 7           | 8           | 8           | 9           | 7            | 5             |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 40 s                                                           | A   | 551/494/438 | 591/551/489 | 633/615/551 | 670/634/576 | 710/650/590 | 740/685/630 | 970/880/810  | 1030/940/860  |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 4           | 2           | 1           | 1           | 0.4         | 1           | 1            | 1             |
| <b>• For very heavy starting (CLASS 30)</b>                                                                         |     |             |             |             |             |             |             |              |               |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 30 s                                                           | A   | 500/480/438 | 525/489/455 | 551/520/480 | 575/540/490 | 600/550/500 | 630/580/530 | 880/810/740  | 920/850/780   |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 6           | 6           | 6           | 6           | 6           | 6           | 6            | 6             |
| - Rated motor current $I_M^{(2)}$ ,<br>starting time 60 s                                                           | A   | 500/480/438 | 525/489/455 | 551/520/480 | 575/540/490 | 600/550/500 | 630/580/530 | 880/810/740  | 920/850/780   |
| - Starts per hour <sup>3)</sup>                                                                                     | 1/h | 2           | 1           | 1           | 1           | 1.5         | 1           | 1            | 1             |

<sup>1)</sup> Measurement at 60 °C according to UL/CSA not required.

<sup>2)</sup> Current limit on soft starter set to 350 %  $I_M$ .  
ON period = 70 %. Maximum adjustable rated motor current  $I_M$ ,  
dependent on CLASS setting.

<sup>3)</sup> For intermittent duty S4 with ON period = 70 %,  $T_U = 40 / 50 / 60$  °C,  
stand-alone installation vertical. The quoted switching frequencies do not  
apply for automatic mode.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

#### Motor feeders with soft starters

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, semiconductor fuses must be fitted in the motor feeder.

**ToC 1**

Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

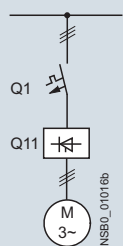
**ToC 2**

Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

#### Inline circuit fuseless version



| Soft starters                                                                                                                                                  |                      | Motor starter protectors <sup>1)</sup> |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------|--------------------|
| Q11<br>Type                                                                                                                                                    | Nominal current<br>A | Q1<br>Type                             | Rated current<br>A |
| Type of coordination "1": 3RW4422 ... 3RW4427: $I_q = 32 \text{ kA}$ ; 3RW4434 and 3RW4435: $I_q = 16 \text{ kA}$ ; 3RW4436 ... 3RW4466: $I_q = 65 \text{ kA}$ |                      |                                        |                    |
| 3RW4422                                                                                                                                                        | 29                   | 3RV1042-4HA10                          | 50                 |
| 3RW4423                                                                                                                                                        | 36                   | 3RV1042-4JA10                          | 63                 |
| 3RW4424                                                                                                                                                        | 47                   | 3RV1042-4KA10                          | 75                 |
| 3RW4425                                                                                                                                                        | 57                   | 3RV1042-4LA10                          | 90                 |
| 3RW4426                                                                                                                                                        | 77                   | 3RV1042-4MA10                          | 100                |
| 3RW4427                                                                                                                                                        | 93                   | 3RV1042-4MA10                          | 100                |
| 3RW4434                                                                                                                                                        | 113                  | 3VL1716-2DD36                          | 160                |
| 3RW4435                                                                                                                                                        | 134                  | 3VL1716-2DD36                          | 160                |
| 3RW4436                                                                                                                                                        | 162                  | 3VL3725-2DC36                          | 250                |
| 3RW4443                                                                                                                                                        | 203                  | 3VL4731-3DC36                          | 315                |
| 3RW4444                                                                                                                                                        | 250                  | 3VL4731-3DC36                          | 315                |
| 3RW4445                                                                                                                                                        | 313                  | 3VL4740-3DC36                          | 400                |
| 3RW4446                                                                                                                                                        | 356                  | 3VL4740-3DC36                          | 400                |
| 3RW4447                                                                                                                                                        | 432                  | 3VL5750-3DC36                          | 500                |
| 3RW4453                                                                                                                                                        | 551                  | 3VL6780-3SB36                          | 800                |
| 3RW4454                                                                                                                                                        | 615                  | 3VL6780-3SB36                          | 800                |
| 3RW4455                                                                                                                                                        | 693                  | 3VL6780-3SB36                          | 800                |
| 3RW4456                                                                                                                                                        | 780                  | 3VL7710-3SB36                          | 1 000              |
| 3RW4457                                                                                                                                                        | 880                  | 3VL7710-3SB36                          | 1 000              |
| 3RW4458                                                                                                                                                        | 970                  | 3VL7712-3SB36                          | 1 250              |
| 3RW4465                                                                                                                                                        | 1 076                | 3VL7712-3SB36                          | 1 250              |
| 3RW4466                                                                                                                                                        | 1 214                | 3VL7712-3SB36                          | 1 250              |

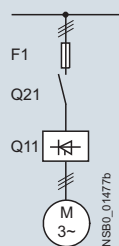
<sup>1)</sup> The rated motor current must be considered when selecting the devices.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

#### Inline circuit fused version (line protection only)



| Soft starters                                              |                   | Line protection, maximum |                 |      | Line contactor up to 400 V (optional) | Braking contactors <sup>1)2)</sup> |          |
|------------------------------------------------------------|-------------------|--------------------------|-----------------|------|---------------------------------------|------------------------------------|----------|
| Q11 Type                                                   | Nominal current A | F1 Type                  | Rated current A | Size | Q21 Type                              | Q91 Type                           | Q92 Type |
| Type of coordination <sup>3)</sup> : $I_q = 65 \text{ kA}$ |                   |                          |                 |      |                                       |                                    |          |
| 3RW4422                                                    | 29                | 3NA3820-6                | 50              | 00   | 3RT1034                               | 3RT2526                            | --       |
| 3RW4423                                                    | 36                | 3NA3822-6                | 63              | 00   | 3RT1035                               | 3RT2526                            | --       |
| 3RW4424                                                    | 47                | 3NA3824-6                | 80              | 00   | 3RT1036                               | 3RT1535                            | --       |
| 3RW4425                                                    | 57                | 3NA3830-6                | 100             | 00   | 3RT1044                               | 3RT1535                            | --       |
| 3RW4426                                                    | 77                | 3NA3132-6                | 125             | 1    | 3RT1045                               | 3RT2024                            | 3RT1035  |
| 3RW4427                                                    | 93                | 3NA3136-6                | 160             | 1    | 3RT1046                               | 3RT2025                            | 3RT1036  |
| 3RW4434                                                    | 113               | 3NA3244-6                | 250             | 2    | 3RT1054                               | 3RT1034                            | 3RT1044  |
| 3RW4435                                                    | 134               | 3NA3244-6                | 250             | 2    | 3RT1055                               | 3RT1036                            | 3RT1045  |
| 3RW4436                                                    | 162               | 3NA3365-6                | 500             | 3    | 3RT1056                               | 3RT1044                            | 3RT1045  |
| 3RW4443                                                    | 203               | 2 x 3NA3354-6            | 2 x 355         | 3    | 3RT1064                               | 3RT1044                            | 3RT1054  |
| 3RW4444                                                    | 250               | 2 x 3NA3354-6            | 2 x 355         | 3    | 3RT1065                               | 3RT1044                            | 3RT1055  |
| 3RW4445                                                    | 313               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3RT1075                               | 3RT1054                            | 3RT1056  |
| 3RW4446                                                    | 356               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3RT1075                               | 3RT1054                            | 3RT1056  |
| 3RW4447                                                    | 432               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3RT1076                               | 3RT1055                            | 3RT1064  |
| 3RW4453                                                    | 551               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3TF68                                 | 3RT1064                            | 3RT1066  |
| 3RW4454                                                    | 615               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3TF68                                 | 3RT1064                            | 3RT1075  |
| 3RW4455                                                    | 693               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3TF69                                 | 3RT1065                            | 3RT1075  |
| 3RW4456                                                    | 780               | 2 x 3NA3365-6            | 2 x 500         | 3    | 3TF69                                 | 3RT1065                            | 3RT1075  |
| 3RW4457                                                    | 880               | 2 x 3NA3365-6            | 2 x 500         | 3    |                                       | 3RT1075                            | 3RT1076  |
| 3RW4458                                                    | 970               | 3 x 3NA3365-6            | 3 x 500         | 3    |                                       | 3RT1075                            | 3RT1076  |
| 3RW4465                                                    | 1 076             | 3 x 3NA3365-6            | 3 x 500         | 3    |                                       | 3RT1075                            | 3TF68    |
| 3RW4466                                                    | 1 214             | 3 x 3NA3365-6            | 3 x 500         | 3    |                                       | 3RT1076                            | 3TF68    |

<sup>1)</sup> If the ramp-down function "Combined braking" is selected, no braking contactor is required.  
If the ramp-down function "DC braking" is selected, a braking contactor must be used in addition (see table for type).  
For applications with large centrifugal masses ( $J_{\text{Load}} > J_{\text{Motor}}$ ) we recommend the function "DC braking".

<sup>2)</sup> Additional auxiliary relay K4:  
LZS:RT4A4T30  
(3RW44 soft starter with rated control supply voltage 230 V AC),  
LZS:RT4A4S15  
(3RW44 soft starter with rated control supply voltage 115 V AC).

<sup>3)</sup> The type of coordination "1" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

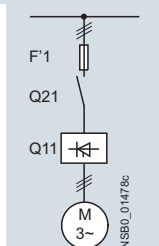
<sup>4)</sup> <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

#### Inline circuit fused version with 3NE1 SITOR all-range fuse (semiconductor and line protection)



Matching fuse bases, see Catalog LV 10

- Chapter 5 "Fuse Systems" → "SITOR Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters<br><div>T<sub>9C</sub><br/>2</div>              | Nominal<br>current<br><br>A | All-range fuses |                        |                  |      | Line contactor<br>up to 400 V<br>(optional)<br><br>Q21<br>Type | Braking contactors <sup>1)2)</sup><br>(example circuit,<br>see manual 3RW44 <sup>4)</sup> ) |             |
|---------------------------------------------------------------|-----------------------------|-----------------|------------------------|------------------|------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------|
|                                                               |                             | F'1<br>Type     | Rated current<br><br>A | Voltage<br><br>V | Size |                                                                | Q91<br>Type                                                                                 | Q92<br>Type |
|                                                               |                             |                 |                        |                  |      |                                                                |                                                                                             |             |
| Type of coordination 2 <sup>3)</sup> : I <sub>q</sub> = 65 kA |                             |                 |                        |                  |      |                                                                |                                                                                             |             |
| 3RW4422                                                       | 29                          | 3NE1020-2       | 80                     | 690 +5 %         | 00   | 3RT1034                                                        | 3RT2526                                                                                     | --          |
| 3RW4423                                                       | 36                          | 3NE1020-2       | 80                     | 690 +5 %         | 00   | 3RT1035                                                        | 3RT2526                                                                                     | --          |
| 3RW4424                                                       | 47                          | 3NE1021-2       | 100                    | 690 +5 %         | 00   | 3RT1036                                                        | 3RT1535                                                                                     | --          |
| 3RW4425                                                       | 57                          | 3NE1022-2       | 125                    | 690 +5 %         | 00   | 3RT1044                                                        | 3RT1535                                                                                     | --          |
| 3RW4426                                                       | 77                          | 3NE1022-2       | 125                    | 690 +5 %         | 00   | 3RT1045                                                        | 3RT2024                                                                                     | 3RT1035     |
| 3RW4427                                                       | 93                          | 3NE1224-2       | 160                    | 690 +5 %         | 1    | 3RT1046                                                        | 3RT2025                                                                                     | 3RT1036     |
| 3RW4434                                                       | 113                         | 3NE1225-2       | 200                    | 690 +5 %         | 1    | 3RT1054                                                        | 3RT1034                                                                                     | 3RT1044     |
| 3RW4435                                                       | 134                         | 3NE1227-2       | 250                    | 690 +5 %         | 1    | 3RT1055                                                        | 3RT1036                                                                                     | 3RT1045     |
| 3RW4436                                                       | 162                         | 3NE1227-2       | 250                    | 690 +5 %         | 1    | 3RT1056                                                        | 3RT1044                                                                                     | 3RT1045     |
| 3RW4443                                                       | 203                         | 3NE1230-2       | 315                    | 600 +10 %        | 1    | 3RT1064                                                        | 3RT1044                                                                                     | 3RT1054     |
| 3RW4444                                                       | 250                         | 3NE1331-2       | 350                    | 460 +10 %        | 2    | 3RT1065                                                        | 3RT1044                                                                                     | 3RT1055     |
| 3RW4445                                                       | 313                         | 3NE1333-2       | 450                    | 690 +5 %         | 2    | 3RT1075                                                        | 3RT1054                                                                                     | 3RT1056     |
| 3RW4446                                                       | 356                         | 3NE1334-2       | 500                    | 690 +5 %         | 2    | 3RT1075                                                        | 3RT1054                                                                                     | 3RT1056     |
| 3RW4447                                                       | 432                         | 3NE1435-2       | 560                    | 690 +5 %         | 3    | 3RT1076                                                        | 3RT1055                                                                                     | 3RT1064     |
| 3RW4453                                                       | 551                         | 2 x 3NE1334-2   | 500                    | 690 +10 %        | 2    | 3TF68                                                          | 3RT1064                                                                                     | 3RT1066     |
| 3RW4454                                                       | 615                         | 2 x 3NE1334-2   | 500                    | 690 +10 %        | 2    | 3TF68                                                          | 3RT1064                                                                                     | 3RT1075     |
| 3RW4455                                                       | 693                         | 2 x 3NE1334-2   | 500                    | 690 +10 %        | 2    | 3TF69                                                          | 3RT1065                                                                                     | 3RT1075     |
| 3RW4456                                                       | 780                         | 2 x 3NE1435-2   | 560                    | 690 +10 %        | 3    | 3TF69                                                          | 3RT1065                                                                                     | 3RT1075     |
| 3RW4457                                                       | 880                         | 2 x 3NE1435-2   | 560                    | 690 +10 %        | 3    |                                                                | 3RT1075                                                                                     | 3RT1076     |
| 3RW4458                                                       | 970                         | 2 x 3NE1435-2   | 560                    | 690 +10 %        | 3    |                                                                | 3RT1075                                                                                     | 3RT1076     |
| 3RW4465                                                       | 1 076                       | 3 x 3NE1334-2   | 500                    | 690 +10 %        | 2    |                                                                | 3RT1075                                                                                     | 3TF68       |
| 3RW4466                                                       | 1 214                       | 3 x 3NE1435-2   | 560                    | 690 +10 %        | 3    |                                                                | 3RT1076                                                                                     | 3TF68       |

1) If the ramp-down function "Combined braking" is selected, no braking contactor is required.  
If the ramp-down function "DC braking" is selected, a braking contactor must be used in addition (see table for type).  
For applications with large centrifugal masses ( $I_{Load} > I_{Motor}$ ) we recommend the function "DC braking".

2) Additional auxiliary relay K4:  
LZS:RT4A4T30  
(3RW44 soft starter with rated control supply voltage 230 V AC),  
LZS:RT4A4S15  
(3RW44 soft starter with rated control supply voltage 115 V AC).

3) The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

4) <http://support.automation.siemens.com/WW/view/en/21772518>

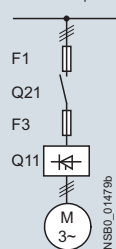
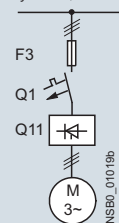
# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

#### Inline circuit fused version with 3NE or 3NC SITOR semiconductor fuse

(semiconductor protection by fuse, line and overload protection by motor starter protector)



Matching fuse bases, see Catalog LV 10

- Chapter 5 "Fuse Systems" → "SITOR Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters<br>Q11<br>Type                                  | Nominal<br>current<br>A | Semiconductor fuses, minimum |                    |      | Semiconductor fuses, maximum |                    |      | Semiconductor fuses (cylinder) |                    |         |
|---------------------------------------------------------------|-------------------------|------------------------------|--------------------|------|------------------------------|--------------------|------|--------------------------------|--------------------|---------|
|                                                               |                         | 690 V +10 %<br>F3<br>Type    | Rated current<br>A | Size | 690 V +10 %<br>F3<br>Type    | Rated current<br>A | Size | F3<br>Type                     | Rated current<br>A | Size    |
| Type of coordination 2 <sup>3)</sup> : I <sub>q</sub> = 65 kA |                         |                              |                    |      |                              |                    |      |                                |                    |         |
| 3RW4422                                                       | 29                      | 3NE4120                      | 80                 | 0    | 3NE4121                      | 100                | 0    | 3NC2280                        | 80                 | 22 x 58 |
| 3RW4423                                                       | 36                      | 3NE4121                      | 100                | 0    | 3NE4121                      | 100                | 0    | 3NC2200                        | 100                | 22 x 58 |
| 3RW4424                                                       | 47                      | 3NE4121                      | 100                | 0    | 3NE4122                      | 125                | 0    | 3NC2200                        | 100                | 22 x 58 |
| 3RW4425                                                       | 57                      | 3NE4122                      | 125                | 0    | 3NE4124                      | 160                | 0    |                                |                    |         |
| 3RW4426                                                       | 77                      | 3NE4124                      | 160                | 0    | 3NE4124                      | 160                | 0    |                                |                    |         |
| 3RW4427                                                       | 93                      | 3NE3224                      | 160                | 1    | 3NE3332-0B                   | 400                | 2    |                                |                    |         |
| 3RW4434                                                       | 113                     | 3NE3225                      | 200                | 1    | 3NE3335                      | 560                | 2    |                                |                    |         |
| 3RW4435                                                       | 134                     | 3NE3225                      | 200                | 1    | 3NE3335                      | 560                | 2    |                                |                    |         |
| 3RW4436                                                       | 162                     | 3NE3227                      | 250                | 1    | 3NE3333                      | 450                | 2    |                                |                    |         |
| 3RW4443                                                       | 203                     | 3NE3230-0B                   | 315                | 1    | 3NE3333                      | 450                | 2    |                                |                    |         |
| 3RW4444                                                       | 250                     | 3NE3230-0B                   | 315                | 1    | 3NE3333                      | 450                | 2    |                                |                    |         |
| 3RW4445                                                       | 313                     | 3NE3233                      | 450                | 1    | 3NE3336                      | 630                | 2    |                                |                    |         |
| 3RW4446                                                       | 356                     | 3NE3333                      | 450                | 2    | 3NE3336                      | 630                | 2    |                                |                    |         |
| 3RW4447                                                       | 432                     | 3NE3335                      | 560                | 2    | 3NE3338-8                    | 800                | 2    |                                |                    |         |
| 3RW4453                                                       | 551                     | 2 x 3NE3335                  | 560                | 2    | 3 x 3NE3334-0B               | 500                | 2    |                                |                    |         |
| 3RW4454                                                       | 615                     | 2 x 3NE3335                  | 560                | 2    | 3 x 3NE3334-0B               | 500                | 2    |                                |                    |         |
| 3RW4455                                                       | 693                     | 2 x 3NE3335                  | 560                | 2    | 3 x 3NE3334-0B               | 500                | 2    |                                |                    |         |
| 3RW4456                                                       | 780                     | 2 x 3NE3336                  | 630                | 2    | 2 x 3NE3340-8                | 900                | 2    |                                |                    |         |
| 3RW4457                                                       | 880                     | 2 x 3NE3336                  | 630                | 2    | 2 x 3NE3340-8                | 900                | 2    |                                |                    |         |
| 3RW4458                                                       | 970                     | 2 x 3NE3336                  | 630                | 2    | 2 x 3NE3340-8                | 900                | 2    |                                |                    |         |
| 3RW4465                                                       | 1076                    | 2 x 3NE3340-8                | 900                | 2    | 3 x 3NE3338-8                | 800                | 2    |                                |                    |         |
| 3RW4466                                                       | 1214                    | 2 x 3NE3340-8                | 900                | 2    | 3 x 3NE3338-8                | 800                | 2    |                                |                    |         |

| Soft starters<br><div>Q11<br/>Type</div>                      | Nominal<br>current<br><div>A</div> | Line contactor<br>up to 400 V<br>(optional)<br><div>Q21<br/>Type</div> | Braking contactors <sup>1)2)</sup><br>(example circuit, <a href="#">see manual 3RW44<sup>4)</sup></a> ) |             | Motor starter protectors |                               | Line protection, maximum             |                               |      |
|---------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------|--------------------------|-------------------------------|--------------------------------------|-------------------------------|------|
|                                                               |                                    |                                                                        | Q91<br>Type                                                                                             | Q92<br>Type | Q1<br>Type               | Rated current<br><div>A</div> | 690 V +5 %<br><div>F1<br/>Type</div> | Rated current<br><div>A</div> | Size |
| Type of coordination 2 <sup>3)</sup> : I <sub>q</sub> = 65 kA |                                    |                                                                        |                                                                                                         |             |                          |                               |                                      |                               |      |
| 3RW4422                                                       | 29                                 | 3RT1034                                                                | 3RT2526                                                                                                 | --          | 3RV1041-4HA10            | 50                            | 3NA3820-6                            | 50                            | 00   |
| 3RW4423                                                       | 36                                 | 3RT1035                                                                | 3RT2526                                                                                                 | --          | 3RV1041-4JA10            | 63                            | 3NA3822-6                            | 63                            | 00   |
| 3RW4424                                                       | 47                                 | 3RT1036                                                                | 3RT1535                                                                                                 | --          | 3RV1041-4KA10            | 75                            | 3NA3824-6                            | 80                            | 00   |
| 3RW4425                                                       | 57                                 | 3RT1044                                                                | 3RT1535                                                                                                 | --          | 3RV1041-4LA10            | 90                            | 3NA3830-6                            | 100                           | 00   |
| 3RW4426                                                       | 77                                 | 3RT1045                                                                | 3RT2024                                                                                                 | 3RT1035     | 3RV1041-4MA10            | 100                           | 3NA3132-6                            | 125                           | 1    |
| 3RW4427                                                       | 93                                 | 3RT1046                                                                | 3RT2025                                                                                                 | 3RT1036     | 3RV1041-4MA10            | 100                           | 3NA3136-6                            | 160                           | 1    |
| 3RW4434                                                       | 113                                | 3RT1054                                                                | 3RT1034                                                                                                 | 3RT1044     | 3VL1716                  | 160                           | 3NA3244-6                            | 250                           | 2    |
| 3RW4435                                                       | 134                                | 3RT1055                                                                | 3RT1036                                                                                                 | 3RT1045     | 3VL1716                  | 160                           | 3NA3244-6                            | 250                           | 2    |
| 3RW4436                                                       | 162                                | 3RT1056                                                                | 3RT1044                                                                                                 | 3RT1045     | 3VL3725                  | 250                           | 3NA3365-6                            | 500                           | 3    |
| 3RW4443                                                       | 203                                | 3RT1064                                                                | 3RT1044                                                                                                 | 3RT1054     | 3VL4731                  | 315                           | 2 x 3NA3354-6                        | 2 x 355                       | 3    |
| 3RW4444                                                       | 250                                | 3RT1065                                                                | 3RT1044                                                                                                 | 3RT1055     | 3VL4731                  | 315                           | 2 x 3NA3354-6                        | 2 x 355                       | 3    |
| 3RW4445                                                       | 313                                | 3RT1075                                                                | 3RT1054                                                                                                 | 3RT1056     | 3VL4740                  | 400                           | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4446                                                       | 356                                | 3RT1075                                                                | 3RT1054                                                                                                 | 3RT1056     | 3VL4740                  | 400                           | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4447                                                       | 432                                | 3RT1076                                                                | 3RT1055                                                                                                 | 3RT1064     | 3VL5750                  | 500                           | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4453                                                       | 551                                | 3TF68                                                                  | 3RT1064                                                                                                 | 3RT1066     | 3VL6780                  | 800                           | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4454                                                       | 615                                | 3TF68                                                                  | 3RT1064                                                                                                 | 3RT1075     | 3VL6780                  | 800                           | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4455                                                       | 693                                | 3TF69                                                                  | 3RT1065                                                                                                 | 3RT1075     | 3VL6780                  | 800                           | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4456                                                       | 780                                | 3TF69                                                                  | 3RT1065                                                                                                 | 3RT1075     | 3VL7710                  | 1 000                         | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4457                                                       | 880                                |                                                                        | 3RT1075                                                                                                 | 3RT1076     | 3VL7710                  | 1 000                         | 2 x 3NA3365-6                        | 2 x 500                       | 3    |
| 3RW4458                                                       | 970                                |                                                                        | 3RT1075                                                                                                 | 3RT1076     | 3VL7712                  | 1 250                         | 3 x 3NA3365-6                        | 3 x 500                       | 3    |
| 3RW4465                                                       | 1 076                              |                                                                        | 3RT1075                                                                                                 | 3TF68       | 3VL7712                  | 1 250                         | 3 x 3NA3365-6                        | 3 x 500                       | 3    |
| 3RW4466                                                       | 1 214                              |                                                                        | 3RT1076                                                                                                 | 3TF68       | 3VL7712                  | 1 250                         | 3 x 3NA3365-6                        | 3 x 500                       | 3    |

<sup>1)</sup> If the ramp-down function "Combined braking" is selected, no braking contactor is required. If the ramp-down function "DC braking" is selected, a braking contactor must be used in addition (see table for type). For applications with large centrifugal masses ( $J_{\text{Load}} > J_{\text{Motor}}$ ) we recommend the function "DC braking".

<sup>2)</sup> Additional auxiliary relay K4:  
LZS:RT4A4T30

(3RW44 soft starter with rated control supply voltage 230 V AC),  
LZS:RT4A4S15  
(3RW44 soft starter with rated control supply voltage 115 V AC).

<sup>3)</sup> The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

<sup>4)</sup> <http://support.automation.siemens.com/WW/view/en/21772518>

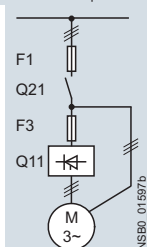
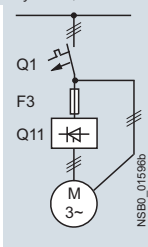
# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### General data

#### Inside-delta circuit fused version with 3NE or 3NC SITOR fuses

(semiconductor protection by fuse, line and overload protection by motor starter protector)



Matching fuse bases, see Catalog LV 10

- Chapter 5 "Fuse Systems" → "SITOR Semiconductor Fuses"
- Chapter 7 "Switch Disconnectors"

| Soft starters<br>Q11<br>Type         | Nominal<br>current<br>A | Semiconductor fuses, minimum |                    |      | Semiconductor fuses, maximum |                    |      | Semiconductor fuses (cylinder) |                    |         |
|--------------------------------------|-------------------------|------------------------------|--------------------|------|------------------------------|--------------------|------|--------------------------------|--------------------|---------|
|                                      |                         | F3<br>Type                   | Rated current<br>A | Size | F3<br>Type                   | Rated current<br>A | Size | F3<br>Type                     | Rated current<br>A | Size    |
| Type of coordination 2 <sup>1)</sup> |                         |                              |                    |      |                              |                    |      |                                |                    |         |
| 3RW4422                              | 50                      | 3NE4120                      | 80                 | 0    | 3NE4121                      | 100                | 0    | 3NC2280                        | 80                 | 22 x 58 |
| 3RW4423                              | 62                      | 3NE4121                      | 100                | 0    | 3NE4121                      | 100                | 0    | 3NC2200                        | 100                | 22 x 58 |
| 3RW4424                              | 81                      | 3NE4121                      | 100                | 0    | 3NE4122                      | 125                | 0    | 3NC2200                        | 100                | 22 x 58 |
| 3RW4425                              | 99                      | 3NE4122                      | 125                | 0    | 3NE4124                      | 160                | 0    |                                |                    |         |
| 3RW4426                              | 133                     | 3NE4124                      | 160                | 0    | 3NE4124                      | 160                | 0    |                                |                    |         |
| 3RW4427                              | 161                     | 3NE3224                      | 160                | 1    | 3NE3332-0B                   | 400                | 2    |                                |                    |         |
| 3RW4434                              | 196                     | 3NE3225                      | 200                | 1    | 3NE3335                      | 560                | 2    |                                |                    |         |
| 3RW4435                              | 232                     | 3NE3225                      | 200                | 1    | 3NE3335                      | 560                | 2    |                                |                    |         |
| 3RW4436                              | 281                     | 3NE3227                      | 250                | 1    | 3NE3333                      | 450                | 2    |                                |                    |         |
| 3RW4443                              | 352                     | 3NE3230-0B                   | 315                | 1    | 3NE3333                      | 450                | 2    |                                |                    |         |
| 3RW4444                              | 433                     | 3NE3230-0B                   | 315                | 1    | 3NE3333                      | 450                | 2    |                                |                    |         |
| 3RW4445                              | 542                     | 3NE3233                      | 450                | 1    | 3NE3336                      | 630                | 2    |                                |                    |         |
| 3RW4446                              | 617                     | 3NE3333                      | 450                | 2    | 3NE3336                      | 630                | 2    |                                |                    |         |
| 3RW4447                              | 748                     | 3NE3335                      | 560                | 2    | 3NE3338-8                    | 800                | 2    |                                |                    |         |
| 3RW4453                              | 954                     | 2 x 3NE3335                  | 560                | 2    | 3 x 3NE3334-0B               | 500                | 2    |                                |                    |         |
| 3RW4454                              | 1 065                   | 2 x 3NE3335                  | 560                | 2    | 3 x 3NE3334-0B               | 500                | 2    |                                |                    |         |
| 3RW4455                              | 1 200                   | 2 x 3NE3335                  | 560                | 2    | 3 x 3NE3334-0B               | 500                | 2    |                                |                    |         |
| 3RW4456                              | 1 351                   | 2 x 3NE3336                  | 630                | 2    | 2 x 3NE3340-8                | 900                | 2    |                                |                    |         |
| 3RW4457                              | 1 524                   | 2 x 3NE3336                  | 630                | 2    | 3 x 3NE3340-8                | 900                | 2    |                                |                    |         |
| 3RW4458                              | 1 680                   | 2 x 3NE3336                  | 630                | 2    | 3 x 3NE3340-8                | 900                | 2    |                                |                    |         |
| 3RW4465                              | 1 864                   | 2 x 3NE3340-8                | 900                | 2    | 3 x 3NE3338-8                | 800                | 2    |                                |                    |         |
| 3RW4466                              | 2 103                   | 2 x 3NE3340-8                | 900                | 2    | 3 x 3NE3338-8                | 800                | 2    |                                |                    |         |

| Soft starters<br><div>Q11</div> <div>Type</div> | <div>TC2</div> <div>Nominal current</div> <div>A</div> | Line contactor<br>up to 400 V | Motor starter protectors |               | Line protection, maximum |               |      |
|-------------------------------------------------|--------------------------------------------------------|-------------------------------|--------------------------|---------------|--------------------------|---------------|------|
|                                                 |                                                        | (optional)                    | 440 V + 10 %             | Rated current | 690 V +5 %               | Rated current | Size |
|                                                 |                                                        | Q21<br>Type                   | Q1<br>Type               | A             | F1<br>Type               | A             |      |
| Type of coordination 2 <sup>1)</sup>            |                                                        |                               |                          |               |                          |               |      |
| 3RW4422                                         | 50                                                     | 3RT1036-1AP04                 | 3RV1042-4KA10            | 75            | 3NA3824-6                | 80            | 00   |
| 3RW4423                                         | 62                                                     | 3RT1044-1AP04                 | 3RV1042-4LA10            | 90            | 3NA3830-6                | 100           | 00   |
| 3RW4424                                         | 81                                                     | 3RT1046-1AP04                 | 3RV1042-4MA10            | 100           | 3NA3132-6                | 125           | 1    |
| 3RW4425                                         | 99                                                     | 3RT1054-1AP36                 | 3VL2716                  | 160           | 3NA3136-6                | 160           | 1    |
| 3RW4426                                         | 133                                                    | 3RT1055-6AP36                 | 3VL2716                  | 160           | 3NA3240-6                | 200           | 2    |
| 3RW4427                                         | 161                                                    | 3RT1056-6AP36                 | 3VL3720                  | 200           | 3NA3244-6                | 250           | 2    |
| 3RW4434                                         | 196                                                    | 3RT1064-6AP36                 | 3VL3725                  | 250           | 3NA3360-6                | 400           | 3    |
| 3RW4435                                         | 232                                                    | 3RT1065-6AP36                 | 3VL4731                  | 315           | 3NA3360-6                | 400           | 3    |
| 3RW4436                                         | 281                                                    | 3RT1066-6AP36                 | 3VL4740                  | 400           | 2 x 3NA3360-6            | 2 x 400       | 3    |
| 3RW4443                                         | 352                                                    | 3RT1075-6AP36                 | 3VL4740                  | 400           | 2 x 3NA3365-6            | 2 x 500       | 3    |
| 3RW4444                                         | 433                                                    | 3RT1076-6AP36                 | 3VL5750                  | 500           | 2 x 3NA3365-6            | 2 x 500       | 3    |
| 3RW4445                                         | 542                                                    | 3TF6844-OCM7                  | 3VL5763                  | 630           | 3 x 3NA3365-6            | 3 x 500       | 3    |
| 3RW4446                                         | 617                                                    | 3TF6844-OCM7                  | 3VL6780                  | 800           | 3 x 3NA3365-6            | 3 x 500       | 3    |
| 3RW4447                                         | 748                                                    | 3TF69                         | 3VL6780                  | 800           | 3 x 3NA3365-6            | 3 x 500       | 3    |
| 3RW4453                                         | 954                                                    |                               | 3VL7710                  | 1 000         | 3 x 3NA3365-6            | 3 x 500       | 3    |
| 3RW4454                                         | 1 065                                                  |                               | 3VL7712                  | 1 250         | 3 x 3NA3365-6            | 3 x 500       | 3    |
| 3RW4455                                         | 1 200                                                  |                               | 3VL8716                  | 1 600         | 3 x 3NA3365-6            | 3 x 500       | 3    |
| 3RW4456                                         | 1 351                                                  |                               | 3VL8716                  | 1 600         | 3 x 3NA3372              | 3 x 630       | 3    |
| 3RW4457                                         | 1 524                                                  |                               | 3VL8716                  | 1 600         | 3 x 3NA3372              | 3 x 630       | 3    |
| 3RW4458                                         | 1 680                                                  |                               | 3WL1220                  | 2 000         | 2 x 3NA3480              | 2 x 1000      | 4    |
| 3RW4465                                         | 1 864                                                  |                               | 3WL1225                  | 2 500         | 2 x 3NA3482              | 2 x 1250      | 4    |
| 3RW4466                                         | 2 103                                                  |                               | 3WL1225                  | 2 500         | 2 x 3NA3482              | 2 x 1250      | 4    |

<sup>1)</sup> The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.  
If the F3 semiconductor fuse is not used, the type of coordination "2" is reduced to type of coordination "1" for soft starters in combination with the stipulated protective device.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit

#### Selection and ordering data



| 3RW442.                             |    |    |    |    |    | 3RW443. |    |    |    |    |  | 3RW444.                             |  |  |  |  |  | 3RW445. |  |  |  |  |  | 3RW446.          |                                              |  |                   |     |    |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 3RW ambient temperature 40 °C       |    |    |    |    |    |         |    |    |    |    |  | 3RW ambient temperature 50 °C       |  |  |  |  |  |         |  |  |  |  |  | DT <sup>1)</sup> | Normal starting (CLASS 10) in inline circuit |  | PU (UNIT, SET, M) | PS* | PG |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rated values of three-phase motors  |    |    |    |    |    |         |    |    |    |    |  | Rated values of three-phase motors  |  |  |  |  |  |         |  |  |  |  |  |                  |                                              |  |                   |     |    |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Operational current $I_e$           |    |    |    |    |    |         |    |    |    |    |  | Operational current $I_e$           |  |  |  |  |  |         |  |  |  |  |  |                  | Configurator                                 |  |                   |     |    |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rating at operational voltage $U_e$ |    |    |    |    |    |         |    |    |    |    |  | Rating at operational voltage $U_e$ |  |  |  |  |  |         |  |  |  |  |  |                  | Article No.                                  |  |                   |     |    | Price per PU |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| A                                   | kW | kW | kW | kW | kW | A       | hp | hp | hp | hp |  |                                     |  |  |  |  |  |         |  |  |  |  |  |                  |                                              |  |                   |     |    |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

#### Article No. supplement for connection types

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup>

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> 3RW442. to ... 3RW444. soft starters with screw terminals: delivery time class ► (preferred type).

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit

| 3RW ambient temperature 40 °C                           |                                                        |       |       |       |        | 3RW ambient temperature 50 °C                     |                                                        |       |       |       |   | DT <sup>1)</sup> | Normal starting (CLASS 10)<br>in inline circuit | Configurator | PU<br>(UNIT,<br>SET, M) | PS* | PG |  |  |
|---------------------------------------------------------|--------------------------------------------------------|-------|-------|-------|--------|---------------------------------------------------|--------------------------------------------------------|-------|-------|-------|---|------------------|-------------------------------------------------|--------------|-------------------------|-----|----|--|--|
| Rated values of<br>three-phase motors                   |                                                        |       |       |       |        | Rated values of<br>three-phase motors             |                                                        |       |       |       |   |                  |                                                 |              |                         |     |    |  |  |
| Opera-<br>tional<br>current <i>I</i> <sub>e</sub>       | Rating at<br>operational voltage <i>U</i> <sub>e</sub> |       |       |       |        | Opera-<br>tional<br>current <i>I</i> <sub>e</sub> | Rating at<br>operational voltage <i>U</i> <sub>e</sub> |       |       |       |   |                  |                                                 |              |                         |     |    |  |  |
|                                                         | 230 V                                                  | 400 V | 500 V | 690 V | 1000 V |                                                   | 200 V                                                  | 230 V | 460 V | 575 V |   | Article No.      | Price<br>per PU                                 |              |                         |     |    |  |  |
| A                                                       | kW                                                     | kW    | kW    | kW    | kW     | A                                                 | hp                                                     | hp    | hp    | hp    |   |                  |                                                 |              |                         |     |    |  |  |
| Inline circuit, rated operational voltage 400 ... 600 V |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                 |              |                         |     |    |  |  |
| 29                                                      | --                                                     | 15    | 18.5  | --    | --     | 26                                                | --                                                     | --    | 15    | 20    | B | 3RW4422-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 36                                                      | --                                                     | 18.5  | 22    | --    | --     | 32                                                | --                                                     | --    | 20    | 25    | B | 3RW4423-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 47                                                      | --                                                     | 22    | 30    | --    | --     | 42                                                | --                                                     | --    | 25    | 30    | B | 3RW4424-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 57                                                      | --                                                     | 30    | 37    | --    | --     | 51                                                | --                                                     | --    | 30    | 40    | B | 3RW4425-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 77                                                      | --                                                     | 37    | 45    | --    | --     | 68                                                | --                                                     | --    | 50    | 50    | B | 3RW4426-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 93                                                      | --                                                     | 45    | 55    | --    | --     | 82                                                | --                                                     | --    | 60    | 75    | B | 3RW4427-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| Article No. supplement for connection types             |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                 |              |                         |     |    |  |  |
| • With screw terminals                                  |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                 |              |                         |     |    |  |  |
| • With spring-type terminals                            |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                 |              |                         |     |    |  |  |
| 113                                                     | --                                                     | 55    | 75    | --    | --     | 100                                               | --                                                     | --    | 75    | 75    | B | 3RW4434-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 134                                                     | --                                                     | 75    | 90    | --    | --     | 117                                               | --                                                     | --    | 75    | 100   | B | 3RW4435-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 162                                                     | --                                                     | 90    | 110   | --    | --     | 145                                               | --                                                     | --    | 100   | 125   | B | 3RW4436-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 203                                                     | --                                                     | 110   | 132   | --    | --     | 180                                               | --                                                     | --    | 125   | 150   | B | 3RW4443-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 250                                                     | --                                                     | 132   | 160   | --    | --     | 215                                               | --                                                     | --    | 150   | 200   | B | 3RW4444-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 313                                                     | --                                                     | 160   | 200   | --    | --     | 280                                               | --                                                     | --    | 200   | 250   | B | 3RW4445-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 356                                                     | --                                                     | 200   | 250   | --    | --     | 315                                               | --                                                     | --    | 250   | 300   | B | 3RW4446-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 432                                                     | --                                                     | 250   | 315   | --    | --     | 385                                               | --                                                     | --    | 300   | 400   | B | 3RW4447-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 551                                                     | --                                                     | 315   | 355   | --    | --     | 494                                               | --                                                     | --    | 400   | 500   | C | 3RW4453-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 615                                                     | --                                                     | 355   | 400   | --    | --     | 551                                               | --                                                     | --    | 450   | 600   | C | 3RW4454-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 693                                                     | --                                                     | 400   | 500   | --    | --     | 615                                               | --                                                     | --    | 500   | 700   | C | 3RW4455-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 780                                                     | --                                                     | 450   | 560   | --    | --     | 693                                               | --                                                     | --    | 600   | 750   | C | 3RW4456-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 880                                                     | --                                                     | 500   | 630   | --    | --     | 780                                               | --                                                     | --    | 700   | 850   | C | 3RW4457-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 970                                                     | --                                                     | 560   | 710   | --    | --     | 850                                               | --                                                     | --    | 750   | 900   | C | 3RW4458-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 1076                                                    | --                                                     | 630   | 800   | --    | --     | 970                                               | --                                                     | --    | 850   | 1 100 | C | 3RW4465-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |
| 1 214                                                   | --                                                     | 710   | 900   | --    | --     | 1 076                                             | --                                                     | --    | 950   | 1 200 | C | 3RW4466-□BC□5    |                                                 | 1            | 1 unit                  | 42H |    |  |  |

#### Article No. supplement for connection types

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup>

- 115 V AC
- 230 V AC

 Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter with screw terminals:  
3RW442... 3RW444. Delivery time class A,  
3RW445... 3RW446. Delivery time class B.

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit

| 3RW ambient temperature 40 °C                           |                                        |       |       |              |        | 3RW ambient temperature 50 °C         |                                        |       |       |              | DT | Normal starting (CLASS 10)<br>in inline circuit | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |             |                 |  |
|---------------------------------------------------------|----------------------------------------|-------|-------|--------------|--------|---------------------------------------|----------------------------------------|-------|-------|--------------|----|-------------------------------------------------|-------------------------|--------|-----|-------------|-----------------|--|
| Rated values of<br>three-phase motors                   |                                        |       |       |              |        | Rated values of<br>three-phase motors |                                        |       |       |              |    |                                                 |                         |        |     |             |                 |  |
| Operational<br>current $I_e$                            | Rating at<br>operational voltage $U_e$ |       |       |              |        | Operational<br>current $I_e$          | Rating at<br>operational voltage $U_e$ |       |       |              |    | Configurator                                    |                         |        |     | Article No. | Price<br>per PU |  |
|                                                         | 230 V                                  | 400 V | 500 V | 690 V        | 1000 V |                                       | 200 V                                  | 230 V | 460 V | 575 V        |    |                                                 |                         |        |     |             |                 |  |
| A                                                       | kW                                     | kW    | kW    | kW           | kW     | A                                     | hp                                     | hp    | hp    | hp           |    |                                                 |                         |        |     |             |                 |  |
| Inline circuit, rated operational voltage 400 ... 690 V |                                        |       |       |              |        |                                       |                                        |       |       |              |    |                                                 |                         |        |     |             |                 |  |
| 29                                                      | --                                     | 15    | 18.5  | <b>30</b>    | --     | 26                                    | --                                     | --    | 15    | <b>20</b>    | B  | 3RW4422-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 36                                                      | --                                     | 18.5  | 22    | <b>37</b>    | --     | 32                                    | --                                     | --    | 20    | <b>25</b>    | B  | 3RW4423-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 47                                                      | --                                     | 22    | 30    | <b>45</b>    | --     | 42                                    | --                                     | --    | 25    | <b>30</b>    | B  | 3RW4424-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 57                                                      | --                                     | 30    | 37    | <b>55</b>    | --     | 51                                    | --                                     | --    | 30    | <b>40</b>    | B  | 3RW4425-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 77                                                      | --                                     | 37    | 45    | <b>75</b>    | --     | 68                                    | --                                     | --    | 50    | <b>50</b>    | B  | 3RW4426-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 93                                                      | --                                     | 45    | 55    | <b>90</b>    | --     | 82                                    | --                                     | --    | 60    | <b>75</b>    | B  | 3RW4427-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| Article No. supplement for connection types             |                                        |       |       |              |        |                                       |                                        |       |       |              |    |                                                 |                         |        |     |             |                 |  |
| • With screw terminals                                  |                                        |       |       |              |        |                                       |                                        |       |       |              |    |                                                 |                         |        |     |             |                 |  |
| • With spring-type terminals                            |                                        |       |       |              |        |                                       |                                        |       |       |              |    |                                                 |                         |        |     |             |                 |  |
| 113                                                     | --                                     | 55    | 75    | <b>110</b>   | --     | 100                                   | --                                     | --    | 75    | <b>75</b>    | B  | 3RW4434-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 134                                                     | --                                     | 75    | 90    | <b>132</b>   | --     | 117                                   | --                                     | --    | 75    | <b>100</b>   | B  | 3RW4435-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 162                                                     | --                                     | 90    | 110   | <b>160</b>   | --     | 145                                   | --                                     | --    | 100   | <b>125</b>   | B  | 3RW4436-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 203                                                     | --                                     | 110   | 132   | <b>200</b>   | --     | 180                                   | --                                     | --    | 125   | <b>150</b>   | B  | 3RW4443-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 250                                                     | --                                     | 132   | 160   | <b>250</b>   | --     | 215                                   | --                                     | --    | 150   | <b>200</b>   | B  | 3RW4444-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 313                                                     | --                                     | 160   | 200   | <b>315</b>   | --     | 280                                   | --                                     | --    | 200   | <b>250</b>   | B  | 3RW4445-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 356                                                     | --                                     | 200   | 250   | <b>355</b>   | --     | 315                                   | --                                     | --    | 250   | <b>300</b>   | B  | 3RW4446-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 432                                                     | --                                     | 250   | 315   | <b>400</b>   | --     | 385                                   | --                                     | --    | 300   | <b>400</b>   | B  | 3RW4447-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 551                                                     | --                                     | 315   | 355   | <b>560</b>   | --     | 494                                   | --                                     | --    | 400   | <b>500</b>   | C  | 3RW4453-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 615                                                     | --                                     | 355   | 400   | <b>630</b>   | --     | 551                                   | --                                     | --    | 450   | <b>600</b>   | C  | 3RW4454-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 693                                                     | --                                     | 400   | 500   | <b>710</b>   | --     | 615                                   | --                                     | --    | 500   | <b>700</b>   | C  | 3RW4455-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 780                                                     | --                                     | 450   | 560   | <b>800</b>   | --     | 693                                   | --                                     | --    | 600   | <b>750</b>   | C  | 3RW4456-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 880                                                     | --                                     | 500   | 630   | <b>900</b>   | --     | 780                                   | --                                     | --    | 700   | <b>850</b>   | C  | 3RW4457-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 970                                                     | --                                     | 560   | 710   | <b>1 000</b> | --     | 850                                   | --                                     | --    | 750   | <b>900</b>   | C  | 3RW4458-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 1 076                                                   | --                                     | 630   | 800   | <b>1 100</b> | --     | 970                                   | --                                     | --    | 850   | <b>1 100</b> | C  | 3RW4465-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |
| 1 214                                                   | --                                     | 710   | 900   | <b>1 200</b> | --     | 1 076                                 | --                                     | --    | 950   | <b>1 200</b> | C  | 3RW4466-□BC□6                                   | 1                       | 1 unit | 42H |             |                 |  |

#### Article No. supplement for connection types

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>1)</sup>

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

## Selection and ordering data



3RW4466

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, [see manual <http://support.automation.siemens.com/WW/view/en/21772518>](http://support.automation.siemens.com/WW/view/en/21772518)

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for heavy starting (CLASS 20) in inline circuit

| 3RW ambient temperature 40 °C                                                               |                                                        |       |       |       |        | 3RW ambient temperature 50 °C                     |                                                        |       |       |       |   | DT <sup>1)</sup> | Heavy starting (CLASS 20)<br>in inline circuit | Configurator | PU<br>(UNIT,<br>SET, M) | PS* | PG |             |                 |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------|-------|-------|-------|--------|---------------------------------------------------|--------------------------------------------------------|-------|-------|-------|---|------------------|------------------------------------------------|--------------|-------------------------|-----|----|-------------|-----------------|
| Rated values of<br>three-phase motors                                                       |                                                        |       |       |       |        | Rated values of<br>three-phase motors             |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |
| Opera-<br>tional<br>current <i>I</i> <sub>e</sub>                                           | Rating at<br>operational voltage <i>U</i> <sub>e</sub> |       |       |       |        | Opera-<br>tional<br>current <i>I</i> <sub>e</sub> | Rating at<br>operational voltage <i>U</i> <sub>e</sub> |       |       |       |   |                  |                                                |              |                         |     |    | Article No. | Price<br>per PU |
|                                                                                             | 230 V                                                  | 400 V | 500 V | 690 V | 1000 V |                                                   | 200 V                                                  | 230 V | 460 V | 575 V |   |                  |                                                |              |                         |     |    |             |                 |
| A                                                                                           | kW                                                     | kW    | kW    | kW    | kW     | A                                                 | hp                                                     | hp    | hp    | hp    |   |                  |                                                |              |                         |     |    |             |                 |
| Inline circuit, rated operational voltage 400 ... 600 V                                     |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |
| 29                                                                                          | --                                                     | 15    | 18.5  | --    | --     | 26                                                | --                                                     | --    | 15    | 20    | B | 3RW4422-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 36                                                                                          | --                                                     | 18.5  | 22    | --    | --     | 32                                                | --                                                     | --    | 20    | 25    | B | 3RW4423-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 47                                                                                          | --                                                     | 22    | 30    | --    | --     | 42                                                | --                                                     | --    | 25    | 30    | B | 3RW4424-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 57                                                                                          | --                                                     | 30    | 37    | --    | --     | 51                                                | --                                                     | --    | 30    | 40    | B | 3RW4425-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 77                                                                                          | --                                                     | 37    | 45    | --    | --     | 68                                                | --                                                     | --    | 50    | 50    | B | 3RW4427-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| Article No. supplement for connection types                                                 |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |
| • With screw terminals                                                                      |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  | 1                                              |              |                         |     |    |             |                 |
| • With spring-type terminals                                                                |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  | 3                                              |              |                         |     |    |             |                 |
| 93                                                                                          | --                                                     | 45    | 55    | --    | --     | 82                                                | --                                                     | --    | 60    | 75    | B | 3RW4434-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 113                                                                                         | --                                                     | 55    | 75    | --    | --     | 100                                               | --                                                     | --    | 75    | 75    | B | 3RW4435-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 134                                                                                         | --                                                     | 75    | 90    | --    | --     | 117                                               | --                                                     | --    | 75    | 100   | B | 3RW4436-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 162                                                                                         | --                                                     | 90    | 110   | --    | --     | 145                                               | --                                                     | --    | 100   | 125   | B | 3RW4443-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 203                                                                                         | --                                                     | 110   | 132   | --    | --     | 180                                               | --                                                     | --    | 125   | 150   | B | 3RW4445-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 250                                                                                         | --                                                     | 132   | 160   | --    | --     | 215                                               | --                                                     | --    | 150   | 200   | B | 3RW4446-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 313                                                                                         | --                                                     | 160   | 200   | --    | --     | 280                                               | --                                                     | --    | 200   | 250   | B | 3RW4447-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 356                                                                                         | --                                                     | 200   | 250   | --    | --     | 315                                               | --                                                     | --    | 250   | 300   | B | 3RW4447-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 432                                                                                         | --                                                     | 250   | 315   | --    | --     | 385                                               | --                                                     | --    | 300   | 400   | C | 3RW4453-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 551                                                                                         | --                                                     | 315   | 355   | --    | --     | 494                                               | --                                                     | --    | 400   | 500   | C | 3RW4453-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 615                                                                                         | --                                                     | 355   | 400   | --    | --     | 551                                               | --                                                     | --    | 450   | 600   | C | 3RW4454-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 693                                                                                         | --                                                     | 400   | 500   | --    | --     | 615                                               | --                                                     | --    | 500   | 700   | C | 3RW4457-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 780                                                                                         | --                                                     | 450   | 560   | --    | --     | 693                                               | --                                                     | --    | 600   | 750   | C | 3RW4465-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 880                                                                                         | --                                                     | 500   | 630   | --    | --     | 780                                               | --                                                     | --    | 700   | 850   | C | 3RW4465-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| 970                                                                                         | --                                                     | 560   | 710   | --    | --     | 850                                               | --                                                     | --    | 750   | 900   | C | 3RW4465-□BC□5    | 1                                              | 1 unit       | 42H                     |     |    |             |                 |
| Article No. supplement for connection types                                                 |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  | 2                                              |              |                         |     |    |             |                 |
| • With spring-type terminals                                                                |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  | 6                                              |              |                         |     |    |             |                 |
| • With screw terminals                                                                      |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |
| Article No. supplement for rated control supply voltage <i>U</i> <sub>s</sub> <sup>2)</sup> |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |
| • 115 V AC                                                                                  |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |
| • 230 V AC                                                                                  |                                                        |       |       |       |        |                                                   |                                                        |       |       |       |   |                  |                                                |              |                         |     |    |             |                 |

 Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter with screw terminals:  
3RW442.. to 3RW444.. Delivery time class A,  
3RW445.. to 3RW446.. Delivery time class B.

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for heavy starting (CLASS 20) in inline circuit

| 3RW ambient temperature 40 °C                                               |                                        |       |       |       |        | 3RW ambient temperature 50 °C         |                                        |       |       |       | DT | Heavy starting (CLASS 20)<br>in inline circuit | Configurator    | PU<br>(UNIT, SET, M) | PS*    | PG  |  |  |
|-----------------------------------------------------------------------------|----------------------------------------|-------|-------|-------|--------|---------------------------------------|----------------------------------------|-------|-------|-------|----|------------------------------------------------|-----------------|----------------------|--------|-----|--|--|
| Rated values of<br>three-phase motors                                       |                                        |       |       |       |        | Rated values of<br>three-phase motors |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| Opera-<br>tional<br>current $I_e$                                           | Rating at<br>operational voltage $U_e$ |       |       |       |        | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |    |                                                |                 |                      |        |     |  |  |
|                                                                             | 230 V                                  | 400 V | 500 V | 690 V | 1000 V |                                       | 200 V                                  | 230 V | 460 V | 575 V |    |                                                |                 |                      |        |     |  |  |
| A                                                                           | kW                                     | kW    | kW    | kW    | kW     | A                                     | hp                                     | hp    | hp    | hp    |    | Article No.                                    | Price<br>per PU |                      |        |     |  |  |
| Inline circuit, rated operational voltage 400 ... 690 V                     |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| 29                                                                          | --                                     | 15    | 18.5  | 30    | --     | 26                                    | --                                     | --    | 15    | 20    | B  | 3RW4422-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 36                                                                          | --                                     | 18.5  | 22    | 37    | --     | 32                                    | --                                     | --    | 20    | 25    | B  | 3RW4423-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 47                                                                          | --                                     | 22    | 30    | 45    | --     | 42                                    | --                                     | --    | 25    | 30    | B  | 3RW4424-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 57                                                                          | --                                     | 30    | 37    | 55    | --     | 51                                    | --                                     | --    | 30    | 40    | B  | 3RW4425-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 77                                                                          | --                                     | 37    | 45    | 75    | --     | 68                                    | --                                     | --    | 50    | 50    | B  | 3RW4427-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| 93                                                                          | --                                     | 45    | 55    | 90    | --     | 82                                    | --                                     | --    | 60    | 75    | B  | 3RW4434-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 113                                                                         | --                                     | 55    | 75    | 110   | --     | 100                                   | --                                     | --    | 75    | 75    | B  | 3RW4435-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 134                                                                         | --                                     | 75    | 90    | 132   | --     | 117                                   | --                                     | --    | 75    | 100   | B  | 3RW4436-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 162                                                                         | --                                     | 90    | 110   | 160   | --     | 145                                   | --                                     | --    | 100   | 125   | B  | 3RW4443-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 203                                                                         | --                                     | 110   | 132   | 200   | --     | 180                                   | --                                     | --    | 125   | 150   | B  | 3RW4445-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 250                                                                         | --                                     | 132   | 160   | 250   | --     | 215                                   | --                                     | --    | 150   | 200   | B  | 3RW4446-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 313                                                                         | --                                     | 160   | 200   | 315   | --     | 280                                   | --                                     | --    | 200   | 250   | B  | 3RW4447-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 356                                                                         | --                                     | 200   | 250   | 355   | --     | 315                                   | --                                     | --    | 250   | 300   | B  | 3RW4447-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 432                                                                         | --                                     | 250   | 315   | 400   | --     | 385                                   | --                                     | --    | 300   | 400   | C  | 3RW4453-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 551                                                                         | --                                     | 315   | 355   | 560   | --     | 494                                   | --                                     | --    | 400   | 500   | C  | 3RW4453-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 615                                                                         | --                                     | 355   | 400   | 630   | --     | 551                                   | --                                     | --    | 450   | 600   | C  | 3RW4455-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 693                                                                         | --                                     | 400   | 500   | 710   | --     | 615                                   | --                                     | --    | 500   | 700   | C  | 3RW4457-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 780                                                                         | --                                     | 450   | 560   | 800   | --     | 693                                   | --                                     | --    | 600   | 750   | C  | 3RW4465-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 880                                                                         | --                                     | 500   | 630   | 900   | --     | 780                                   | --                                     | --    | 700   | 850   | C  | 3RW4465-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| 970                                                                         | --                                     | 560   | 710   | 1 000 | --     | 850                                   | --                                     | --    | 750   | 900   | C  | 3RW4465-□BC□6                                  |                 | 1                    | 1 unit | 42H |  |  |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| Article No. supplement for rated control supply voltage $U_s$ <sup>1)</sup> |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| • 115 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |
| • 230 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |    |                                                |                 |                      |        |     |  |  |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit

### Selection and ordering data



| 3RW442.                                                 |      |                                        |    |    |    | 3RW443. |                              |     |                                        |    |    | 3RW444.                               |                 |              |        |                                                                                     |  | 3RW445. |  |  |  |  |  | 3RW446.          |                                                     |  |                         |     |    |  |  |
|---------------------------------------------------------|------|----------------------------------------|----|----|----|---------|------------------------------|-----|----------------------------------------|----|----|---------------------------------------|-----------------|--------------|--------|-------------------------------------------------------------------------------------|--|---------|--|--|--|--|--|------------------|-----------------------------------------------------|--|-------------------------|-----|----|--|--|
| 3RW ambient temperature 40 °C                           |      |                                        |    |    |    |         |                              |     |                                        |    |    | 3RW ambient temperature 50 °C         |                 |              |        |                                                                                     |  |         |  |  |  |  |  | DT <sup>1)</sup> | Very heavy starting (CLASS 30)<br>in inline circuit |  | PU<br>(UNIT,<br>SET, M) | PS* | PG |  |  |
| Rated values of<br>three-phase motors                   |      |                                        |    |    |    |         |                              |     |                                        |    |    | Rated values of<br>three-phase motors |                 |              |        |                                                                                     |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| Operational<br>current $I_e$                            |      | Rating at<br>operational voltage $U_e$ |    |    |    |         | Operational<br>current $I_e$ |     | Rating at<br>operational voltage $U_e$ |    |    |                                       |                 | Configurator |        |  |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| A                                                       | kW   | kW                                     | kW | kW | kW | A       | hp                           | hp  | hp                                     | hp | hp | Article No.                           | Price<br>per PU |              |        |                                                                                     |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| Inline circuit, rated operational voltage 200 ... 460 V |      |                                        |    |    |    |         |                              |     |                                        |    |    |                                       |                 |              |        |                                                                                     |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 29                                                      | 5.5  | 15                                     | -- | -- | -- | 26      | 7.5                          | 7.5 | 15                                     | -- | B  | 3RW4422-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 36                                                      | 7.5  | 18.5                                   | -- | -- | -- | 32      | 10                           | 10  | 20                                     | -- | B  | 3RW4424-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 47                                                      | 11   | 22                                     | -- | -- | -- | 42      | 10                           | 15  | 25                                     | -- | B  | 3RW4425-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 57                                                      | 15   | 30                                     | -- | -- | -- | 51      | 15                           | 15  | 30                                     | -- | B  | 3RW4425-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| Article No. supplement for connection types             |      |                                        |    |    |    |         |                              |     |                                        |    |    |                                       |                 |              |        |                                                                                     |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| • With screw terminals                                  |      |                                        |    |    |    |         |                              |     |                                        |    |    |                                       |                 |              |        |                                                                                     |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| • With spring-type terminals                            |      |                                        |    |    |    |         |                              |     |                                        |    |    |                                       |                 |              |        |                                                                                     |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 77                                                      | 18.5 | 37                                     | -- | -- | -- | 68      | 20                           | 20  | 50                                     | -- | B  | 3RW4434-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 93                                                      | 22   | 45                                     | -- | -- | -- | 82      | 25                           | 25  | 60                                     | -- | B  | 3RW4435-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 113                                                     | 30   | 55                                     | -- | -- | -- | 100     | 30                           | 30  | 75                                     | -- | B  | 3RW4443-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 134                                                     | 37   | 75                                     | -- | -- | -- | 117     | 30                           | 40  | 75                                     | -- | B  | 3RW4443-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 162                                                     | 45   | 90                                     | -- | -- | -- | 145     | 40                           | 50  | 100                                    | -- | B  | 3RW4443-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 203                                                     | 55   | 110                                    | -- | -- | -- | 180     | 50                           | 60  | 125                                    | -- | B  | 3RW4446-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 250                                                     | 75   | 132                                    | -- | -- | -- | 215     | 60                           | 75  | 150                                    | -- | B  | 3RW4447-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 313                                                     | 90   | 160                                    | -- | -- | -- | 280     | 75                           | 100 | 200                                    | -- | C  | 3RW4453-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 356                                                     | 110  | 200                                    | -- | -- | -- | 315     | 100                          | 125 | 250                                    | -- | C  | 3RW4453-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 432                                                     | 132  | 250                                    | -- | -- | -- | 385     | 125                          | 150 | 300                                    | -- | C  | 3RW4453-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 551                                                     | 160  | 315                                    | -- | -- | -- | 494     | 150                          | 200 | 400                                    | -- | C  | 3RW4455-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 615                                                     | 200  | 355                                    | -- | -- | -- | 551     | 150                          | 200 | 450                                    | -- | C  | 3RW4458-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 693                                                     | 200  | 400                                    | -- | -- | -- | 615     | 200                          | 250 | 500                                    | -- | C  | 3RW4465-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 780                                                     | 250  | 450                                    | -- | -- | -- | 693     | 200                          | 250 | 600                                    | -- | C  | 3RW4465-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 880                                                     | 250  | 500                                    | -- | -- | -- | 780     | 250                          | 300 | 700                                    | -- | C  | 3RW4465-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |
| 970                                                     | 315  | 560                                    | -- | -- | -- | 850     | 300                          | 350 | 750                                    | -- | C  | 3RW4466-□BC□4                         |                 | 1            | 1 unit | 42H                                                                                 |  |         |  |  |  |  |  |                  |                                                     |  |                         |     |    |  |  |

#### Article No. supplement for connection types

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup>

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

1) 3RW442. to 3RW444. soft starters with screw terminals: delivery time class ► (preferred type).

2) Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current  $I_e$ : 350

- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit

| 3RW ambient temperature 40 °C                                                                               |                                        |       |             |       |        | 3RW ambient temperature 50 °C         |                                        |       |       |            |             | DT <sup>1)</sup> | Very heavy starting (CLASS 30)<br>in inline circuit | Configurator | PU<br>(UNIT,<br>SET, M) | PS* | PG |  |  |  |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------|-------|-------------|-------|--------|---------------------------------------|----------------------------------------|-------|-------|------------|-------------|------------------|-----------------------------------------------------|--------------|-------------------------|-----|----|--|--|--|
| Rated values of<br>three-phase motors                                                                       |                                        |       |             |       |        | Rated values of<br>three-phase motors |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| Opera-<br>tional<br>current $I_e$                                                                           | Rating at<br>operational voltage $U_e$ |       |             |       |        | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| A                                                                                                           | 230 V                                  | 400 V | 500 V       | 690 V | 1000 V | A                                     | 200 V                                  | 230 V | 460 V | 575 V      | Article No. | Price<br>per PU  |                                                     |              |                         |     |    |  |  |  |
| kW                                                                                                          | kW                                     | kW    | kW          | kW    | kW     | hp                                    | hp                                     | hp    | hp    | hp         |             |                  |                                                     |              |                         |     |    |  |  |  |
| <b>Inline circuit, rated operational voltage 400 ... 600 V</b>                                              |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| 29                                                                                                          | --                                     | 15    | <b>18.5</b> | --    | --     | 26                                    | --                                     | --    | 15    | <b>20</b>  | B           | 3RW4422-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 36                                                                                                          | --                                     | 18.5  | <b>22</b>   | --    | --     | 32                                    | --                                     | --    | 20    | <b>25</b>  | B           | 3RW4424-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 47                                                                                                          | --                                     | 22    | <b>30</b>   | --    | --     | 42                                    | --                                     | --    | 25    | <b>30</b>  | B           | 3RW4425-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 57                                                                                                          | --                                     | 30    | <b>37</b>   | --    | --     | 51                                    | --                                     | --    | 30    | <b>40</b>  | B           | 3RW4425-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| <b>Article No. supplement for connection types</b>                                                          |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| <ul style="list-style-type: none"><li>• With screw terminals</li><li>• With spring-type terminals</li></ul> |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| 77                                                                                                          | --                                     | 37    | <b>45</b>   | --    | --     | 68                                    | --                                     | --    | 50    | <b>50</b>  | B           | 3RW4434-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 93                                                                                                          | --                                     | 45    | <b>55</b>   | --    | --     | 82                                    | --                                     | --    | 60    | <b>75</b>  | B           | 3RW4435-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 113                                                                                                         | --                                     | 55    | <b>75</b>   | --    | --     | 100                                   | --                                     | --    | 75    | <b>75</b>  | B           | 3RW4443-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 134                                                                                                         | --                                     | 75    | <b>90</b>   | --    | --     | 117                                   | --                                     | --    | 75    | <b>100</b> | B           | 3RW4443-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 162                                                                                                         | --                                     | 90    | <b>110</b>  | --    | --     | 145                                   | --                                     | --    | 100   | <b>125</b> | B           | 3RW4443-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 203                                                                                                         | --                                     | 110   | <b>132</b>  | --    | --     | 180                                   | --                                     | --    | 125   | <b>150</b> | B           | 3RW4446-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 250                                                                                                         | --                                     | 132   | <b>160</b>  | --    | --     | 215                                   | --                                     | --    | 150   | <b>200</b> | B           | 3RW4447-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 313                                                                                                         | --                                     | 160   | <b>200</b>  | --    | --     | 280                                   | --                                     | --    | 200   | <b>250</b> | C           | 3RW4453-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 356                                                                                                         | --                                     | 200   | <b>250</b>  | --    | --     | 315                                   | --                                     | --    | 250   | <b>300</b> | C           | 3RW4453-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 432                                                                                                         | --                                     | 250   | <b>315</b>  | --    | --     | 385                                   | --                                     | --    | 300   | <b>400</b> | C           | 3RW4453-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 551                                                                                                         | --                                     | 315   | <b>355</b>  | --    | --     | 494                                   | --                                     | --    | 400   | <b>500</b> | C           | 3RW4455-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 615                                                                                                         | --                                     | 355   | <b>400</b>  | --    | --     | 551                                   | --                                     | --    | 450   | <b>600</b> | C           | 3RW4458-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 693                                                                                                         | --                                     | 400   | <b>500</b>  | --    | --     | 615                                   | --                                     | --    | 500   | <b>700</b> | C           | 3RW4465-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 780                                                                                                         | --                                     | 450   | <b>560</b>  | --    | --     | 693                                   | --                                     | --    | 600   | <b>750</b> | C           | 3RW4465-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| 880                                                                                                         | --                                     | 500   | <b>630</b>  | --    | --     | 780                                   | --                                     | --    | 700   | <b>850</b> | C           | 3RW4465-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| --                                                                                                          | --                                     | --    | --          | --    | --     | 850                                   | --                                     | --    | 750   | <b>900</b> | C           | 3RW4466-□BC□5    | 1                                                   | 1 unit       | 42H                     |     |    |  |  |  |
| <b>Article No. supplement for connection types</b>                                                          |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| <ul style="list-style-type: none"><li>• With spring-type terminals</li><li>• With screw terminals</li></ul> |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| <b>Article No. supplement for rated control supply voltage <math>U_s</math><sup>2)</sup></b>                |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |
| <ul style="list-style-type: none"><li>• 115 V AC</li><li>• 230 V AC</li></ul>                               |                                        |       |             |       |        |                                       |                                        |       |       |            |             |                  |                                                     |              |                         |     |    |  |  |  |

 Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter with screw terminals:  
3RW442.. to 3RW444.. Delivery time class A,  
3RW445.. to 3RW446.. Delivery time class B.

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit

| 3RW ambient temperature 40 °C                                               |                                        |       |       |       |        | 3RW ambient temperature 50 °C         |                                        |       |       |       |   | DT            | Very heavy starting (CLASS 30)<br>in inline circuit | Configurator | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-----------------------------------------------------------------------------|----------------------------------------|-------|-------|-------|--------|---------------------------------------|----------------------------------------|-------|-------|-------|---|---------------|-----------------------------------------------------|--------------|-------------------------|-----|----|
| Rated values of<br>three-phase motors                                       |                                        |       |       |       |        | Rated values of<br>three-phase motors |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| Opera-<br>tional<br>current $I_e$                                           | Rating at<br>operational voltage $U_e$ |       |       |       |        | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |   | Article No.   | Price<br>per PU                                     |              |                         |     |    |
|                                                                             | 230 V                                  | 400 V | 500 V | 690 V | 1000 V |                                       | 200 V                                  | 230 V | 460 V | 575 V |   |               |                                                     |              |                         |     |    |
| A                                                                           | kW                                     | kW    | kW    | kW    | kW     | A                                     | hp                                     | hp    | hp    | hp    |   |               |                                                     |              |                         |     |    |
| Inline circuit, rated operational voltage 400 ... 690 V                     |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| 29                                                                          | --                                     | 15    | 18.5  | 30    | --     | 26                                    | --                                     | --    | 15    | 20    | B | 3RW4422-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 36                                                                          | --                                     | 18.5  | 22    | 37    | --     | 32                                    | --                                     | --    | 20    | 25    | B | 3RW4424-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 47                                                                          | --                                     | 22    | 30    | 45    | --     | 42                                    | --                                     | --    | 25    | 30    | B | 3RW4425-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 57                                                                          | --                                     | 30    | 37    | 55    | --     | 51                                    | --                                     | --    | 30    | 40    | B | 3RW4425-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| 77                                                                          | --                                     | 37    | 45    | 75    | --     | 68                                    | --                                     | --    | 50    | 50    | B | 3RW4434-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 93                                                                          | --                                     | 45    | 55    | 90    | --     | 82                                    | --                                     | --    | 60    | 75    | B | 3RW4435-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 113                                                                         | --                                     | 55    | 75    | 110   | --     | 100                                   | --                                     | --    | 75    | 75    | B | 3RW4443-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 134                                                                         | --                                     | 75    | 90    | 132   | --     | 117                                   | --                                     | --    | 75    | 100   | B | 3RW4443-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 162                                                                         | --                                     | 90    | 110   | 160   | --     | 145                                   | --                                     | --    | 100   | 125   | B | 3RW4443-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 203                                                                         | --                                     | 110   | 132   | 200   | --     | 180                                   | --                                     | --    | 125   | 150   | B | 3RW4446-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 250                                                                         | --                                     | 132   | 160   | 250   | --     | 215                                   | --                                     | --    | 150   | 200   | B | 3RW4447-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 313                                                                         | --                                     | 160   | 200   | 315   | --     | 280                                   | --                                     | --    | 200   | 250   | C | 3RW4453-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 356                                                                         | --                                     | 200   | 250   | 355   | --     | 315                                   | --                                     | --    | 250   | 300   | C | 3RW4453-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 432                                                                         | --                                     | 250   | 315   | 400   | --     | 385                                   | --                                     | --    | 300   | 400   | C | 3RW4453-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 551                                                                         | --                                     | 315   | 355   | 560   | --     | 494                                   | --                                     | --    | 400   | 500   | C | 3RW4455-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 615                                                                         | --                                     | 355   | 400   | 630   | --     | 551                                   | --                                     | --    | 450   | 600   | C | 3RW4458-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 693                                                                         | --                                     | 400   | 500   | 710   | --     | 615                                   | --                                     | --    | 500   | 700   | C | 3RW4465-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 780                                                                         | --                                     | 450   | 560   | 800   | --     | 693                                   | --                                     | --    | 600   | 750   | C | 3RW4465-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| 880                                                                         | --                                     | 500   | 630   | 900   | --     | 780                                   | --                                     | --    | 700   | 850   | C | 3RW4465-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| --                                                                          | --                                     | --    | --    | --    | --     | 850                                   | --                                     | --    | 750   | 900   | C | 3RW4466-□BC□6 | 1                                                   | 1 unit       | 42H                     |     |    |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| Article No. supplement for rated control supply voltage $U_s$ <sup>1)</sup> |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| • 115 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |
| • 230 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |   |               |                                                     |              |                         |     |    |

 Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

SIRIUS 3RW44 for normal starting (CLASS 10) in inside-delta circuit

### Selection and ordering data



| 3RW442.                               |    |                                        |       |       |       | 3RW443. |                              |    |                                        |       |       | 3RW444.                               |             |              |  |                                                                                     |                 | 3RW445. |  |  |  |  |  | 3RW446.          |                                                       |  |                         |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 3RW ambient temperature 40 °C         |    |                                        |       |       |       |         |                              |    |                                        |       |       | 3RW ambient temperature 50 °C         |             |              |  |                                                                                     |                 |         |  |  |  |  |  | DT <sup>1)</sup> | Normal starting (CLASS 10)<br>in inside-delta circuit |  | PU<br>(UNIT,<br>SET, M) | PS* | PG |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rated values of<br>three-phase motors |    |                                        |       |       |       |         |                              |    |                                        |       |       | Rated values of<br>three-phase motors |             |              |  |                                                                                     |                 |         |  |  |  |  |  |                  |                                                       |  |                         |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Operational<br>current $I_e$          |    | Rating at<br>operational voltage $U_e$ |       |       |       |         | Operational<br>current $I_e$ |    | Rating at<br>operational voltage $U_e$ |       |       |                                       |             | Configurator |  |  |                 |         |  |  |  |  |  |                  |                                                       |  |                         |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       |    | 230 V                                  | 400 V | 500 V | 690 V | 1000 V  |                              |    | 200 V                                  | 230 V | 460 V | 575 V                                 | Article No. |              |  |                                                                                     | Price<br>per PU |         |  |  |  |  |  |                  |                                                       |  |                         |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| A                                     | kW | kW                                     | kW    | kW    | kW    | A       | hp                           | hp | hp                                     | hp    |       |                                       |             |              |  |                                                                                     |                 |         |  |  |  |  |  |                  |                                                       |  |                         |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

#### Article No. supplement for connection types

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup>

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> 3RW442. to 3RW444. soft starters with screw terminals: delivery time class ► (preferred type).

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5

In the selection table, the unit rated current  $I_e$  refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

## SIRIUS 3RW Soft Starters

### 3RW44 for High-Feature Applications

#### SIRIUS 3RW44 for normal starting (CLASS 10) in inside-delta circuit

| 3RW ambient temperature 40 °C                                               |                                        |       |       |       |        | 3RW ambient temperature 50 °C         |                                        |       |       |       |   | DT <sup>1)</sup> | Normal starting (CLASS 10)<br>in inside-delta circuit | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-----------------------------------------------------------------------------|----------------------------------------|-------|-------|-------|--------|---------------------------------------|----------------------------------------|-------|-------|-------|---|------------------|-------------------------------------------------------|-------------------------|-----|----|
| Rated values of<br>three-phase motors                                       |                                        |       |       |       |        | Rated values of<br>three-phase motors |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| Opera-<br>tional<br>current $I_e$                                           | Rating at<br>operational voltage $U_e$ |       |       |       |        | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |   |                  |                                                       |                         |     |    |
|                                                                             | 230 V                                  | 400 V | 500 V | 690 V | 1000 V |                                       | 200 V                                  | 230 V | 460 V | 575 V |   |                  |                                                       |                         |     |    |
| A                                                                           | kW                                     | kW    | kW    | kW    | kW     | A                                     | hp                                     | hp    | hp    | hp    |   |                  |                                                       |                         |     |    |
| Inside-delta circuit, rated operational voltage 400 ... 600 V               |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| 50                                                                          | --                                     | 22    | 30    | --    | --     | 45                                    | --                                     | --    | 30    | 40    | B | 3RW4422-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 62                                                                          | --                                     | 30    | 37    | --    | --     | 55                                    | --                                     | --    | 40    | 50    | B | 3RW4423-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 81                                                                          | --                                     | 45    | 45    | --    | --     | 73                                    | --                                     | --    | 50    | 60    | B | 3RW4424-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 99                                                                          | --                                     | 55    | 55    | --    | --     | 88                                    | --                                     | --    | 60    | 75    | B | 3RW4425-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 133                                                                         | --                                     | 75    | 90    | --    | --     | 118                                   | --                                     | --    | 75    | 100   | B | 3RW4426-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 161                                                                         | --                                     | 90    | 110   | --    | --     | 142                                   | --                                     | --    | 100   | 125   | B | 3RW4427-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| 196                                                                         | --                                     | 110   | 132   | --    | --     | 173                                   | --                                     | --    | 125   | 150   | B | 3RW4434-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 232                                                                         | --                                     | 132   | 160   | --    | --     | 203                                   | --                                     | --    | 150   | 200   | B | 3RW4435-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 281                                                                         | --                                     | 160   | 200   | --    | --     | 251                                   | --                                     | --    | 200   | 250   | B | 3RW4436-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 352                                                                         | --                                     | 200   | 250   | --    | --     | 312                                   | --                                     | --    | 250   | 300   | B | 3RW4443-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 433                                                                         | --                                     | 250   | 315   | --    | --     | 372                                   | --                                     | --    | 300   | 350   | B | 3RW4444-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 542                                                                         | --                                     | 315   | 355   | --    | --     | 485                                   | --                                     | --    | 400   | 500   | B | 3RW4445-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 617                                                                         | --                                     | 355   | 450   | --    | --     | 546                                   | --                                     | --    | 450   | 600   | B | 3RW4446-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 748                                                                         | --                                     | 400   | 500   | --    | --     | 667                                   | --                                     | --    | 600   | 750   | B | 3RW4447-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 954                                                                         | --                                     | 560   | 630   | --    | --     | 856                                   | --                                     | --    | 750   | 950   | C | 3RW4453-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 1065                                                                        | --                                     | 630   | 710   | --    | --     | 954                                   | --                                     | --    | 850   | 1050  | C | 3RW4454-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 1200                                                                        | --                                     | 710   | 800   | --    | --     | 1065                                  | --                                     | --    | 950   | 1200  | C | 3RW4455-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 1351                                                                        | --                                     | 800   | 900   | --    | --     | 1200                                  | --                                     | --    | 1050  | 1350  | C | 3RW4456-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 1524                                                                        | --                                     | 900   | 1000  | --    | --     | 1351                                  | --                                     | --    | 1200  | 1500  | C | 3RW4457-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 1680                                                                        | --                                     | 1000  | 1200  | --    | --     | 1472                                  | --                                     | --    | 1300  | 1650  | C | 3RW4458-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 1864                                                                        | --                                     | 1100  | 1350  | --    | --     | 1680                                  | --                                     | --    | 1500  | 1900  | C | 3RW4465-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| 2103                                                                        | --                                     | 1200  | 1500  | --    | --     | 1864                                  | --                                     | --    | 1700  | 2100  | C | 3RW4466-□BC□5    | 1                                                     | 1 unit                  | 42H |    |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup> |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| • 115 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |
| • 230 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                       |                         |     |    |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

1) Soft starter with screw terminals:  
3RW442... to 3RW444. Delivery time class A,  
3RW445... to 3RW446. Delivery time class B.

2) Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current  $I_e$ : 300
- Maximum number of starts per hour in 1/h: 5

In the selection table, the unit rated current  $I_e$  refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

SIRIUS 3RW44 for heavy starting (CLASS 20) in inside-delta circuit

### Selection and ordering data



| 3RW442.                                                                                                     |                                        |       |       |       |        | 3RW443.                           |                                        |       |       |       | 3RW444.                                                                                          |               |                                                                                                |                 |        | 3RW445.          |                                                      |  |                         |     | 3RW446. |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------|-------|-------|-------|--------|-----------------------------------|----------------------------------------|-------|-------|-------|--------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------|-----------------|--------|------------------|------------------------------------------------------|--|-------------------------|-----|---------|--|--|--|--|
| 3RW ambient temperature 40 °C                                                                               |                                        |       |       |       |        |                                   |                                        |       |       |       | 3RW ambient temperature 50 °C                                                                    |               |                                                                                                |                 |        | DT <sup>1)</sup> | Heavy starting (CLASS 20)<br>in inside-delta circuit |  | PU<br>(UNIT,<br>SET, M) | PS* | PG      |  |  |  |  |
| Rated values of<br>three-phase motors                                                                       |                                        |       |       |       |        |                                   |                                        |       |       |       | Rated values of<br>three-phase motors                                                            |               |                                                                                                |                 |        |                  |                                                      |  |                         |     |         |  |  |  |  |
| Opera-<br>tional<br>current $I_e$                                                                           | Rating at<br>operational voltage $U_e$ |       |       |       |        | Opera-<br>tional<br>current $I_e$ | Rating at<br>operational voltage $U_e$ |       |       |       | Configurator  |               |                                                                                                |                 |        |                  |                                                      |  |                         |     |         |  |  |  |  |
|                                                                                                             | 230 V                                  | 400 V | 500 V | 690 V | 1000 V |                                   | 200 V                                  | 230 V | 460 V | 575 V |                                                                                                  |               | Article No.                                                                                    | Price<br>per PU |        |                  |                                                      |  |                         |     |         |  |  |  |  |
| A                                                                                                           | kW                                     | kW    | kW    | kW    | kW     | A                                 | hp                                     | hp    | hp    | hp    |                                                                                                  |               |                                                                                                |                 |        |                  |                                                      |  |                         |     |         |  |  |  |  |
| Inside-delta circuit, rated operational voltage 200 ... 460 V                                               |                                        |       |       |       |        |                                   |                                        |       |       |       |                                                                                                  |               |                                                                                                |                 |        |                  |                                                      |  |                         |     |         |  |  |  |  |
| 50                                                                                                          | 15                                     | 22    | --    | --    | --     | 45                                | 10                                     | 15    | 30    | --    | B                                                                                                | 3RW4423-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 62                                                                                                          | 18.5                                   | 30    | --    | --    | --     | 55                                | 15                                     | 20    | 40    | --    | B                                                                                                | 3RW4424-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 81                                                                                                          | 22                                     | 45    | --    | --    | --     | 73                                | 20                                     | 25    | 50    | --    | B                                                                                                | 3RW4425-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 99                                                                                                          | 30                                     | 55    | --    | --    | --     | 88                                | 25                                     | 30    | 60    | --    | B                                                                                                | 3RW4425-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 133                                                                                                         | 37                                     | 75    | --    | --    | --     | 118                               | 30                                     | 40    | 75    | --    | B                                                                                                | 3RW4427-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| Article No. supplement for connection types                                                                 |                                        |       |       |       |        |                                   |                                        |       |       |       |                                                                                                  |               | <br>1<br>3 |                 |        |                  |                                                      |  |                         |     |         |  |  |  |  |
| <ul style="list-style-type: none"><li>• With screw terminals</li><li>• With spring-type terminals</li></ul> |                                        |       |       |       |        |                                   |                                        |       |       |       |                                                                                                  |               |                                                                                                |                 |        |                  |                                                      |  |                         |     |         |  |  |  |  |
| 161                                                                                                         | 45                                     | 90    | --    | --    | --     | 142                               | 40                                     | 50    | 100   | --    | B                                                                                                | 3RW4434-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 196                                                                                                         | 55                                     | 110   | --    | --    | --     | 173                               | 50                                     | 60    | 125   | --    | B                                                                                                | 3RW4435-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 232                                                                                                         | 75                                     | 132   | --    | --    | --     | 203                               | 60                                     | 75    | 150   | --    | B                                                                                                | 3RW4436-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 281                                                                                                         | 90                                     | 160   | --    | --    | --     | 251                               | 75                                     | 100   | 200   | --    | B                                                                                                | 3RW4443-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 352                                                                                                         | 110                                    | 200   | --    | --    | --     | 312                               | 100                                    | 125   | 250   | --    | B                                                                                                | 3RW4444-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 433                                                                                                         | 132                                    | 250   | --    | --    | --     | 372                               | 125                                    | 150   | 300   | --    | B                                                                                                | 3RW4445-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 542                                                                                                         | 160                                    | 315   | --    | --    | --     | 485                               | 150                                    | 200   | 400   | --    | B                                                                                                | 3RW4447-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 617                                                                                                         | 200                                    | 355   | --    | --    | --     | 546                               | 150                                    | 200   | 450   | --    | B                                                                                                | 3RW4447-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 748                                                                                                         | 250                                    | 400   | --    | --    | --     | 667                               | 200                                    | 250   | 600   | --    | C                                                                                                | 3RW4453-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 954                                                                                                         | 315                                    | 560   | --    | --    | --     | 856                               | 300                                    | 350   | 750   | --    | C                                                                                                | 3RW4453-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 1065                                                                                                        | 355                                    | 630   | --    | --    | --     | 954                               | 350                                    | 400   | 850   | --    | C                                                                                                | 3RW4455-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 1200                                                                                                        | 400                                    | 710   | --    | --    | --     | 1065                              | 350                                    | 450   | 950   | --    | C                                                                                                | 3RW4457-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 1351                                                                                                        | 450                                    | 800   | --    | --    | --     | 1200                              | 450                                    | 500   | 1050  | --    | C                                                                                                | 3RW4465-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 1524                                                                                                        | 500                                    | 900   | --    | --    | --     | 1351                              | 450                                    | 600   | 1200  | --    | C                                                                                                | 3RW4465-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| 1680                                                                                                        | 560                                    | 1000  | --    | --    | --     | 1472                              | 550                                    | 650   | 1300  | --    | C                                                                                                | 3RW4465-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |
| --                                                                                                          | --                                     | --    | --    | --    | --     | 1680                              | 650                                    | 750   | 1500  | --    | C                                                                                                | 3RW4466-□BC□4 |                                                                                                | 1               | 1 unit | 42H              |                                                      |  |                         |     |         |  |  |  |  |

#### Article No. supplement for connection types

- With spring-type terminals
- With screw terminals

#### Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup>

- 115 V AC
- 230 V AC

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> 3RW442... to 3RW444... soft starters with screw terminals:  
delivery time class ► (preferred type).

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

In the selection table, the unit rated current  $I_e$  refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual, <http://support.automation.siemens.com/WW/view/en/21772518>

## SIRIUS 3RW Soft Starters

### 3RW44 for High-Feature Applications

#### SIRIUS 3RW44 for heavy starting (CLASS 20) in inside-delta circuit

| 3RW ambient temperature 40 °C                                                                               |                                        |       |              |       |        | 3RW ambient temperature 50 °C         |                                        |       |       |              |   | DT <sup>1)</sup>                                                                      | Heavy starting (CLASS 20)<br>in inside-delta circuit                                  | Configurator  | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------|-------|--------------|-------|--------|---------------------------------------|----------------------------------------|-------|-------|--------------|---|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------|-----|----|
| Rated values of<br>three-phase motors                                                                       |                                        |       |              |       |        | Rated values of<br>three-phase motors |                                        |       |       |              |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
| Opera-<br>tional<br>current $I_e$                                                                           | Rating at<br>operational voltage $U_e$ |       |              |       |        | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |              |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
|                                                                                                             | 230 V                                  | 400 V | 500 V        | 690 V | 1000 V |                                       | 200 V                                  | 230 V | 460 V | 575 V        |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
| A                                                                                                           | kW                                     | kW    | kW           | kW    | kW     | A                                     | hp                                     | hp    | hp    | hp           |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
| Inside-delta circuit, rated operational voltage 400 ... 600 V                                               |                                        |       |              |       |        |                                       |                                        |       |       |              |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
| 50                                                                                                          | --                                     | 22    | <b>30</b>    | --    | --     | 45                                    | --                                     | --    | 30    | <b>40</b>    | B | 3RW4423-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 62                                                                                                          | --                                     | 30    | <b>37</b>    | --    | --     | 55                                    | --                                     | --    | 40    | <b>50</b>    | B | 3RW4424-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 81                                                                                                          | --                                     | 45    | <b>45</b>    | --    | --     | 73                                    | --                                     | --    | 50    | <b>60</b>    | B | 3RW4425-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 99                                                                                                          | --                                     | 55    | <b>55</b>    | --    | --     | 88                                    | --                                     | --    | 60    | <b>75</b>    | B | 3RW4425-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 133                                                                                                         | --                                     | 75    | <b>90</b>    | --    | --     | 118                                   | --                                     | --    | 75    | <b>100</b>   | B | 3RW4427-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| <b>Article No. supplement for connection types</b>                                                          |                                        |       |              |       |        |                                       |                                        |       |       |              |   |    |    |                                                                                                  |                         |     |    |
| <ul style="list-style-type: none"><li>• With screw terminals</li><li>• With spring-type terminals</li></ul> |                                        |       |              |       |        |                                       |                                        |       |       |              |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
| 161                                                                                                         | --                                     | 90    | <b>110</b>   | --    | --     | 142                                   | --                                     | --    | 100   | <b>125</b>   | B | 3RW4434-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 196                                                                                                         | --                                     | 110   | <b>132</b>   | --    | --     | 173                                   | --                                     | --    | 125   | <b>150</b>   | B | 3RW4435-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 232                                                                                                         | --                                     | 132   | <b>160</b>   | --    | --     | 203                                   | --                                     | --    | 150   | <b>200</b>   | B | 3RW4436-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 281                                                                                                         | --                                     | 160   | <b>200</b>   | --    | --     | 251                                   | --                                     | --    | 200   | <b>250</b>   | B | 3RW4443-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 352                                                                                                         | --                                     | 200   | <b>250</b>   | --    | --     | 312                                   | --                                     | --    | 250   | <b>300</b>   | B | 3RW4444-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 433                                                                                                         | --                                     | 250   | <b>315</b>   | --    | --     | 372                                   | --                                     | --    | 300   | <b>350</b>   | B | 3RW4445-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 542                                                                                                         | --                                     | 315   | <b>355</b>   | --    | --     | 485                                   | --                                     | --    | 400   | <b>500</b>   | B | 3RW4447-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 617                                                                                                         | --                                     | 355   | <b>450</b>   | --    | --     | 546                                   | --                                     | --    | 450   | <b>600</b>   | B | 3RW4447-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 748                                                                                                         | --                                     | 400   | <b>500</b>   | --    | --     | 667                                   | --                                     | --    | 600   | <b>750</b>   | C | 3RW4453-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 954                                                                                                         | --                                     | 560   | <b>630</b>   | --    | --     | 856                                   | --                                     | --    | 750   | <b>950</b>   | C | 3RW4453-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 1 065                                                                                                       | --                                     | 630   | <b>710</b>   | --    | --     | 954                                   | --                                     | --    | 850   | <b>1 050</b> | C | 3RW4455-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 1 200                                                                                                       | --                                     | 710   | <b>800</b>   | --    | --     | 1 065                                 | --                                     | --    | 950   | <b>1 200</b> | C | 3RW4457-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 1 351                                                                                                       | --                                     | 800   | <b>900</b>   | --    | --     | 1 200                                 | --                                     | --    | 1 050 | <b>1 350</b> | C | 3RW4465-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 1 524                                                                                                       | --                                     | 900   | <b>1 000</b> | --    | --     | 1 351                                 | --                                     | --    | 1 200 | <b>1 500</b> | C | 3RW4465-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| 1 680                                                                                                       | --                                     | 1 000 | <b>1 200</b> | --    | --     | 1 472                                 | --                                     | --    | 1 300 | <b>1 650</b> | C | 3RW4465-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| --                                                                                                          | --                                     | --    | --           | --    | --     | 1 680                                 | --                                     | --    | 1 500 | <b>1 900</b> | C | 3RW4466-□BC□5                                                                         | 1                                                                                     | 1 unit                                                                                           | 42H                     |     |    |
| <b>Article No. supplement for connection types</b>                                                          |                                        |       |              |       |        |                                       |                                        |       |       |              |   |  |  |                                                                                                  |                         |     |    |
| <ul style="list-style-type: none"><li>• With spring-type terminals</li><li>• With screw terminals</li></ul> |                                        |       |              |       |        |                                       |                                        |       |       |              |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |
| <b>Article No. supplement for rated control supply voltage <math>U_s</math><sup>2)</sup></b>                |                                        |       |              |       |        |                                       |                                        |       |       |              |   |  |  |                                                                                                  |                         |     |    |
| <ul style="list-style-type: none"><li>• 115 V AC</li><li>• 230 V AC</li></ul>                               |                                        |       |              |       |        |                                       |                                        |       |       |              |   |                                                                                       |                                                                                       |                                                                                                  |                         |     |    |

 Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

1) Soft starter with screw terminals:  
3RW442... to 3RW444. Delivery time class A.  
3RW445... to 3RW446. Delivery time class B.

2) Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In the selection table, the unit rated current  $I_e$  refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inside-delta circuit

### Selection and ordering data



| 3RW442.                                                                              |      |                                              |    |    |    | 3RW443. |                                    |     |                                              |    | 3RW444.                            |               |        |             |              | 3RW445.          |                                                        |  |                   |     | 3RW446. |  |  |  |  |
|--------------------------------------------------------------------------------------|------|----------------------------------------------|----|----|----|---------|------------------------------------|-----|----------------------------------------------|----|------------------------------------|---------------|--------|-------------|--------------|------------------|--------------------------------------------------------|--|-------------------|-----|---------|--|--|--|--|
| 3RW ambient temperature 40 °C                                                        |      |                                              |    |    |    |         |                                    |     |                                              |    | 3RW ambient temperature 50 °C      |               |        |             |              | DT <sup>1)</sup> | Very heavy starting (CLASS 30) in inside-delta circuit |  | PU (UNIT, SET, M) | PS* | PG      |  |  |  |  |
| Rated values of three-phase motors                                                   |      |                                              |    |    |    |         |                                    |     |                                              |    | Rated values of three-phase motors |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| Operational current I <sub>e</sub>                                                   |      | Rating at operational voltage U <sub>e</sub> |    |    |    |         | Operational current I <sub>e</sub> |     | Rating at operational voltage U <sub>e</sub> |    |                                    | Configurator  |        | Article No. | Price per PU |                  |                                                        |  |                   |     |         |  |  |  |  |
| A                                                                                    | kW   | kW                                           | kW | kW | kW | A       | hp                                 | hp  | hp                                           | hp |                                    |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| Inside-delta circuit, rated operational voltage 200 ... 460 V                        |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| 50                                                                                   | 15   | 22                                           | -- | -- | -- | 45      | 10                                 | 15  | 30                                           | -- | B                                  | 3RW4423-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 62                                                                                   | 18.5 | 30                                           | -- | -- | -- | 55      | 15                                 | 20  | 40                                           | -- | B                                  | 3RW4424-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 81                                                                                   | 22   | 45                                           | -- | -- | -- | 73      | 20                                 | 25  | 50                                           | -- | B                                  | 3RW4425-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 99                                                                                   | 30   | 55                                           | -- | -- | -- | 88      | 25                                 | 30  | 60                                           | -- | B                                  | 3RW4425-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 133                                                                                  | 37   | 75                                           | -- | -- | -- | 118     | 30                                 | 40  | 75                                           | -- | B                                  | 3RW4427-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| Article No. supplement for connection types                                          |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               | 1<br>3 |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| • With screw terminals                                                               |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| • With spring-type terminals                                                         |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| 161                                                                                  | 45   | 90                                           | -- | -- | -- | 142     | 40                                 | 50  | 100                                          | -- | B                                  | 3RW4435-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 196                                                                                  | 55   | 110                                          | -- | -- | -- | 173     | 50                                 | 60  | 125                                          | -- | B                                  | 3RW4436-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 232                                                                                  | 75   | 132                                          | -- | -- | -- | 203     | 60                                 | 75  | 150                                          | -- | B                                  | 3RW4443-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 281                                                                                  | 90   | 160                                          | -- | -- | -- | 251     | 75                                 | 100 | 200                                          | -- | B                                  | 3RW4443-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 352                                                                                  | 110  | 200                                          | -- | -- | -- | 312     | 100                                | 125 | 250                                          | -- | B                                  | 3RW4445-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 433                                                                                  | 132  | 250                                          | -- | -- | -- | 372     | 125                                | 150 | 300                                          | -- | B                                  | 3RW4447-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 542                                                                                  | 160  | 315                                          | -- | -- | -- | 485     | 150                                | 200 | 400                                          | -- | C                                  | 3RW4453-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 617                                                                                  | 200  | 355                                          | -- | -- | -- | 546     | 150                                | 200 | 450                                          | -- | C                                  | 3RW4453-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 748                                                                                  | 250  | 400                                          | -- | -- | -- | 667     | 200                                | 250 | 600                                          | -- | C                                  | 3RW4453-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 954                                                                                  | 315  | 560                                          | -- | -- | -- | 856     | 300                                | 350 | 750                                          | -- | C                                  | 3RW4455-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 1065                                                                                 | 355  | 630                                          | -- | -- | -- | 954     | 350                                | 400 | 850                                          | -- | C                                  | 3RW4458-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 1200                                                                                 | 400  | 710                                          | -- | -- | -- | 1065    | 350                                | 450 | 950                                          | -- | C                                  | 3RW4465-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 1351                                                                                 | 450  | 800                                          | -- | -- | -- | 1200    | 450                                | 500 | 1050                                         | -- | C                                  | 3RW4465-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| 1524                                                                                 | 500  | 900                                          | -- | -- | -- | 1351    | 450                                | 600 | 1200                                         | -- | C                                  | 3RW4465-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| --                                                                                   | --   | --                                           | -- | -- | -- | 1472    | 550                                | 650 | 1300                                         | -- | C                                  | 3RW4466-□BC□4 | 1      | 1 unit      | 42H          |                  |                                                        |  |                   |     |         |  |  |  |  |
| Article No. supplement for rated control supply voltage U <sub>s</sub> <sup>2)</sup> |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               | 3<br>4 |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| • 115 V AC                                                                           |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |
| • 230 V AC                                                                           |      |                                              |    |    |    |         |                                    |     |                                              |    |                                    |               |        |             |              |                  |                                                        |  |                   |     |         |  |  |  |  |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> 3RW442. to 3RW444. soft starters with screw terminals:  
delivery time class ► (preferred type).

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 6/6):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In the selection table, the unit rated current  $I_e$  refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual <http://support.automation.siemens.com/WW/view/en/21772518>.

## SIRIUS 3RW Soft Starters

### 3RW44 for High-Feature Applications

#### SIRIUS 3RW44 for very heavy starting (CLASS 30) in inside-delta circuit

| 3RW ambient temperature 40 °C                                               |                                        |       |       |       |        | 3RW ambient temperature 50 °C         |                                        |       |       |       |   | DT <sup>1)</sup> | Very heavy starting (CLASS 30)<br>in inside-delta circuit | Configurator | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-----------------------------------------------------------------------------|----------------------------------------|-------|-------|-------|--------|---------------------------------------|----------------------------------------|-------|-------|-------|---|------------------|-----------------------------------------------------------|--------------|-------------------------|-----|----|
| Rated values of<br>three-phase motors                                       |                                        |       |       |       |        | Rated values of<br>three-phase motors |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| Opera-<br>tional<br>current $I_e$                                           | Rating at<br>operational voltage $U_e$ |       |       |       |        | Opera-<br>tional<br>current $I_e$     | Rating at<br>operational voltage $U_e$ |       |       |       |   |                  |                                                           |              |                         |     |    |
|                                                                             | 230 V                                  | 400 V | 500 V | 690 V | 1000 V |                                       | 200 V                                  | 230 V | 460 V | 575 V |   |                  |                                                           |              |                         |     |    |
| A                                                                           | kW                                     | kW    | kW    | kW    | kW     | A                                     | hp                                     | hp    | hp    | hp    |   | Article No.      | Price<br>per PU                                           |              |                         |     |    |
| Inside-delta circuit, rated operational voltage 400 ... 600 V               |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| 50                                                                          | --                                     | 22    | 30    | --    | --     | 45                                    | --                                     | --    | 30    | 40    | B | 3RW4423-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 62                                                                          | --                                     | 30    | 37    | --    | --     | 55                                    | --                                     | --    | 40    | 50    | B | 3RW4424-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 81                                                                          | --                                     | 45    | 45    | --    | --     | 73                                    | --                                     | --    | 50    | 60    | B | 3RW4425-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 99                                                                          | --                                     | 55    | 55    | --    | --     | 88                                    | --                                     | --    | 60    | 75    | B | 3RW4425-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 133                                                                         | --                                     | 75    | 90    | --    | --     | 118                                   | --                                     | --    | 75    | 100   | B | 3RW4427-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| 161                                                                         | --                                     | 90    | 110   | --    | --     | 142                                   | --                                     | --    | 100   | 125   | B | 3RW4435-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 196                                                                         | --                                     | 110   | 132   | --    | --     | 173                                   | --                                     | --    | 125   | 150   | B | 3RW4436-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 232                                                                         | --                                     | 132   | 160   | --    | --     | 203                                   | --                                     | --    | 150   | 200   | B | 3RW4443-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 281                                                                         | --                                     | 160   | 200   | --    | --     | 251                                   | --                                     | --    | 200   | 250   | B | 3RW4443-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 352                                                                         | --                                     | 200   | 250   | --    | --     | 312                                   | --                                     | --    | 250   | 300   | B | 3RW4445-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 433                                                                         | --                                     | 250   | 315   | --    | --     | 372                                   | --                                     | --    | 300   | 350   | B | 3RW4447-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 542                                                                         | --                                     | 315   | 355   | --    | --     | 485                                   | --                                     | --    | 400   | 500   | C | 3RW4453-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 617                                                                         | --                                     | 355   | 450   | --    | --     | 546                                   | --                                     | --    | 450   | 600   | C | 3RW4453-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 748                                                                         | --                                     | 400   | 500   | --    | --     | 667                                   | --                                     | --    | 600   | 750   | C | 3RW4453-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 954                                                                         | --                                     | 560   | 630   | --    | --     | 856                                   | --                                     | --    | 750   | 950   | C | 3RW4455-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 1065                                                                        | --                                     | 630   | 710   | --    | --     | 954                                   | --                                     | --    | 850   | 1050  | C | 3RW4458-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 1200                                                                        | --                                     | 710   | 800   | --    | --     | 1065                                  | --                                     | --    | 950   | 1200  | C | 3RW4465-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 1351                                                                        | --                                     | 800   | 900   | --    | --     | 1200                                  | --                                     | --    | 1050  | 1350  | C | 3RW4465-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| 1524                                                                        | --                                     | 900   | 1000  | --    | --     | 1351                                  | --                                     | --    | 1200  | 1500  | C | 3RW4465-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| --                                                                          | --                                     | --    | --    | --    | --     | 1472                                  | --                                     | --    | 1300  | 1650  | C | 3RW4466-□BC□5    |                                                           | 1            | 1 unit                  | 42H |    |
| Article No. supplement for connection types                                 |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| • With spring-type terminals                                                |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| • With screw terminals                                                      |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| Article No. supplement for rated control supply voltage $U_s$ <sup>2)</sup> |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| • 115 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |
| • 230 V AC                                                                  |                                        |       |       |       |        |                                       |                                        |       |       |       |   |                  |                                                           |              |                         |     |    |

 Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Soft starter with screw terminals:  
3RW442... to 3RW444... Delivery time class A,  
3RW445... to 3RW446... Delivery time class B.

<sup>2)</sup> Control by way of the internal 24 V DC supply and direct control via PLC possible.

#### Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the [notes on page 6/6](#)):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current  $I_e$ : 350
- Maximum number of starts per hour in 1/h: 1

In the selection table, the unit rated current  $I_e$  refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

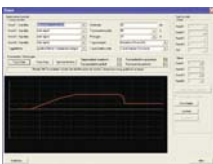
In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see [manual](http://support.automation.siemens.com/WW/view/en/21772518) <http://support.automation.siemens.com/WW/view/en/21772518>

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### Accessories

#### Selection and ordering data

| Version                                                                            | DT | Article No.                                                                                                                                                                                                                                                                                                  | Price per PU | PU (UNIT, SET, M)         | PS* | PG         |
|------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------|-----|------------|
| <b>Soft Starter ES 2007 PC communication program<sup>1)</sup></b>                  |    |                                                                                                                                                                                                                                                                                                              |              |                           |     |            |
|   |    | <b>Soft Starter ES 2007 Basic</b><br>Floating License for one user<br>E-SW, software and documentation on CD,<br>3 languages (German/English/French),<br>communication through system interface<br>• License key on USB stick, Class A, including CD                                                         | B            | <b>3ZS1313-4CC10-0YA5</b> | 1   | 1 unit 42H |
|                                                                                    |    | <b>Soft Starter ES 2007 Standard</b><br>Floating License for one user<br>E-SW, software and documentation on CD,<br>3 languages (German/English/French),<br>communication through system interface<br>• License key on USB stick, Class A, including CD                                                      | B            | <b>3ZS1313-5CC10-0YA5</b> | 1   | 1 unit 42H |
|                                                                                    |    | <b>Soft Starter ES 2007 Premium</b><br>Floating License for one user<br>E-SW, software and documentation on CD,<br>3 languages (German/English/French),<br>communication through system interface or<br>PROFIBUS/PROFINET<br>• License key on USB stick, Class A, including CD                               | B            | <b>3ZS1313-6CC10-0YA5</b> | 1   | 1 unit 42H |
| <b>SIRIUS 3RW44 Soft Starter block library for SIMATIC PCS 7<sup>1)</sup></b>      |    |                                                                                                                                                                                                                                                                                                              |              |                           |     |            |
|  |    | Scope of supply:<br>AS modules and faceplates for integrating<br>SIRIUS 3RW44 into the PCS 7 process control system,<br>for PCS 7, version V 6.1/V 7.0                                                                                                                                                       |              |                           |     |            |
|                                                                                    | ▶  | <b>Engineering software</b><br>for one engineering station (single license) including<br>runtime software for execution of the<br>AS module in an automation system<br>(single license), German/English/French,<br>Type of delivery:<br>on CD incl. electronic documentation<br>in German/English/Portuguese |              | <b>3ZS1633-1XX00-0YA0</b> | 1   | 1 unit 42H |
|                                                                                    | ▶  | <b>Runtime software</b><br>for execution of the AS module in an<br>automation system (single license),<br>Type of delivery:<br>License without software and documentation                                                                                                                                    |              | <b>3ZS1633-2XX00-0YB0</b> | 1   | 1 unit 42H |

<sup>1)</sup> Detailed information about the Soft Starter ES software program and the SIRIUS 3RW44 Soft Starter block Library for SIMATIC PCS 7, see [Chapter 14 "Parameterization, Configuration and Visualization with SIRIUS"](#).

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### Accessories

| Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DT | Article No.            | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------|-----------------|-------------------------|--------|-----|
| <b>USB PC cables</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                        |                 |                         |        |     |
| <br><b>For PC/PG communication with SIRIUS 3RW44 soft starters</b><br>Through the system interface, for connecting to the USB interface of the PC/PG<br>3UF7941-0AA00-0                                                                                                                                                                                                                                  | ▶  | <b>3UF7941-0AA00-0</b> |                 | 1                       | 1 unit | 42J |
| <b>Communication modules</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                        |                 |                         |        |     |
| <br><b>PROFIBUS communication module <span style="color: red;">NEW</span></b><br>For 3RW44 soft starter integration in the PROFIBUS network with DPV1 slave functionality. With firmware version E04 and higher (or date of manufacture 01.05.2009 and later) of the module, DPV1 operation of the soft starter on a Y-link is also possible (< only DPV0 operation possible with E04).<br>3RW4900-0KC00 | ▶  | <b>3RW4900-0KC00</b>   |                 | 1                       | 1 unit | 42H |
| <br><b>PROFINET communication module</b><br>For 3RW44 soft starter integration in the PROFINET network, suitable for devices with firmware version E12 or higher<br>3RW4900-0NC00                                                                                                                                                                                                                        | ▶  | <b>3RW4900-0NC00</b>   |                 | 1                       | 1 unit | 42H |
| <b>External display and operator module</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |                        |                 |                         |        |     |
| <br><b>3RW4900-0AC00</b><br>For indicating and operating the functions provided by the soft starter using an externally mounted display and operator module in degree of protection IP54 (e.g. in the control cabinet door)                                                                                                                                                                            | ▶  | <b>3RW4900-0AC00</b>   |                 | 1                       | 1 unit | 42H |
| <b>Connection cable</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                        |                 |                         |        |     |
| From the device interface (serial) of the 3RW44 soft starter to the external display and operator module                                                                                                                                                                                                                                                                                                                                                                                  |    |                        |                 |                         |        |     |
| • Length 0.5 m, flat                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ▶  | <b>3UF7932-0AA00-0</b> |                 | 1                       | 1 unit | 42J |
| • Length 0.5 m, round                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ▶  | <b>3UF7932-0BA00-0</b> |                 | 1                       | 1 unit | 42J |
| • Length 1.0 m, round                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ▶  | <b>3UF7937-0BA00-0</b> |                 | 1                       | 1 unit | 42J |
| • Length 2.5 m, round                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ▶  | <b>3UF7933-0BA00-0</b> |                 | 1                       | 1 unit | 42J |

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### Accessories

| For soft starters | Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|---------|----|-------------|--------------|-------------------|-----|----|
| Type              |         |    |             |              |                   |     |    |

#### Box terminal blocks for soft starters



3RT19

##### Box terminal block

(2 units are required for each device)

3RW442. Included in the scope of supply

- 3RW443. • Up to 70 mm<sup>2</sup>
- Up to 120 mm<sup>2</sup>

►

**3RT1955-4G**

1

1 unit

41B

►

**3RT1956-4G**

1

1 unit

41B

B

**3TX7500-0A**

1

1 unit

41B

##### Auxiliary conductor connection for box terminals

- 3RW444. • Up to 240 mm<sup>2</sup>

►

**3RT1966-4G**

1

1 unit

41B

(with auxiliary conductor connection)

#### Covers for soft starters

##### Terminal covers for box terminals

Additional touch protection to be fitted at the box terminals (2 units required per device)

3RW442. and

►

**3RT1956-4EA2**

1

1 unit

41B

3RW443.

►

**3RT1966-4EA2**

1

1 unit

41B

3RW444.



3RT19.6-4EA1

##### Terminal covers for cable lugs and busbar connections

For complying with the voltage clearances and as touch protection (2 units required per contactor)

►

**3RT1956-4EA1**

1

1 unit

41B

3RW444.

►

**3RT1966-4EA1**

1

1 unit

41B

Also fits on mounted box terminals.

#### Manual for SIRIUS 3RW44 soft starters<sup>1)</sup>

The manual can be downloaded free of charge in PDF format from the Internet, see <http://support.automation.siemens.com/WW/view/en/21772518>

<sup>1)</sup> The operating instructions for 3RW44 (3ZX1012-0RW44-0AA0) are included in the scope of supply of the soft starter, or are available – like the manual – as PDF downloads from the Service&Support portal at [www.siemens.com/industrial-controls/support](http://www.siemens.com/industrial-controls/support) → "Switching Devices" → "Soft Starters and Solid-State Switching Devices" → "SIRIUS 3RW Soft Starters".

#### Spare parts

| For soft starters | Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|-------------------|---------|----|-------------|--------------|-------------------|-----|----|
| Type              |         |    |             |              |                   |     |    |

#### Fans



3RW49

##### Fans

3RW442. and 115 V AC

►

**3RW4936-8VX30**

1

1 unit

42G

3RW443. 230 V AC

►

**3RW4936-8VX40**

1

1 unit

42G

3RW444. 115 V AC

►

**3RW4947-8VX30**

1

1 unit

42G

230 V AC

►

**3RW4947-8VX40**

1

1 unit

42G

3RW445. and 115 V AC

►

**3RW4957-8VX30**

1

1 unit

42H

3RW446.<sup>1)</sup> 230 V AC

►

**3RW4957-8VX40**

1

1 unit

42H

3RW446.<sup>2)</sup> 115 V AC

►

**3RW4966-8VX30**

1

1 unit

42H

230 V AC

►

**3RW4966-8VX40**

1

1 unit

42H

<sup>1)</sup> 3RW446. mounting on output side.

<sup>2)</sup> For mounting on front side.

# SIRIUS 3RW Soft Starters

## 3RW44 for High-Feature Applications

### Accessories

#### More information

##### Application examples for normal starting (CLASS 10)

**Normal starting CLASS 10** (up to 20 s with 350 %  $I_{n \text{ motor}}$ , one start per hour)

The soft starter rating can be selected to be as high as the rating of the motor used

| Application                         | Conveyor belts     | Roller conveyors   | Compressors        | Small fans <sup>1)</sup> | Pumps              | Hydraulic pumps    |
|-------------------------------------|--------------------|--------------------|--------------------|--------------------------|--------------------|--------------------|
| <b>Starting parameters</b>          |                    |                    |                    |                          |                    |                    |
| • Voltage ramp and current limiting |                    |                    |                    |                          |                    |                    |
| - Starting voltage %                | 70                 | 60                 | 50                 | 30                       | 30                 | 30                 |
| - Starting time s                   | 10                 | 10                 | 10                 | 10                       | 10                 | 10                 |
| - Current limit value               | Deactivated        | Deactivated        | $4 \times I_M$     | $4 \times I_M$           | Deactivated        | Deactivated        |
| • Torque ramp                       |                    |                    |                    |                          |                    |                    |
| - Start torque                      | 60                 | 50                 | 40                 | 20                       | 10                 | 10                 |
| - Final torque                      | 150                | 150                | 150                | 150                      | 150                | 150                |
| - Starting time                     | 10                 | 10                 | 10                 | 10                       | 10                 | 10                 |
| • Breakaway pulse                   | Deactivated (0 ms) | Deactivated (0 ms) | Deactivated (0 ms) | Deactivated (0 ms)       | Deactivated (0 ms) | Deactivated (0 ms) |
| <b>Ramp-down mode</b>               | Soft stop          | Soft stop          | Free ramp-down     | Free ramp-down           | Pump ramp-down     | Free ramp-down     |

##### Application examples for heavy starting (CLASS 20)

**Heavy starting CLASS 20** (up to 40 s with 350 %  $I_{n \text{ motor}}$ , one start per hour)

The soft starter has to be selected one performance class higher than the motor used

| Application                         | Stirrers           | Centrifuges        | Milling machines             |
|-------------------------------------|--------------------|--------------------|------------------------------|
| <b>Starting parameters</b>          |                    |                    |                              |
| • Voltage ramp and current limiting |                    |                    |                              |
| - Starting voltage %                | 30                 | 30                 | 30                           |
| - Starting time s                   | 30                 | 30                 | 30                           |
| - Current limit value               | $4 \times I_M$     | $4 \times I_M$     | $4 \times I_M$               |
| • Torque ramp                       |                    |                    |                              |
| - Start torque                      | 30                 | 30                 | 30                           |
| - Final torque                      | 150                | 150                | 150                          |
| - Starting time                     | 30                 | 30                 | 30                           |
| • Breakaway pulse                   | Deactivated (0 ms) | Deactivated (0 ms) | Deactivated (0 ms)           |
| <b>Ramp-down mode</b>               | Free ramp-down     | Free ramp-down     | Free ramp-down or DC braking |

##### Application examples for very heavy starting (CLASS 30)

**Very heavy starting CLASS 30** (up to 60 s with 350 %  $I_{n \text{ motor}}$ , one start per hour)

The soft starter has to be selected two performance classes higher than the motor used

| Application                         | Large fans <sup>2)</sup> | Mills          | Breakers       | Circular saws/bandsaws |
|-------------------------------------|--------------------------|----------------|----------------|------------------------|
| <b>Starting parameters</b>          |                          |                |                |                        |
| • Voltage ramp and current limiting |                          |                |                |                        |
| - Starting voltage %                | 30                       | 50             | 50             | 30                     |
| - Starting time s                   | 60                       | 60             | 60             | 60                     |
| - Current limit value               | $4 \times I_M$           | $4 \times I_M$ | $4 \times I_M$ | $4 \times I_M$         |
| • Torque ramp                       |                          |                |                |                        |
| - Start torque                      | 20                       | 50             | 50             | 20                     |
| - Final torque                      | 150                      | 150            | 150            | 150                    |
| - Starting time                     | 60                       | 60             | 60             | 60                     |
| • Breakaway pulse                   | Deactivated (0 ms)       | 80 %, 300 ms   | 80 %, 300 ms   | Deactivated (0 ms)     |
| <b>Ramp-down mode</b>               | Free ramp-down           | Free ramp-down | Free ramp-down | Free ramp-down         |

1) The mass inertia of the fan is <10 times the mass inertia of the motor.

2) The mass inertia of the fan is ≥10 times the mass inertia of the motor.

#### Note:

These tables present sample set values and device dimensions. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during commissioning.

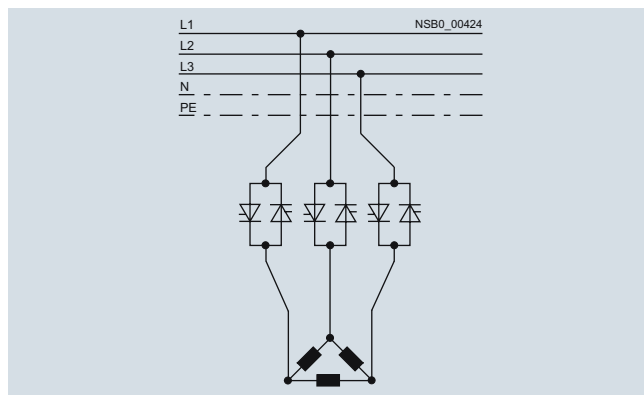
The soft starter dimensions should be checked where necessary with the help of Technical Assistance.

### Circuit concept

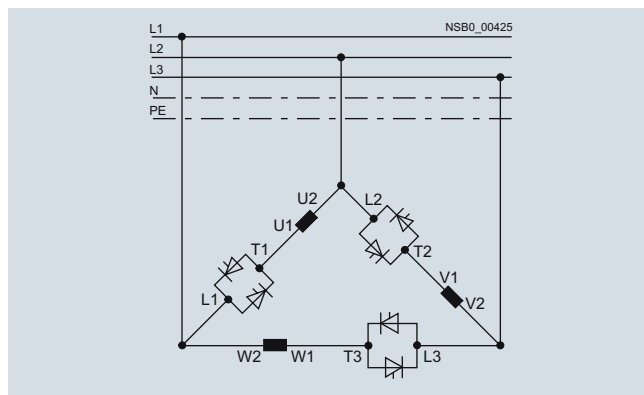
The SIRIUS 3RW44 soft starters can be operated in two different types of circuit:

- **Inline circuit**  
The controls for isolating and protecting the motor are simply connected in series with the soft starter. The motor is connected to the soft starter with three cables.
- **Inside-delta circuit**  
The wiring is similar to that of wye-delta starters. The phases of the soft starter are connected in series with the individual motor windings. The soft starter then only has to carry the phase current, amounting to about 58 % of the rated motor current (conductor current).

Comparison of the types of circuit:



Inline circuit:  
Rated current  $I_e$  corresponds to the rated motor current  $I_n$ ,  
3 cables to the motor



Inside-delta circuit:  
Rated current  $I_e$  corresponds to approx. 58 % of the rated motor current  $I_n$ ,  
6 cables to the motor (as with wye-delta starters)

### Which circuit?

Using the inline circuit involves the lowest wiring outlay. If the soft starter to motor connections are long, this circuit is preferable.

The wiring complexity is twice as high when using the inside-delta circuit, but a smaller device can be used with the same rating.

Thanks to the choice of operating mode between the inline circuit and inside-delta circuit, it is always possible to select the most favorable solution.

The braking function is possible only in the inline circuit.

### Configuration

The solid-state 3RW44 soft starters are designed for normal starting. In case of heavy starting or increased starting frequency, a larger device must be selected.

For long starting times it is recommended to have a PTC sensor in the motor. This also applies for the ramp-down modes smooth ramp-down, pump ramp-down and DC braking, because during the ramp-down time in these modes, an additional current load applies in contrast to free ramp-down.

No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and controls) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately.

A bypass contact system and electronic overload relay are already integrated in the 3RW44 soft starter and therefore do not have to be ordered separately.

The harmonic component load for starting currents must be taken into consideration for the selection of motor starter protectors (selection of release).

### Note:

When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

### Device interface, PROFIBUS DP/PROFINET communication module, Soft Starter ES parameterizing and operating software

The solid-state 3RW44 soft starters have a PC interface for communicating with the Soft Starter ES software or for connecting the external display and operator module. If the optional PROFIBUS/PROFINET communication module is used, the 3RW44 soft starter can be integrated in the PROFIBUS/PROFINET network and communicate using the GSD file or Soft Starter ES Premium software.

### SIRIUS 3RW44 Soft Starter block library for SIMATIC PCS 7

The SIRIUS 3RW44 Soft Starter PCS 7 block library can be used for simple and easy integration of SIRIUS 3RW44 soft starters into the SIMATIC PCS 7 process control system. The SIRIUS 3RW44 soft starter PCS 7 block library contains the diagnostics and driver blocks corresponding with the SIMATIC PCS 7 diagnostics and driver concept as well as the elements (symbols and faceplates) required for operator control and process monitoring.

### Manual for SIRIUS 3RW44

In addition to relevant configuration, commissioning, and service information, the manual also contains example circuits and technical specifications for all devices:

<http://support.automation.siemens.com/WW/view/en/21772518>

## Solid-State Switching Devices for Resistive/Inductive Loads

### General data

#### Overview

| Type                                                                                     | Solid-state relays                  |                                     |                                     | Solid-state contactors              |                                     | Function modules                    |                                     |                                     |                                     |                                     |                                     |
|------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                                                                                          | Single-phase<br>22.5 mm             | 45 mm                               | Three-phase<br>45 mm                | Single-phase                        | Three-phase                         | Converters                          | Load monitoring                     |                                     | Heating current monitoring          | Power controllers                   | Power regulators                    |
|                                                                                          |                                     |                                     |                                     |                                     |                                     |                                     | Basic                               | Extended                            |                                     |                                     |                                     |
| <b>Usage</b>                                                                             |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |
| Simple use of existing solid-state relays                                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  |
| Complete unit "Ready to use"                                                             | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  |
| Space-saving                                                                             | <input checked="" type="checkbox"/> | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  | --                                  |
| Can be extended with modular function modules                                            | <input checked="" type="checkbox"/> | --                                  | 1)                                  | <input checked="" type="checkbox"/> | 1)                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  |
| Frequent switching and monitoring of loads and solid-state relays/solid-state contactors | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Monitoring of up to 6 partial loads                                                      | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  |
| Monitoring of more than 6 partial loads                                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  |
| Control of the heating power through an analog input                                     | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Power control                                                                            | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> |
| <b>Startup</b>                                                                           |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |
| Easy setting of setpoint values with "Teach" button                                      | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| "Remote Teach" input for setting setpoints                                               | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | --                                  | --                                  |
| <b>Mounting</b>                                                                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |
| Mounting onto mounting rails or mounting plates                                          | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  |
| Can be snapped directly onto a solid-state relay or contactor                            | --                                  | --                                  | --                                  | --                                  | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| For use with "Coolplate" heat sink                                                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  |
| <b>Cable routing</b>                                                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |
| Connection of load circuit as for controlgear                                            | <input checked="" type="checkbox"/> | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | --                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Connection of load circuit from above                                                    | --                                  | <input checked="" type="checkbox"/> | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  | --                                  |

✓ Function available

☐ Function available

-- Function not available

1) The converter can also be used with three-phase devices.

## Solid-State Switching Devices for Resistive/Inductive Loads

## General data

## Article No. scheme

| Digit of the Article No.                              | 1st - 3rd    | 4th      | 5th      | 6th      | 7th      | 8th      | 9th      | 10th     | 11th     | 12th       |
|-------------------------------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|------------|
|                                                       | □□□          | □        | □        | □        | □        | –        | □        | □        | □        | □          |
| <b>Solid-state switching devices</b>                  | <b>3 R F</b> |          |          |          |          |          |          |          |          |            |
| <b>SIRIUS solid-state switching device generation</b> |              | □        |          |          |          |          |          |          |          |            |
| <b>Design</b>                                         |              |          | □        |          |          |          |          |          |          |            |
| <b>Type current</b>                                   |              |          |          | □        | □        |          |          |          |          |            |
| <b>Connection type</b>                                |              |          |          |          |          | □        |          |          |          |            |
| <b>Switching function</b>                             |              |          |          |          |          |          | □        |          |          |            |
| <b>Single-phase or number of controlled phases</b>    |              |          |          |          |          |          |          | □        |          |            |
| <b>Rated control supply voltage</b>                   |              |          |          |          |          |          |          |          | □        |            |
| <b>Rated operational voltage</b>                      |              |          |          |          |          |          |          |          |          | □          |
| <b>Example</b>                                        | <b>3 R F</b> | <b>2</b> | <b>1</b> | <b>2</b> | <b>0</b> | <b>–</b> | <b>1</b> | <b>A</b> | <b>A</b> | <b>0 4</b> |

## Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

## Benefits

**Characteristics**

- Considerable space savings thanks to a width of only 22.5 mm
- Variety of connection methods: Screw terminal, spring-type connection or ring terminal lug, there is no problem – they are all finger-safe
- Flexible for all applications with function modules for retrofitting
- Possibility of fuseless short-circuit proof design

**Benefits**

- Saves time and costs with fast mounting and commissioning, short start up times and easy wiring
- Extremely long life, low maintenance, rugged and reliable
- Space-saving and safe thanks to side-by-side mounting up to an ambient temperature of +60 °C
- Modular design: Standardized function modules and heat sinks can be used in conjunction with solid-state relays to satisfy individual requirements
- Safety due to lifelong, vibration-resistant and shock-resistant spring-type terminal connection method even under tough conditions

## Application

**Applications**Example: Plastics processing industry

Thanks to their high switching endurance SIRIUS 3SF2 solid-state switching devices are ideal for controlling electrical heat. This is because the more precise the temperature regulation process has to be, the higher the switching frequency. The accurate regulation of electrical heat is used for example in many processes in the plastics processing industry:

- Band heaters heat the extrudate to the correct temperature in plastic extruders
- Heat emitters heat plastic blanks to the correct temperature
- Heat drums dry plastic granules
- Heating channels keep molds at the correct temperature in order to manufacture different plastic parts without defects

The powerful SIRIUS 3SF2 solid-state relays and contactors can be used for the simultaneous control of several heating loads. By using a load monitoring module the individual partial loads can easily be monitored, and in the event of a failure a signal is generated to be sent to the controller.

See also Chapter 15, "Products for Specific Requirements" → "Heating Control Systems" → "SIPLUS HCS300I heating controller".

Use in fuseless load feeders

Compared with the fused configuration of load feeders, short circuit and line protection using miniature circuit breakers is easy to achieve with SIRIUS 3SF2 solid-state relays and contactors.

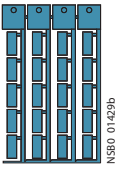
A special version of the solid-state contactors can be protected against damage in the case of a short circuit with a miniature circuit breaker with type B tripping characteristic. This allows the low-cost and simple design of fuseless load feeders with full protection of the switchgear.

# Solid-State Switching Devices for Resistive/Inductive Loads

## General data

### Selection and ordering data

#### Inscription labels for 3RF2 series

| Designation                                                                       | Labeling area<br>(W x H)                                  | Color  | DT                  | Article No. | Price<br>per PU      | PU<br>(UNIT,<br>SET, M) | PS*        | PG  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------|--------|---------------------|-------------|----------------------|-------------------------|------------|-----|
| mm x mm                                                                           |                                                           |        |                     |             |                      |                         |            |     |
| <b>Blank labels</b>                                                               |                                                           |        |                     |             |                      |                         |            |     |
|  | <b>Unit labeling plates<br/>for "SIRIUS"<sup>1)</sup></b> | 10 x 7 | Pastel<br>turquoise | C           | <b>3RT1900-1SB10</b> | 100                     | 816 units  | 41B |
|                                                                                   |                                                           | 20 x 7 | Pastel<br>turquoise | D           | <b>3RT1900-1SB20</b> | 100                     | 340 units  | 41B |
|                                                                                   | <b>Labels for sticking<br/>for SIRIUS</b>                 | 19 x 6 | Pastel<br>turquoise | C           | <b>3RT1900-1SB60</b> | 100                     | 3060 units | 41B |
|                                                                                   |                                                           | 19 x 6 | Zinc yellow         | C           | <b>3RT1900-1SD60</b> | 100                     | 3060 units | 41B |

3RT19 00-1SB20  
(1 frame = 20 units)

<sup>1)</sup> PC labeling systems for individual inscription of unit labeling plates are available from: murrplastik Systemtechnik GmbH (see Chapter 16, "Appendix" → "External Partners").

### More information

#### Notes on integration in the load feeders

The SIRIUS solid-state switching devices are very easy to integrate into the load feeders thanks to their industrial connection method and design.

Particular attention must however be paid to the circumstances of the installation and ambient conditions, as the performance of the solid-state switching devices is largely dependent on these. Depending on the version, certain restrictions must be observed. Detailed information in relation to solid-state contactors, e.g. on minimum spacing, and in relation to solid-state relays on the choice of heat sink can be found in the technical specifications and the product data sheets (see [Service & Support](#)).

#### Short-circuit and overload protection

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor protection fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly. The technical specifications and the product data sheets contain details both about the solid-state fuse protection itself and about use of the devices with conventional protection equipment.

#### Electromagnetic compatibility (EMC)

The solid-state switching devices are suitable for interference-free operation in industrial networks without further measures. If they are used in public networks, it may be necessary for conducted interference to be reduced by means of filters.

This does not include the solid-state contactors for resistive loads of the special type 3RF23 ...CA.. "Low Noise". These comply with the class B limit values up to a rated current of 16 A. If other versions are used, and at currents of over 16 A, standard filters can be used in order to comply with the limit values. The decisive factors when it comes to selecting the filters are essentially the current loading and the other parameters (operational voltage, design type, etc.) in the load feeder.

Suitable filters can be ordered from EPCOS AG. For more information, see [www.epcos.com](http://www.epcos.com).

#### Product information and technical specifications

For product data sheets with detailed technical specifications, dimensional drawings and characteristic curves, see [www.siemens.com/sirius/support](http://www.siemens.com/sirius/support)

For additional information, please enter the article number of the required device under the tab "Product List".

### Overview

#### **Solid-state relays (without heat sink)**

SIRIUS solid-state relays are suitable for surface mounting on existing cooling surfaces. Mounting is quick and easy, involving just two screws. The special technology of the power semiconductor ensures there is excellent thermal contact with the heat sink. Depending on the nature of the heat sink, the capacity reaches up to 88 A on resistive loads.

The solid-state relays are available in three different versions:

- 3RF21 single-phase solid-state relay with a width of 22.5 mm
- 3RF20 single-phase solid-state relay with a width of 45 mm
- 3RF22 three-phase solid-state relay with a width of 45 mm

The 3RF21 and 3RF22 solid-state relays can be expanded with various function modules to adapt them to individual applications.

#### **Version for resistive loads, "zero-point switching"**

This standard version is often used for switching space heaters on and off.

#### **Version for inductive loads, "instantaneous switching"**

In this version the solid-state relay is specifically matched to inductive loads. Whether it is a matter of frequent actuation of the valves in a filling plant or starting and stopping small operating mechanisms in packet distribution systems, operation is carried out safely and noiselessly.

#### **Special "Low noise" version**

Thanks to a special control circuit, this special version can be used in public networks up to 16 A without any additional measures such as interference suppressor filters. As a result, in terms of emitted interference, it conforms to limit value curve class B according to IEC 60947-4-3.

#### **Single-phase solid-state relays with a width of 22.5 mm**

With its compact design and a width of just 22.5 mm, which stays the same even at currents of up to 88 A, the 3RF21 solid-state relay offers an ultra small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

#### **Single-phase solid-state relays with a width of 45 mm**

The solid-state relays with a width of 45 mm provide for connection of the power supply lead and the load from above.

This makes it easy to replace existing solid-state relays in existing arrangements. The connection of the control cable is as space-saving as the 22.5 mm design, as it is simply plugged on.

#### **Three-phase solid-state relays with a width of 45 mm**

With its compact design and a width of just 45 mm, which stays the same even at currents of up to 55 A, the 3RF22 solid-state relay offers an ultra small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

The three-phase solid-state relays are available with

- Two-phase control (suitable in particular for circuits without connection to the neutral conductor) and
- Three-phase control (suitable for star circuits with connection to the neutral conductor or for applications in which the system requires all phases to be switched)

#### **Selection notes**

When selecting solid-state relays, in addition to information about the network, the load and the ambient conditions it is also necessary to know details of the planned design. The solid-state relays can only conform to their specific technical specifications if they are mounted with appropriate care on an adequately dimensioned heat sink.

Mounting solid-state relays directly on a mounting plate made of sheet steel is inadequate in terms of heat dissipation.

The following procedure is recommended:

- Determine the rated current of the load and the mains voltage
- Select the relay design and choose a solid-state relay with higher rated current than the load
- Determine the thermal resistance of the proposed heat sink
- Check the correct relay size with the aid of the diagrams

For more information, [see](http://www.siemens.com/solid-state-switching-devices)  
[www.siemens.com/solid-state-switching-devices](http://www.siemens.com/solid-state-switching-devices)

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

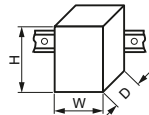
### SIRIUS 3RF21 solid-state relays, single-phase, 22.5 mm

#### Overview

#### Single-phase solid-state relays (without heat sink) with a width of 22.5 mm

With its compact design and a width of just 22.5 mm, which stays the same even at currents of up to 88 A, the 3RF21 solid-state relay offers an ultra small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

#### Technical specifications

|                                                                                            |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Type                                                                                       |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| Dimensions (W x H x D)                                                                     |  | mm | <b>3RF21...-1....</b><br>22.5 x 85 x 48                                                                    | <b>3RF21...-2....</b><br>22.5 x 85 x 48                                                                          | <b>3RF21...-3....</b><br>22.5 x 85 x 48                                                                                    |
| <b>General data</b>                                                                        |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| <b>Ambient temperature</b>                                                                 |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • During operation, derating from 40 °C                                                    | °C                                                                                |    | -25 ... + 60                                                                                               |                                                                                                                  |                                                                                                                            |
| • During storage                                                                           | °C                                                                                |    | -55 ... + 80                                                                                               |                                                                                                                  |                                                                                                                            |
| <b>Installation altitude</b>                                                               | m                                                                                 |    | 0 ... 1000; derating from 1000                                                                             |                                                                                                                  |                                                                                                                            |
| <b>Shock resistance</b> acc. to IEC 60068-2-27                                             | g/ms                                                                              |    | 15/11                                                                                                      |                                                                                                                  |                                                                                                                            |
| <b>Vibration resistance</b> acc. to IEC 60068-2-6                                          | g                                                                                 |    | 2                                                                                                          |                                                                                                                  |                                                                                                                            |
| <b>Degree of protection</b>                                                                |                                                                                   |    | IP20                                                                                                       |                                                                                                                  |                                                                                                                            |
| <b>Electromagnetic compatibility (EMC)</b>                                                 |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Emitted interference                                                                     |                                                                                   |    | Class A for industrial applications                                                                        |                                                                                                                  |                                                                                                                            |
| - Conducted interference voltage according to IEC 60947-4-3                                |                                                                                   |    | Class B for residential, business and commercial applications                                              |                                                                                                                  |                                                                                                                            |
| - Emitted, high-frequency interference voltage according to IEC 60947-4-3                  |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Interference immunity                                                                    |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV                                                                                |    | Contact discharge 4; air discharge 8; behavior criterion 2                                                 |                                                                                                                  |                                                                                                                            |
| - Induced RF fields according to IEC 61000-4-6                                             | MHz                                                                               |    | 0.15 ... 80; 140 dBµV; behavior criterion 1                                                                |                                                                                                                  |                                                                                                                            |
| - Burst acc. to IEC 61000-4-4                                                              | kV                                                                                |    | 2/5.0 kHz; behavior criterion 2                                                                            |                                                                                                                  |                                                                                                                            |
| - Surge acc. to IEC 61000-4-5                                                              | kV                                                                                |    | Conductor - ground 2; conductor - conductor 1; behavior criterion 2                                        |                                                                                                                  |                                                                                                                            |
| <b>Mounting</b>                                                                            |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Screws <sup>1)</sup>                                                                     |                                                                                   |    | 2 x M4                                                                                                     |                                                                                                                  |                                                                                                                            |
| • Tightening torque                                                                        | Nm                                                                                |    | 1.5                                                                                                        |                                                                                                                  |                                                                                                                            |
| <b>Connection type</b>                                                                     |                                                                                   |    |  <b>Screw terminals</b> |  <b>Spring-type terminals</b> |  <b>Ring terminal lug connections</b> |
| <b>Connection, main contacts</b>                                                           |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Conductor cross-sections                                                                 |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| - Solid                                                                                    | mm <sup>2</sup>                                                                   |    | 2 x (1.5 ... 2.5) <sup>2)</sup> , 2 x (2.5 ... 6) <sup>2)</sup>                                            |                                                                                                                  |                                                                                                                            |
| - Finely stranded with end sleeve                                                          | mm <sup>2</sup>                                                                   |    | 2 x (1 ... 2.5) <sup>2)</sup> , 2 x (2.5 ... 6) <sup>2)</sup> , 1 x 10                                     |                                                                                                                  |                                                                                                                            |
| - Finely stranded without end sleeve                                                       | mm <sup>2</sup>                                                                   |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| - Solid or stranded, AWG cables                                                            |                                                                                   |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| • Terminal screws                                                                          | M4                                                                                |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| • Tightening torque                                                                        | Nm                                                                                |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            | lb.in                                                                             |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| • Cable lugs                                                                               |                                                                                   |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| - According to DIN 46234                                                                   |                                                                                   |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| - According to JIS C 2805                                                                  |                                                                                   |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| - Width, maximum                                                                           | mm                                                                                |    | 2 x (0.5 ... 1.5)                                                                                          |                                                                                                                  |                                                                                                                            |
| <b>Connection, auxiliary/control contacts</b>                                              |                                                                                   |    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Conductor cross-sections                                                                 | mm                                                                                |    | 2 x (0.5 ... 2.5)                                                                                          |                                                                                                                  |                                                                                                                            |
|                                                                                            | AWG                                                                               |    | 2 x (0.5 ... 1.0)                                                                                          |                                                                                                                  |                                                                                                                            |
| • Stripped length                                                                          | mm                                                                                |    | 20 ... 12                                                                                                  |                                                                                                                  |                                                                                                                            |
| • Terminal screw                                                                           | M3                                                                                |    | 7                                                                                                          |                                                                                                                  |                                                                                                                            |
| • Tightening torque                                                                        | Nm                                                                                |    | 10                                                                                                         |                                                                                                                  |                                                                                                                            |
|                                                                                            | lb.in                                                                             |    | 4.5 ... 5.3                                                                                                |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 0.5 ... 0.6                                                                                                |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 4.5 ... 5.3                                                                                                |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 0.5 ... 0.6                                                                                                |                                                                                                                  |                                                                                                                            |
|                                                                                            |                                                                                   |    | 4.5 ... 5.3                                                                                                |                                                                                                                  |                                                                                                                            |

<sup>1)</sup> Not included in the scope of supply.

<sup>2)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

### SIRIUS 3RF21 solid-state relays, single-phase, 22.5 mm

| Type                | $I_{\max}^{1)}$<br>at $R_{\text{thha}}/T_u = 40\text{ °C}$ |      | $I_e$ according to<br>IEC 60947-4-3<br>at $R_{\text{thha}}/T_u = 40\text{ °C}$ |      | $I_e$ according to<br>UL/CSA<br>at $R_{\text{thha}}/T_u = 50\text{ °C}$ |      | Power loss<br>at $I_{\max}$ | Minimum load<br>current | Off-state current |
|---------------------|------------------------------------------------------------|------|--------------------------------------------------------------------------------|------|-------------------------------------------------------------------------|------|-----------------------------|-------------------------|-------------------|
|                     | A                                                          | K/W  | A                                                                              | K/W  | A                                                                       | K/W  | W                           | A                       | mA                |
| <b>Main circuit</b> |                                                            |      |                                                                                |      |                                                                         |      |                             |                         |                   |
| 3RF2120-.....       | 20                                                         | 2.0  | 20                                                                             | 1.7  | 20                                                                      | 1.3  | 28.6                        | 0.1                     | 10                |
| 3RF2130-1....       | 30                                                         | 1.1  | 30                                                                             | 0.79 | 30                                                                      | 0.56 | 44.2                        | 0.5                     | 10                |
| 3RF2150-1....       | 50                                                         | 0.68 | 50                                                                             | 0.48 | 50                                                                      | 0.33 | 66                          | 0.5                     | 10                |
| 3RF2150-2....       | 50                                                         | 0.68 | 20                                                                             | 2.6  | 20                                                                      | 2.9  | 66                          | 0.5                     | 10                |
| 3RF2150-3....       | 50                                                         | 0.68 | 50                                                                             | 0.48 | 50                                                                      | 0.33 | 66                          | 0.5                     | 10                |
| 3RF2170-1....       | 70                                                         | 0.40 | 50                                                                             | 0.77 | 50                                                                      | 0.6  | 94                          | 0.5                     | 10                |
| 3RF2190-1....       | 88                                                         | 0.33 | 50                                                                             | 0.94 | 50                                                                      | 0.85 | 118                         | 0.5                     | 10                |
| 3RF2190-2....       | 88                                                         | 0.33 | 20                                                                             | 2.8  | 20                                                                      | 3.5  | 118                         | 0.5                     | 10                |
| 3RF2190-3....       | 88                                                         | 0.33 | 88                                                                             | 0.22 | 83                                                                      | 0.19 | 118                         | 0.5                     | 10                |

<sup>1)</sup> The current  $I_{\max}$  provides information about the performance of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

#### Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see page 6/70, "More Information"). The minimum thickness values for the mounting surface must be observed.

| Type                | Rated peak withstand current $I_{\text{tsm}}$ | $I^2t$ value     |
|---------------------|-----------------------------------------------|------------------|
|                     | A                                             | A <sup>2</sup> s |
| <b>Main circuit</b> |                                               |                  |
| 3RF2120-.....       | 200                                           | 200              |
| 3RF2130-...A.2      | 300                                           | 450              |
| 3RF2130-...A.4      | 300                                           | 450              |
| 3RF2130-...A.5      | 300                                           | 450              |
| 3RF2130-...A.6      | 400                                           | 800              |
| 3RF2150-.....       | 600                                           | 1800             |
| 3RF2170-...A.2      | 1200                                          | 7200             |
| 3RF2170-...A.4      | 1200                                          | 7200             |
| 3RF2170-...A.5      | 1200                                          | 7200             |
| 3RF2170-...A.6      | 1150                                          | 6600             |
| 3RF2190-.....       | 1150                                          | 6600             |

| Type                            |      | 3RF21...-...2 | 3RF21...-...4 | 3RF21...-...5 | 3RF21...-...6 |
|---------------------------------|------|---------------|---------------|---------------|---------------|
| <b>Main circuit</b>             |      |               |               |               |               |
| Rated operational voltage $U_e$ | V AC | 24 ... 230    | 48 ... 460    | 48 ... 600    | 48 ... 600    |
| • Operating range               | V AC | 20 ... 253    | 40 ... 506    | 40 ... 660    | 40 ... 660    |
| • Rated frequency               | Hz   | 50/60 ± 10 %  |               |               |               |
| Rated insulation voltage $U_i$  | V    | 600           |               |               |               |
| Blocking voltage                | V    | 800           | 1200          |               | 1600          |
| Rate of voltage rise            | V/μs | 1000          |               |               |               |

| Type                                          |    | 3RF21...-...0.                       | 3RF21...-...1.                        | 3RF21...-...2.                        | 3RF21...-...4.                       |
|-----------------------------------------------|----|--------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
| <b>Control circuit</b>                        |    |                                      |                                       |                                       |                                      |
| Method of operation                           |    | DC operation                         | AC/DC operation                       | AC operation                          | DC operation                         |
| Rated control supply voltage $U_s$            | V  | 24                                   | 24 AC 24 DC                           | 110 ... 230                           | 4 ... 30                             |
| Rated frequency of the control supply voltage | Hz | --                                   | 50/60 ± 10 %                          | 50/60 ± 10 %                          | --                                   |
| Control supply voltage, max.                  | V  | 30                                   | 26.5 AC 30 DC                         | 253                                   | 30                                   |
| Typical actuating current                     | mA | 20 / Low Power: 6.5 <sup>1)</sup>    | 20 20                                 | 15                                    | 20                                   |
| Response voltage                              | V  | 15                                   | 14 AC 15 DC                           | 90                                    | 4                                    |
| Drop-out voltage                              | V  | 5                                    | 5 AC 5 DC                             | 40                                    | 1                                    |
| <b>Operating times</b>                        |    |                                      |                                       |                                       |                                      |
| • ON-delay                                    | ms | 1 + max. one half-wave <sup>2)</sup> | 10 + max. one half-wave <sup>2)</sup> | 40 + max. one half-wave <sup>2)</sup> | 1 + max. one half-wave <sup>2)</sup> |
| • OFF-delay                                   | ms | 1 + max. one half-wave               | 15 + max. one half-wave               | 40 + max. one half-wave               | 1 + max. one half-wave               |

<sup>1)</sup> Applies to the version "Low Power" 3RF21 ...-AA...-0KNO

<sup>2)</sup> Only for zero-point switching devices.

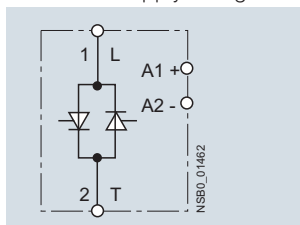
# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

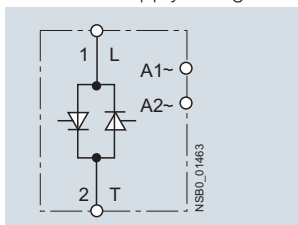
### SIRIUS 3RF21 solid-state relays, single-phase, 22.5 mm

#### Circuit diagrams

DC control supply voltage



AC control supply voltage



#### Single-phase solid-state relays (without heat sink) with a width of 22.5 mm

#### Selection and ordering data

|                                                                                                     | Type current/<br>performance capacity <sup>1)</sup> | Rated control supply voltage $U_s$ | DT          | Screw terminals <sup>2)</sup> |  | PU<br>(UNIT,<br>SET, M) | PS*    | PG     |     |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------|-------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------|--------|-----|
|                                                                                                     |                                                     |                                    |             | Configurator                  |  |                         |        |        |     |
|                                                                                                     | A                                                   | V                                  |             | Article No.                   | Price<br>per PU                                                                     |                         |        |        |     |
| Zero-point switching<br>Rated operational voltage $U_e$ 24 ... 230 V AC                             |                                                     |                                    |             |                               |                                                                                     |                         |        |        |     |
|                   | 20                                                  | 24 DC                              | A           | 3RF2120-1AA02                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  |                                    | A           | 3RF2130-1AA02                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | A           | 3RF2150-1AA02                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | A           | 3RF2170-1AA02                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | B           | 3RF2190-1AA02                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 20                                                  | 110 ... 230 AC                     | A           | 3RF2120-1AA22                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  |                                    | A           | 3RF2130-1AA22                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | B           | 3RF2150-1AA22                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | B           | 3RF2170-1AA22                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | B           | 3RF2190-1AA22                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 3RF2120-1AA02                                       | 20                                 | 4 ... 30 DC | B                             | 3RF2120-1AA42                                                                       |                         | 1      | 1 unit | 41C |
|                                                                                                     | 30                                                  | A                                  |             | 3RF2130-1AA42                 |                                                                                     | 1                       | 1 unit | 41C    |     |
| Zero-point switching<br>Rated operational voltage $U_e$ 48 ... 460 V AC                             |                                                     |                                    |             |                               |                                                                                     |                         |        |        |     |
|                                                                                                     | 20                                                  | 24 DC                              | A           | 3RF2120-1AA04                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  |                                    | A           | 3RF2130-1AA04                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | A           | 3RF2150-1AA04                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | A           | 3RF2170-1AA04                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | A           | 3RF2190-1AA04                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 20                                                  | 24 AC/DC                           | B           | 3RF2150-1AA14                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  |                                    | A           | 3RF2120-1AA24                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 20                                                  | 110 ... 230 AC                     | A           | 3RF2120-1AA24                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  |                                    | A           | 3RF2130-1AA24                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | B           | 3RF2150-1AA24                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | A           | 3RF2170-1AA24                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | B           | 3RF2190-1AA24                 |                                                                                     | 1                       | 1 unit | 41C    |     |
| Zero-point switching<br>Rated operational voltage $U_e$ 48 ... 600 V AC                             |                                                     |                                    |             |                               |                                                                                     |                         |        |        |     |
|                                                                                                     | 70                                                  | 24 DC Low Power                    | B           | 3RF2170-1AA05-0KN0            |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 20                                                  | 4 ... 30 DC                        | B           | 3RF2120-1AA45                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  |                                    | B           | 3RF2130-1AA45                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | B           | 3RF2150-1AA45                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | A           | 3RF2170-1AA45                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | B           | 3RF2190-1AA45                 |                                                                                     | 1                       | 1 unit | 41C    |     |
| Zero-point switching · Blocking voltage 1 600 V,<br>Rated operational voltage $U_e$ 48 ... 600 V AC |                                                     |                                    |             |                               |                                                                                     |                         |        |        |     |
|                                                                                                     | 30                                                  | 24 DC                              | A           | 3RF2130-1AA06                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | A           | 3RF2150-1AA06                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | B           | 3RF2170-1AA06                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | B           | 3RF2190-1AA06                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 30                                                  | 110 ... 230 AC                     | B           | 3RF2130-1AA26                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 50                                                  |                                    | B           | 3RF2150-1AA26                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 70                                                  |                                    | B           | 3RF2170-1AA26                 |                                                                                     | 1                       | 1 unit | 41C    |     |
|                                                                                                     | 90                                                  |                                    | B           | 3RF2190-1AA26                 |                                                                                     | 1                       | 1 unit | 41C    |     |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

<sup>2)</sup> Please note that this version can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm<sup>2</sup>.

Other rated control supply voltages on request.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

### SIRIUS 3RF21 solid-state relays, single-phase, 22.5 mm

| Type current/<br>performance capacity <sup>1)</sup>                                                                             | Rated control supply voltage $U_s$ | DT | Screw terminals <sup>2)</sup> | Configurator | Article No. | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----|-------------------------------|--------------|-------------|-----------------|-------------------------|--------|-----|
| A                                                                                                                               | V                                  |    |                               |              |             |                 |                         |        |     |
| <b>Instantaneous switching</b><br><b>Rated operational voltage <math>U_e</math> 24 ... 230 V AC</b>                             |                                    |    |                               |              |             |                 |                         |        |     |
| 50                                                                                                                              | 110 ... 230 AC                     | B  | 3RF2150-1BA22                 |              |             |                 | 1                       | 1 unit | 41C |
| <b>Instantaneous switching</b><br><b>Rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>                             |                                    |    |                               |              |             |                 |                         |        |     |
| 20                                                                                                                              | 24 DC                              | B  | 3RF2120-1BA04                 |              |             |                 | 1                       | 1 unit | 41C |
| 30                                                                                                                              |                                    | B  | 3RF2130-1BA04                 |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                              |                                    | B  | 3RF2150-1BA04                 |              |             |                 | 1                       | 1 unit | 41C |
| 70                                                                                                                              |                                    | B  | 3RF2170-1BA04                 |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                              |                                    | B  | 3RF2190-1BA04                 |              |             |                 | 1                       | 1 unit | 41C |
| <b>Instantaneous switching · Blocking voltage 1 600 V,</b><br><b>Rated operational voltage <math>U_e</math> 48 ... 600 V AC</b> |                                    |    |                               |              |             |                 |                         |        |     |
| 50                                                                                                                              | 24 DC                              | B  | 3RF2150-1BA06                 |              |             |                 | 1                       | 1 unit | 41C |
| <b>Low noise<sup>3)</sup> · Zero-point switching</b><br><b>Rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>       |                                    |    |                               |              |             |                 |                         |        |     |
| 70                                                                                                                              | 24 DC                              | B  | 3RF2170-1CA04                 |              |             |                 | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

<sup>2)</sup> Please note that this version can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm<sup>2</sup>.

<sup>3)</sup> See page 6/71.

Other rated control supply voltages on request.

| Type current/<br>performance capacity <sup>1)</sup>                                                                          | Rated control supply voltage $U_s$ | DT | Spring-type terminals <sup>2)</sup> | Configurator | Article No. | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----|-------------------------------------|--------------|-------------|-----------------|-------------------------|--------|-----|
| A                                                                                                                            | V                                  |    |                                     |              |             |                 |                         |        |     |
| <b>Zero-point switching</b><br><b>Rated operational voltage <math>U_e</math> 24 ... 230 V AC</b>                             |                                    |    |                                     |              |             |                 |                         |        |     |
| 20                                                                                                                           | 24 DC                              | A  | 3RF2120-2AA02                       |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                           |                                    | B  | 3RF2150-2AA02                       |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                           |                                    | B  | 3RF2190-2AA02                       |              |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                           | 110 ... 230 AC                     | B  | 3RF2120-2AA22                       |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                           |                                    | B  | 3RF2150-2AA22                       |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                           |                                    | B  | 3RF2190-2AA22                       |              |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                           | 4 ... 30 DC                        | B  | 3RF2120-2AA42                       |              |             |                 | 1                       | 1 unit | 41C |
| <b>Zero-point switching</b><br><b>Rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>                             |                                    |    |                                     |              |             |                 |                         |        |     |
| 20                                                                                                                           | 24 DC                              | A  | 3RF2120-2AA04                       |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                           |                                    | B  | 3RF2150-2AA04                       |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                           |                                    | B  | 3RF2190-2AA04                       |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                           | 24 AC/DC                           | B  | 3RF2150-2AA14                       |              |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                           | 110 ... 230 AC                     | B  | 3RF2120-2AA24                       |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                           |                                    | B  | 3RF2150-2AA24                       |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                           |                                    | B  | 3RF2190-2AA24                       |              |             |                 | 1                       | 1 unit | 41C |
| <b>Zero-point switching</b><br><b>Rated operational voltage <math>U_e</math> 48 ... 600 V AC</b>                             |                                    |    |                                     |              |             |                 |                         |        |     |
| 20                                                                                                                           | 4 ... 30 DC                        | B  | 3RF2120-2AA45                       |              |             |                 | 1                       | 1 unit | 41C |
| <b>Zero-point switching · Blocking voltage 1 600 V,</b><br><b>Rated operational voltage <math>U_e</math> 48 ... 600 V AC</b> |                                    |    |                                     |              |             |                 |                         |        |     |
| 50                                                                                                                           | 24 DC                              | B  | 3RF2150-2AA06                       |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                           |                                    | B  | 3RF2190-2AA06                       |              |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                           | 110 ... 230 AC                     | B  | 3RF2150-2AA26                       |              |             |                 | 1                       | 1 unit | 41C |
| 90                                                                                                                           |                                    | B  | 3RF2190-2AA26                       |              |             |                 | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

<sup>2)</sup> Please note that the version with spring-type terminals can only be used for a rated current of up to approx. 20 A and a conductor cross-section of 2.5 mm<sup>2</sup>. Higher currents can be achieved by connecting two conductors per terminal.

Other rated control supply voltages on request.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

### SIRIUS 3RF21 solid-state relays, single-phase, 22.5 mm

| Type current/<br>performance capacity <sup>1)</sup>                                                        | Rated control supply voltage $U_s$ | DT             | Ring terminal lug<br>connection | Configurator  | Article No. | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|------------------------------------------------------------------------------------------------------------|------------------------------------|----------------|---------------------------------|---------------|-------------|-----------------|-------------------------|--------|-----|
| A                                                                                                          | V                                  |                |                                 |               |             |                 |                         |        |     |
| <b>Zero-point switching</b><br>Rated operational voltage $U_e$ 24 ... 230 V AC                             |                                    |                |                                 |               |             |                 |                         |        |     |
|                           | 20                                 | 24 DC          | B                               | 3RF2120-3AA02 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 50                                 |                | B                               | 3RF2150-3AA02 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 |                | B                               | 3RF2190-3AA02 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 20                                 | 110 ... 230 AC | B                               | 3RF2120-3AA22 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 50                                 |                | B                               | 3RF2150-3AA22 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 |                | B                               | 3RF2190-3AA22 |             |                 | 1                       | 1 unit | 41C |
| <b>Zero-point switching</b><br>Rated operational voltage $U_e$ 48 ... 460 V AC                             |                                    |                |                                 |               |             |                 |                         |        |     |
|                                                                                                            | 20                                 | 24 DC          | B                               | 3RF2120-3AA04 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 50                                 |                | B                               | 3RF2150-3AA04 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 |                | B                               | 3RF2190-3AA04 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 20                                 | 110 ... 230 AC | B                               | 3RF2120-3AA24 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 50                                 |                | B                               | 3RF2150-3AA24 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 |                | B                               | 3RF2190-3AA24 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 | 4 ... 30 DC    | B                               | 3RF2190-3AA44 |             |                 | 1                       | 1 unit | 41C |
| <b>Zero-point switching · Blocking voltage 1 600 V,</b><br>Rated operational voltage $U_e$ 48 ... 600 V AC |                                    |                |                                 |               |             |                 |                         |        |     |
|                                                                                                            | 50                                 | 24 DC          | B                               | 3RF2150-3AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 |                | B                               | 3RF2190-3AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 50                                 | 110 ... 230 AC | B                               | 3RF2150-3AA26 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                            | 90                                 |                | B                               | 3RF2190-3AA26 |             |                 | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

Other rated control supply voltages on request.

<sup>1)</sup> The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

| Version                                                                                                                                                              | DT                           | Article No.                                                                                                                                                                                                             | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*      | PG  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------|----------|-----|
| <b>Optional accessories</b>                                                                                                                                          |                              |                                                                                                                                                                                                                         |                 |                         |          |     |
|                                                                                   | <b>Spring-type terminals</b> |                                                                                                                                                                                                                         |                 |                         |          |     |
|                                                                                                                                                                      | A                            | 3RA2908-1A                                                                                                                                                                                                              |                 | 1                       | 1 unit   | 41B |
| <b>Screwdrivers</b><br>for all SIRIUS devices with spring-type terminals<br>Length approx. 200 mm, size 3.0 mm x 0.5 mm,<br>titanium gray/black, partially insulated |                              |                                                                                                                                                                                                                         |                 |                         |          |     |
| 3RA2908-1A                                                                                                                                                           |                              |                                                                                                                                                                                                                         |                 |                         |          |     |
|                                                                                   | A                            | <b>Ring terminal lug<br/>connection</b>                                                                                                                                                                                 |                 | 1                       | 10 units | 41C |
|                                                                                                                                                                      |                              | 3RF2900-3PA88                                                                                                                                                                                                           |                 |                         |          |     |
|                                                                                                                                                                      |                              | <b>Terminal covers</b> for 3RF21 solid-state relays and<br>3RF23 solid-state contactors with ring terminal lug<br>connection<br>(After simple adaptation, this terminal cover can also be<br>used for screw terminals). |                 |                         |          |     |
| 3RF2900-3PA88                                                                                                                                                        |                              | <b>Control connector</b>                                                                                                                                                                                                |                 |                         |          |     |
|                                                                                                                                                                      | B                            | Replacement control connector for 3RF20/21/22 and<br>3RF23/24<br>Spring-type terminals                                                                                                                                  |                 | 1                       | 50 units | 41C |
|                                                                                                                                                                      | B                            | Control connector for 3RF20/21/22 and 3RF23/24<br>Spring-type terminals with two clamping points per<br>contact                                                                                                         |                 | 1                       | 10 units | 41C |

**NEW**

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

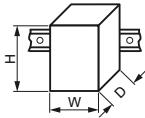
SIRIUS 3RF20 solid-state relays, single-phase, 45 mm

### Overview

#### Single-phase solid-state relays (without heat sink) with a width of 45 mm

The solid-state relays with a width of 45 mm provide for connection of the power supply lead and the load from above. This makes it easy to replace existing solid-state relays in existing arrangements. The connection of the control cable also saves space in much the same way as the 22.5 mm design, as it is simply plugged on.

### Technical specifications

|                                                                                            |                                                                                   |    |                                                                                                            |                                                                                                                    |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Type                                                                                       |                                                                                   |    | <b>3RF20..-1....</b>                                                                                       | <b>3RF20..-4....</b>                                                                                               |
| Dimensions (W x H x D)                                                                     |  | mm | 45 x 58 x 48                                                                                               | 45 x 58 x 48                                                                                                       |
| <b>General data</b>                                                                        |                                                                                   |    |                                                                                                            |                                                                                                                    |
| <b>Ambient temperature</b>                                                                 |                                                                                   |    |                                                                                                            |                                                                                                                    |
| • During operation, derating from 40 °C                                                    | °C                                                                                |    | -25 ... +60                                                                                                |                                                                                                                    |
| • During storage                                                                           | °C                                                                                |    | -55 ... +80                                                                                                |                                                                                                                    |
| <b>Installation altitude</b>                                                               | m                                                                                 |    | 0 ... 1 000; derating from 1000                                                                            |                                                                                                                    |
| <b>Shock resistance</b> acc. to IEC 60068-2-27                                             | g/ms                                                                              |    | 15 /11                                                                                                     |                                                                                                                    |
| <b>Vibration resistance</b> acc. to IEC 60068-2-6                                          | g                                                                                 |    | 2                                                                                                          |                                                                                                                    |
| <b>Degree of protection</b>                                                                |                                                                                   |    | IP20                                                                                                       |                                                                                                                    |
| <b>Electromagnetic compatibility (EMC)</b>                                                 |                                                                                   |    |                                                                                                            |                                                                                                                    |
| • Emitted interference                                                                     |                                                                                   |    | Class A for industrial applications                                                                        |                                                                                                                    |
| - Conducted interference voltage according to IEC 60947-4-3                                |                                                                                   |    | Class B for residential, business and commercial applications                                              |                                                                                                                    |
| - Emitted, high-frequency interference voltage according to IEC 60947-4-3                  |                                                                                   |    |                                                                                                            |                                                                                                                    |
| • Interference immunity                                                                    |                                                                                   |    |                                                                                                            |                                                                                                                    |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV                                                                                |    | Contact discharge 4; air discharge 8; behavior criterion 2                                                 |                                                                                                                    |
| - Induced RF fields according to IEC 61000-4-6                                             | MHz                                                                               |    | 0.15 ... 80; 140 dBµV; behavior criterion 1                                                                |                                                                                                                    |
| - Burst acc. to IEC 61000-4-4                                                              | kV                                                                                |    | 2/5.0 kHz; behavior criterion 2                                                                            |                                                                                                                    |
| - Surge acc. to IEC 61000-4-5                                                              | kV                                                                                |    | Conductor - ground 2; conductor - conductor 1; behavior criterion 2                                        |                                                                                                                    |
| <b>Mounting</b>                                                                            |                                                                                   |    |                                                                                                            |                                                                                                                    |
| • Screws <sup>1)</sup>                                                                     |                                                                                   |    | 2 x M4                                                                                                     |                                                                                                                    |
| • Tightening torque                                                                        | Nm                                                                                |    | 1.5                                                                                                        |                                                                                                                    |
| <b>Connection type</b>                                                                     |                                                                                   |    |  <b>Screw terminals</b> |  <b>Spring-type terminals</b> |
| <b>Connection, main contacts</b>                                                           |                                                                                   |    |                                                                                                            |                                                                                                                    |
| • Conductor cross-sections                                                                 | mm <sup>2</sup>                                                                   |    | 2 x (1.5 ... 2.5) <sup>2)</sup> , 2 x (2.5 ... 6) <sup>2)</sup>                                            | --                                                                                                                 |
| - Solid                                                                                    | mm <sup>2</sup>                                                                   |    | 2 x (1 ... 2.5) <sup>2)</sup> , 2 x (2.5 ... 6) <sup>2)</sup> , 1 x 10                                     | --                                                                                                                 |
| - Finely stranded with end sleeve                                                          |                                                                                   |    | 2 x (AWG 14 ... 10)                                                                                        | --                                                                                                                 |
| - Solid or stranded, AWG cables                                                            |                                                                                   |    |                                                                                                            | --                                                                                                                 |
| • Terminal screw                                                                           |                                                                                   |    | M4                                                                                                         | --                                                                                                                 |
| • Tightening torque                                                                        | Nm                                                                                |    | 2 ... 2.5                                                                                                  | --                                                                                                                 |
|                                                                                            | lb.in                                                                             |    | 7 ... 10.3                                                                                                 | --                                                                                                                 |
| <b>Connection, auxiliary/control contacts</b>                                              |                                                                                   |    |                                                                                                            |                                                                                                                    |
| • Conductor cross-sections                                                                 | mm <sup>2</sup>                                                                   |    | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0), AWG 20 ... 12                                                        | 0.5 ... 2.5, AWG 20 ... 12                                                                                         |
| • Stripped length                                                                          | mm                                                                                |    | 7                                                                                                          | 10                                                                                                                 |
| • Terminal screw                                                                           |                                                                                   |    | M3                                                                                                         | --                                                                                                                 |
| • Tightening torque                                                                        | Nm                                                                                |    | 0.5 ... 0.6                                                                                                | --                                                                                                                 |
|                                                                                            | lb.in                                                                             |    | 4.5 ... 5.3                                                                                                | --                                                                                                                 |

<sup>1)</sup> Not included in the scope of supply.

<sup>2)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

### SIRIUS 3RF20 solid-state relays, single-phase, 45 mm

| Type                | $I_{\max}^{1)}$<br>at $R_{\text{thha}}/T_u = 40^\circ\text{C}$ |      | $I_e$ according to<br>IEC 60947-4-3<br>at $R_{\text{thha}}/T_u = 40^\circ\text{C}$ |      | $I_e$ according to<br>UL/CSA<br>at $R_{\text{thha}}/T_u = 50^\circ\text{C}$ |      | Power loss<br>at $I_{\max}$ | Minimum load<br>current | Off-state current |
|---------------------|----------------------------------------------------------------|------|------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------|------|-----------------------------|-------------------------|-------------------|
|                     | A                                                              | K/W  | A                                                                                  | K/W  | A                                                                           | K/W  | W                           | A                       | mA                |
| <b>Main circuit</b> |                                                                |      |                                                                                    |      |                                                                             |      |                             |                         |                   |
| 3RF2020-1.A..       | 20                                                             | 2.0  | 20                                                                                 | 1.7  | 20                                                                          | 1.3  | 28.6                        | 0.1                     | 10                |
| 3RF2030-1.A..       | 30                                                             | 1.1  | 30                                                                                 | 0.79 | 30                                                                          | 0.56 | 44.2                        | 0.5                     | 10                |
| 3RF2050-1.A..       | 50                                                             | 0.68 | 50                                                                                 | 0.48 | 50                                                                          | 0.33 | 66                          | 0.5                     | 10                |
| 3RF2070-1.A..       | 70                                                             | 0.40 | 50                                                                                 | 0.77 | 50                                                                          | 0.6  | 94                          | 0.5                     | 10                |
| 3RF2090-1.A..       | 88                                                             | 0.33 | 50                                                                                 | 0.94 | 50                                                                          | 0.85 | 118                         | 0.5                     | 10                |

1) The current  $I_{\max}$  provides information about the performance of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

#### Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see page 6/70, "More Information"). The minimum thickness values for the mounting surface must be observed.

| Type                | Rated peak withstand current $I_{\text{tsm}}$ | $I^2t$ value     |
|---------------------|-----------------------------------------------|------------------|
|                     | A                                             | A <sup>2</sup> s |
| <b>Main circuit</b> |                                               |                  |
| 3RF2020-1.A..       | 200                                           | 200              |
| 3RF2030-1.A.2       | 300                                           | 450              |
| 3RF2030-1.A.4       | 300                                           | 450              |
| 3RF2030-1.A.6       | 400                                           | 800              |
| 3RF2050-1.A..       | 600                                           | 1 800            |
| 3RF2070-1.A.2       | 1 200                                         | 7 200            |
| 3RF2070-1.A.4       | 1 200                                         | 7 200            |
| 3RF2070-1.A.5       | 1 200                                         | 7 200            |
| 3RF2070-1.A.6       | 1 150                                         | 6 600            |
| 3RF2090-1.A..       | 1 150                                         | 6 600            |

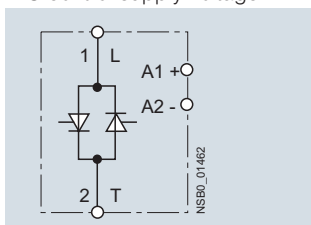
| Type                            |      | 3RF20.0-1.A.2 | 3RF20.0-1.A.4 | 3RF20.0-1.A.5 | 3RF20.0-1.A.6 |
|---------------------------------|------|---------------|---------------|---------------|---------------|
| <b>Main circuit</b>             |      |               |               |               |               |
| Rated operational voltage $U_e$ | V AC | 24 ... 230    | 48 ... 460    | 48 ... 600    | 48 ... 600    |
| • Operating range               | V AC | 20 ... 253    | 40 ... 506    | 40 ... 660    | 40 ... 660    |
| • Rated frequency               | Hz   | 50/60 ± 10 %  |               |               |               |
| Rated insulation voltage $U_i$  | V    | 600           |               |               |               |
| Blocking voltage                | V    | 800           | 1 200         |               | 1 600         |
| Rate of voltage rise            | V/μs | 1 000         |               |               |               |

| Type                                          |    | 3RF20.0-1.A0.                        | 3RF20.0-1.A2.                         | 3RF20.0-1.A4.                        |
|-----------------------------------------------|----|--------------------------------------|---------------------------------------|--------------------------------------|
| <b>Control circuit</b>                        |    |                                      |                                       |                                      |
| Method of operation                           |    | DC operation                         | AC operation                          | DC operation                         |
| Rated control supply voltage $U_s$            | V  | 24                                   | 110 ... 230                           | 4 ... 30                             |
| Rated frequency of the control supply voltage | Hz | --                                   | 50/60 ± 10 %                          | --                                   |
| Control supply voltage, max.                  | V  | 30                                   | 253                                   | 30                                   |
| Typical actuating current                     | mA | 20                                   | 15                                    | 20                                   |
| Response voltage                              | V  | 15                                   | 90                                    | 4                                    |
| Drop-out voltage                              | V  | 5                                    | 40                                    | 1                                    |
| <b>Operating times</b>                        |    |                                      |                                       |                                      |
| • ON-delay                                    | ms | 1 + max. one half-wave <sup>1)</sup> | 40 + max. one half-wave <sup>1)</sup> | 1 + max. one half-wave <sup>1)</sup> |
| • OFF-delay                                   | ms | 1 + max. one half-wave               | 40 + max. one half-wave               | 1 + max. one half-wave               |

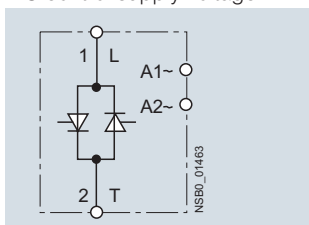
1) Only for zero-point switching devices.

#### Circuit diagrams

DC control supply voltage



AC control supply voltage



# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

SIRIUS 3RF20 solid-state relays, single-phase, 45 mm

### Selection and ordering data

#### Single-phase solid-state relays (without heat sink) with a width of 45 mm

|                                                                                                     | Type current/<br>performance capacity <sup>1)</sup> | Rated control supply voltage $U_s$ | DT            | Screw terminals <sup>2)</sup> |  | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------|---------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------|-----|
|                                                                                                     |                                                     |                                    |               | Configurator                  |  |                         |        |     |
|                                                                                                     | A                                                   | V                                  |               | Article No.                   | Price<br>per PU                                                                     |                         |        |     |
| Zero-point switching<br>Rated operational voltage $U_e$ 24 ... 230 V AC                             |                                                     |                                    |               |                               |                                                                                     |                         |        |     |
|                    | 20                                                  | 24 DC                              | A             | 3RF2020-1AA02                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 30                                                  |                                    | A             | 3RF2030-1AA02                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | A             | 3RF2050-1AA02                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | A             | 3RF2070-1AA02                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | A             | 3RF2090-1AA02                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 20                                                  | 110 ... 230 AC                     | A             | 3RF2020-1AA22                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 30                                                  |                                    | A             | 3RF2030-1AA22                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | B             | 3RF2050-1AA22                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | B             | 3RF2070-1AA22                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | B             | 3RF2090-1AA22                 |                                                                                     | 1                       | 1 unit | 41C |
| 3RF2020-1AA02                                                                                       | 20                                                  | 4 ... 30 DC                        | B             | 3RF2020-1AA42                 |                                                                                     | 1                       | 1 unit | 41C |
| 30                                                                                                  | B                                                   |                                    | 3RF2030-1AA42 |                               | 1                                                                                   | 1 unit                  | 41C    |     |
| Zero-point switching<br>Rated operational voltage $U_e$ 48 ... 460 V AC                             |                                                     |                                    |               |                               |                                                                                     |                         |        |     |
|                                                                                                     | 20                                                  | 24 DC                              | A             | 3RF2020-1AA04                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 30                                                  |                                    | A             | 3RF2030-1AA04                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | A             | 3RF2050-1AA04                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | A             | 3RF2070-1AA04                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | A             | 3RF2090-1AA04                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 20                                                  | 110 ... 230 AC                     | B             | 3RF2020-1AA24                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 30                                                  |                                    | B             | 3RF2030-1AA24                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | B             | 3RF2050-1AA24                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | B             | 3RF2070-1AA24                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | B             | 3RF2090-1AA24                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  | 4 ... 30 DC                        | A             | 3RF2050-1AA44                 |                                                                                     | 1                       | 1 unit | 41C |
| Zero-point switching<br>Rated operational voltage $U_e$ 48 ... 600 V AC                             |                                                     |                                    |               |                               |                                                                                     |                         |        |     |
|                                                                                                     | 20                                                  | 4 ... 30 DC                        | B             | 3RF2020-1AA45                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | B             | 3RF2050-1AA45                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | A             | 3RF2070-1AA45                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | B             | 3RF2090-1AA45                 |                                                                                     | 1                       | 1 unit | 41C |
| Zero-point switching · Blocking voltage 1 600 V,<br>rated operational voltage $U_e$ 48 ... 600 V AC |                                                     |                                    |               |                               |                                                                                     |                         |        |     |
|                                                                                                     | 30                                                  | 24 DC                              | B             | 3RF2030-1AA06                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | B             | 3RF2050-1AA06                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | B             | 3RF2070-1AA06                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | B             | 3RF2090-1AA06                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 30                                                  | 110 ... 230 AC                     | B             | 3RF2030-1AA26                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 50                                                  |                                    | B             | 3RF2050-1AA26                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 70                                                  |                                    | B             | 3RF2070-1AA26                 |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                     | 90                                                  |                                    | B             | 3RF2090-1AA26                 |                                                                                     | 1                       | 1 unit | 41C |
| Instantaneous switching<br>Rated operational voltage $U_e$ 48 ... 460 V AC                          |                                                     |                                    |               |                               |                                                                                     |                         |        |     |
|                                                                                                     | 30                                                  | 24 DC                              | B             | 3RF2030-1BA04                 |                                                                                     | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

<sup>2)</sup> Please note that this version can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm<sup>2</sup>.

Solid-State Switching Devices for Resistive/Inductive Loads  
Solid-State Relays

SIRIUS 3RF20 solid-state relays, single-phase, 45 mm

| Type current/<br>performance capacity <sup>1)</sup>                     | Rated control supply voltage $U_s$ | DT | Screw terminals +<br>spring-type terminals<br>(control current side)<br>Configurator | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|-------------------------------------------------------------------------|------------------------------------|----|--------------------------------------------------------------------------------------|-------------------------|--------|-----|
| A                                                                       | V                                  |    | Article No.                                                                          | Price<br>per PU         |        |     |
| Zero-point switching<br>Rated operational voltage $U_e$ 24 ... 230 V AC |                                    |    |                                                                                      |                         |        |     |
| 50                                                                      | 24 DC                              | B  | 3RF2050-4AA02                                                                        | 1                       | 1 unit | 41C |



3RF2050-4AA02

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

With its compact design and a width of just 45 mm, which stays the same even at currents of up to 55 A, the 3RF22 solid-state relay offers an ultra small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

- LED display
- Variety of connection methods
- Plug-in control connection
- Degree of protection IP20
- Zero-point switching
- Two- or three-phase controlled

|                                                                                                                       |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Type                                                                                                                  |  | mm                                                                                                         | <b>3RF22..-1....</b><br>45 x 95 x 47                                                                             | <b>3RF22..-2....</b><br>45 x 95 x 47                                                                                       | <b>3RF22..-3....</b><br>45 x 95 x 47 |
| Dimensions (W x H x D)                                                                                                |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
|                                                                                                                       |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| <b>General data</b>                                                                                                   |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| <b>Ambient temperature</b>                                                                                            |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| • During operation, derating from 40 °C                                                                               | °C                                                                                | -25 ... + 60                                                                                               |                                                                                                                  |                                                                                                                            |                                      |
| • During storage                                                                                                      | °C                                                                                | -55 ... + 80                                                                                               |                                                                                                                  |                                                                                                                            |                                      |
| <b>Installation altitude</b>                                                                                          | m                                                                                 | 0 ... 1 000; > 1000 ask Technical Assistance                                                               |                                                                                                                  |                                                                                                                            |                                      |
| <b>Shock resistance</b> acc. to IEC 60068-2-27                                                                        | <i>g</i> /ms                                                                      | 15/11                                                                                                      |                                                                                                                  |                                                                                                                            |                                      |
| <b>Vibration resistance</b> acc. to IEC 60068-2-6                                                                     | <i>g</i>                                                                          | 2                                                                                                          |                                                                                                                  |                                                                                                                            |                                      |
| <b>Degree of protection</b>                                                                                           |                                                                                   | IP20                                                                                                       |                                                                                                                  |                                                                                                                            |                                      |
| <b>Insulation strength</b> at 50/60 Hz (main/control circuit to floor)                                                | V rms                                                                             | 4000                                                                                                       |                                                                                                                  |                                                                                                                            |                                      |
| <b>Electromagnetic compatibility (EMC)</b>                                                                            |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| • Emitted interference<br>- Conducted interference voltage according to IEC 60947-4-3                                 |                                                                                   | Class A for industrial applications <sup>1)</sup>                                                          |                                                                                                                  |                                                                                                                            |                                      |
| • Interference immunity<br>- Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV                                                                                | Contact discharge 4; air discharge 8; behavior criterion 2                                                 |                                                                                                                  |                                                                                                                            |                                      |
| - Induced RF fields according to IEC 61000-4-6                                                                        | MHz                                                                               | 0.15 ... 80; 140 dBµV; behavior criterion 1                                                                |                                                                                                                  |                                                                                                                            |                                      |
| - Burst acc. to IEC 61000-4-4                                                                                         | kV                                                                                | 2/5.0 kHz; behavior criterion 2                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| - Surge acc. to IEC 61000-4-5                                                                                         | kV                                                                                | Conductor - ground 2; conductor - conductor 1; behavior criterion 2                                        |                                                                                                                  |                                                                                                                            |                                      |
| <b>Mounting</b>                                                                                                       |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| • Screws <sup>2)</sup>                                                                                                |                                                                                   | 2 x M4                                                                                                     |                                                                                                                  |                                                                                                                            |                                      |
| • Tightening torque                                                                                                   | Nm                                                                                | 1.5                                                                                                        |                                                                                                                  |                                                                                                                            |                                      |
| <b>Connection type</b>                                                                                                |                                                                                   |  <b>Screw terminals</b> |  <b>Spring-type terminals</b> |  <b>Ring terminal lug connections</b> |                                      |
| <b>Connection, main contacts</b>                                                                                      |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| • Conductor cross-sections                                                                                            |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| - Solid                                                                                                               | mm <sup>2</sup>                                                                   | 2 x (1.5 ... 2.5) <sup>3)</sup> , 2 x (2.5 ... 6) <sup>3)</sup>                                            |                                                                                                                  | 2 x (0.5 ... 2.5)                                                                                                          |                                      |
| - Finely stranded with end sleeve                                                                                     | mm <sup>2</sup>                                                                   | 2 x (1 ... 2.5) <sup>3)</sup> , 2 x (2.5 ... 6) <sup>3)</sup> , 1 x 10                                     |                                                                                                                  | 2 x (0.5 ... 1.5)                                                                                                          |                                      |
| - Finely stranded without end sleeve                                                                                  | mm <sup>2</sup>                                                                   | --                                                                                                         |                                                                                                                  | 2 x (0.5 ... 2.5)                                                                                                          |                                      |
| - Solid or stranded, AWG cables                                                                                       | mm <sup>2</sup>                                                                   | 2 x (AWG 14 ... 10)                                                                                        |                                                                                                                  | 2 x (AWG 18 ... 14)                                                                                                        |                                      |
| • Stripped length                                                                                                     | mm                                                                                | 10                                                                                                         |                                                                                                                  | 10                                                                                                                         |                                      |
| • Terminal screws                                                                                                     |                                                                                   | M4                                                                                                         |                                                                                                                  | --                                                                                                                         |                                      |
| - Tightening torque, Ø 5 ... 6 mm, PZ 2                                                                               | Nm                                                                                | 2 ... 2.5                                                                                                  |                                                                                                                  | M5                                                                                                                         |                                      |
|                                                                                                                       | lb.in                                                                             | 18 ... 22                                                                                                  |                                                                                                                  | 2.5 ... 2                                                                                                                  |                                      |
| • Cable lugs                                                                                                          |                                                                                   | --                                                                                                         |                                                                                                                  | --                                                                                                                         |                                      |
| - According to DIN 46234                                                                                              |                                                                                   |                                                                                                            |                                                                                                                  | 5-2.5 ... 5-25                                                                                                             |                                      |
| - According to JIS C 2805                                                                                             |                                                                                   |                                                                                                            |                                                                                                                  | R 2-5 ... R 14-5                                                                                                           |                                      |
| - Width, maximum                                                                                                      | mm                                                                                |                                                                                                            |                                                                                                                  | 12                                                                                                                         |                                      |
| <b>Connection, auxiliary/control contacts</b>                                                                         |                                                                                   |                                                                                                            |                                                                                                                  |                                                                                                                            |                                      |
| • Conductor cross-sections, with or without end sleeve                                                                | mm<br>AWG                                                                         | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)<br>20 ... 12                                                          |                                                                                                                  | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)<br>20 ... 12                                                                          |                                      |
| • Stripped length                                                                                                     | mm                                                                                | 7                                                                                                          |                                                                                                                  | 10                                                                                                                         |                                      |
| • Terminal screw                                                                                                      |                                                                                   | M3                                                                                                         |                                                                                                                  | --                                                                                                                         |                                      |
| - Tightening torque, Ø 3.5, PZ 1                                                                                      | Nm                                                                                | 0.5 ... 0.6                                                                                                |                                                                                                                  | M3                                                                                                                         |                                      |
|                                                                                                                       | lb.in                                                                             | 4.5 ... 5.3                                                                                                |                                                                                                                  | 0.5 ... 0.6                                                                                                                |                                      |
|                                                                                                                       |                                                                                   |                                                                                                            |                                                                                                                  | 4.5 ... 5.3                                                                                                                |                                      |

2) Not included in the scope of supply.

## Solid-State Switching Devices for Resistive/Inductive Loads

### Solid-State Relays

#### SIRIUS 3RF22 solid-state relays, three-phase, 45 mm

| Type                | $I_{\max}^{1)}$<br>at $R_{\text{thha}}/T_u = 40^\circ\text{C}$ |      | $I_e$ according to<br>IEC 60947-4-3<br>at $R_{\text{thha}}/T_u = 40^\circ\text{C}$ |      | $I_e$ according to<br>UL/CSA<br>at $R_{\text{thha}}/T_u = 50^\circ\text{C}$ |      | Power loss<br>at $I_{\max}$ | Minimum load<br>current | Max. off-state<br>current |
|---------------------|----------------------------------------------------------------|------|------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------|------|-----------------------------|-------------------------|---------------------------|
|                     | A                                                              | K/W  | A                                                                                  | K/W  | A                                                                           | K/W  | W                           | A                       | mA                        |
| <b>Main circuit</b> |                                                                |      |                                                                                    |      |                                                                             |      |                             |                         |                           |
| 3RF2230-.. AB..     | 30                                                             | 0.57 | 30                                                                                 | 0.57 | 30                                                                          | 0.44 | 81                          | 0.5                     | 10                        |
| 3RF2255-1AB..       | 55                                                             | 0.18 | 50                                                                                 | 0.27 | 50                                                                          | 0.19 | 151                         | 0.5                     | 10                        |
| 3RF2255-2AB..       |                                                                |      | 20                                                                                 | 1.83 | 20                                                                          | 1.58 |                             |                         |                           |
| 3RF2255-3AB..       |                                                                |      | 50                                                                                 | 0.27 | 50                                                                          | 0.19 |                             |                         |                           |
| 3RF2230-.. AC..     | 30                                                             | 0.33 | 30                                                                                 | 0.33 | 30                                                                          | 0.25 | 122                         | 0.5                     | 10                        |
| 3RF2255-1AC..       | 55                                                             | 0.09 | 50                                                                                 | 0.15 | 50                                                                          | 0.1  | 226                         | 0.5                     | 10                        |
| 3RF2255-2AC..       |                                                                |      | 20                                                                                 | 1.19 | 20                                                                          | 1.02 |                             |                         |                           |
| 3RF2255-3AC..       |                                                                |      | 50                                                                                 | 0.15 | 50                                                                          | 0.1  |                             |                         |                           |

1) The current  $I_{\max}$  provides information about the performance of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.

#### Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see page 6/70, "More Information"). The minimum thickness values for the mounting surface must be observed.

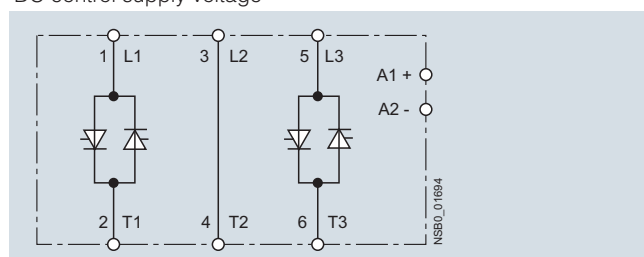
| Type                | Rated peak withstand current $I_{\text{tsm}}$ | $I^2t$ value     |
|---------------------|-----------------------------------------------|------------------|
|                     | A                                             | A <sup>2</sup> s |
| <b>Main circuit</b> |                                               |                  |
| 3RF2230-....5       | 300                                           | 450              |
| 3RF2255-....5       | 600                                           | 1800             |

| Type                                             |      | 3RF22...-AB.5 | 3RF22...-AC.5 |
|--------------------------------------------------|------|---------------|---------------|
| <b>Main circuit</b>                              |      |               |               |
| Controlled phases                                |      | 2-phase       | 3-phase       |
| Rated operational voltage $U_e$                  | V AC | 48 ... 600    | 48 ... 600    |
| • Operating range                                | V AC | 40 ... 660    | 40 ... 660    |
| • Rated frequency                                | Hz   | 50/60 ± 10 %  | 50/60 ± 10 %  |
| Rated insulation voltage $U_i$                   | V    | 600           | 600           |
| Rated impulse withstand voltage $U_{\text{imp}}$ | kV   | 6             | 6             |
| Blocking voltage                                 | V    | 1 200         | 1 200         |
| Rate of voltage rise                             | V/μs | 1 000         | 1 000         |

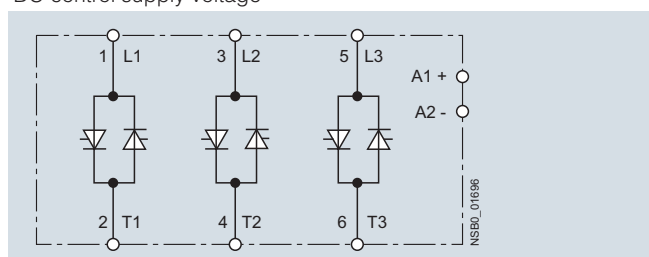
| Type                                          |    | 3RF22...-A.3.           | 3RF22...-A.4.          |
|-----------------------------------------------|----|-------------------------|------------------------|
| <b>Control circuit</b>                        |    |                         |                        |
| Method of operation                           |    | AC operation            | DC operation           |
| Rated control supply voltage $U_s$            | V  | 110                     | 4 ... 30               |
| Rated frequency of the control supply voltage | Hz | 50/60 ± 10 %            | --                     |
| Control supply voltage, max.                  | V  | 121                     | 30                     |
| Typical actuating current                     | mA | 15                      | 30                     |
| Response voltage                              | V  | 90                      | 4                      |
| Drop-out voltage                              | V  | < 40                    | 1                      |
| Operating times                               |    |                         |                        |
| • ON-delay                                    | ms | 40 + max. one half-wave | 1 + max. one half-wave |
| • OFF-delay                                   | ms | 40 + max. one half-wave | 1 + max. one half-wave |

#### Circuit diagrams

Two-phase controlled,  
DC control supply voltage



Three-phase controlled,  
DC control supply voltage



# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Relays

SIRIUS 3RF22 solid-state relays, three-phase, 45 mm

### Selection and ordering data

| Type current/<br>performance capacity <sup>1)</sup> | Rated control supply voltage $U_s$ | DT | Screw terminals <sup>2)</sup> | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-----------------------------------------------------|------------------------------------|----|-------------------------------|-------------------------|-----|----|
|                                                     |                                    |    | Configurator                  |                         |     |    |
| A                                                   | V                                  |    | Article No.                   | Price<br>per PU         |     |    |

#### Zero-point switching Rated operational voltage $U_e$ 48 ... 600 V AC



3RF2230-1AB45

##### Two-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 30 | 110 AC      | B | 3RF2230-1AB35 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-1AB35 | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | B | 3RF2230-1AB45 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-1AB45 | 1 | 1 unit | 41C |

##### Three-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 30 | 110 AC      | B | 3RF2230-1AC35 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-1AC35 | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | A | 3RF2230-1AC45 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-1AC45 | 1 | 1 unit | 41C |

| Type current/<br>performance capacity <sup>1)</sup> | Rated control supply voltage $U_s$ | DT | Spring-type terminals <sup>3)</sup> | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-----------------------------------------------------|------------------------------------|----|-------------------------------------|-------------------------|-----|----|
|                                                     |                                    |    | Configurator                        |                         |     |    |
| A                                                   | V                                  |    | Article No.                         | Price<br>per PU         |     |    |

#### Zero-point switching Rated operational voltage $U_e$ 48 ... 600 V AC



3RF2230-2AB45

##### Two-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 30 | 4 ... 30 DC | B | 3RF2230-2AB45 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-2AB45 | 1 | 1 unit | 41C |

##### Three-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 30 | 4 ... 30 DC | B | 3RF2230-2AC45 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-2AC45 | 1 | 1 unit | 41C |

| Type current/<br>performance capacity <sup>1)</sup> | Rated control supply voltage $U_s$ | DT | Ring terminal lug<br>connection | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|-----------------------------------------------------|------------------------------------|----|---------------------------------|-------------------------|-----|----|
|                                                     |                                    |    | Configurator                    |                         |     |    |
| A                                                   | V                                  |    | Article No.                     | Price<br>per PU         |     |    |

#### Zero-point switching Rated operational voltage $U_e$ 48 ... 600 V AC



3RF2230-3AB45

##### Two-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 30 | 4 ... 30 DC | B | 3RF2230-3AB45 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-3AB45 | 1 | 1 unit | 41C |

##### Three-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 30 | 4 ... 30 DC | B | 3RF2230-3AC45 | 1 | 1 unit | 41C |
| 55 |             | B | 3RF2255-3AC45 | 1 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

- The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and cooling conditions.
- Please note that the version with an M4 screw connection can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm<sup>2</sup>.
- Please note that the version with spring-type terminals can only be used for a rated current of up to approx. 20 A and a conductor cross-section of 2.5 mm<sup>2</sup>. Higher currents can be achieved by connecting two conductors per terminal.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### General data

#### Overview

##### **Solid-state contactors (with integrated heat sink)**

The complete units consist of a solid-state relay plus optimized heat sink, and are therefore ready to use. They offer defined rated currents to make selection as easy as possible. Depending on the version, current intensities of up to 88 A are achieved. Like all of our solid-state switching devices, one of their particular advantages is their compact and space-saving design.

With their insulated mounting foot they can easily be snapped onto a standard mounting rail, or they can be mounted on support plates with fixing screws. This insulation enables them to be used in circuits with protective extra-low voltage (PELV) or safety extra-low voltage (SELV) in building management systems. For other applications, such as for extended personal safety, the heat sink can be grounded through a screw terminal.

The solid-state contactors are available in 2 different versions:

- 3RF23 single-phase solid-state contactors
- 3RF24 three-phase solid-state contactors

##### **Single-phase versions**

The 3RF23 solid-state contactors can be expanded with various function modules to adapt them to individual applications.

##### **Version for resistive loads, "zero-point switching"**

This standard version is often used for switching space heaters on and off.

##### **Version for inductive loads, "instantaneous switching"**

In this version the solid-state contactor is specifically matched to inductive loads. Whether it is a matter of frequent actuation of the valves in a filling plant or starting and stopping small operating mechanisms in packet distribution systems, operation is carried out safely and noiselessly.

##### **Special "Low noise" version**

Thanks to a special control circuit, this special version can be used in public networks up to 16 A without any additional measures such as interference suppressor filters. As a result, in terms of emitted interference, it conforms to limit value curve class B according to IEC 60947-4-3.

##### **Special "Short-circuit proof" version**

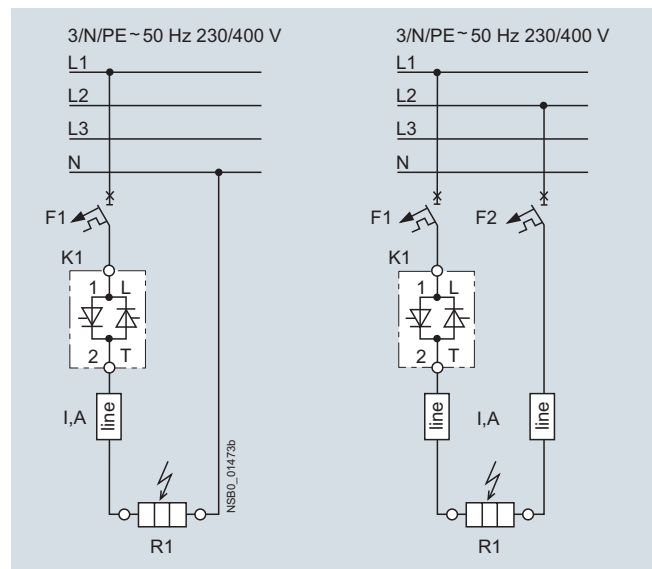
Skillful matching of the power semiconductor with the performance capacity of the solid-state contactor means that "short-circuit strength" can be achieved with a standard miniature circuit breaker. In combination with a B-type MCB or a conventional line protection fuse, the result is a short-circuit proof feeder.

In order to achieve problem-free short-circuit protection by means of miniature circuit breakers, however, certain boundary conditions must be observed. As the magnitude and duration of the short-circuit current are determined not only by the short-circuit breaking response of the miniature circuit breaker but also the properties of the wiring system, such as the internal resistance of the input to the network and damping by controls and cables, particular attention must also be paid to these parameters. The necessary cable lengths are therefore shown for the main factor, the line resistance, in the table below.

The following miniature circuit breakers with a B characteristic and 10 kA or 6 kA breaking capacity protect the 3RF23 ...DA.. solid-state contactors in the event of short circuits on the load and the specified conductor cross-sections and lengths:

| Rated current of the miniature circuit breaker | Example of type <sup>1)</sup> | Max. conductor cross-section | Minimum cable length from contactor to load |
|------------------------------------------------|-------------------------------|------------------------------|---------------------------------------------|
| 6 A                                            | 5SY4 106-6                    | 1 mm <sup>2</sup>            | 5 m                                         |
| 10 A                                           | 5SY4 110-6                    | 1.5 mm <sup>2</sup>          | 8 m                                         |
| 16 A                                           | 5SY4 116-6                    | 1.5 mm <sup>2</sup>          | 12 m                                        |
| 16 A                                           | 5SY4 116-6                    | 2.5 mm <sup>2</sup>          | 20 m                                        |
| 20 A                                           | 5SY4 120-6                    | 2.5 mm <sup>2</sup>          | 20 m                                        |
| 25 A                                           | 5SY4 125-6                    | 2.5 mm <sup>2</sup>          | 26 m                                        |

<sup>1)</sup> The miniature circuit breakers can be used up to a maximum rated voltage of 480 V!



Solid-state contactor protection

The setup and installation above can also be used for the solid-state relays with a  $I^2t$  value of at least 6 600 A<sup>2</sup>s.

##### **Three-phase versions**

The three-phase solid-state contactors for resistive loads up to 50 A are available with

- Two-phase control (suitable in particular for circuits without connection to the neutral conductor) and
- Three-phase control (suitable for star circuits with connection to the neutral conductor or for applications in which the system requires all phases to be switched)

The converter function module can be snapped onto both versions for the simple power control of AC loads by means of analog signals.

- Check the correct contactor size with the aid of the rated current diagram, taking account of the installation conditions

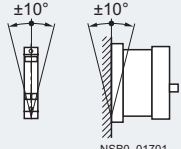
# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

#### Technical specifications

| Type                                                                                                                  |      | 3RF23...-A...                                                       | 3RF23...-B...                                                                                                                     | 3RF23...-C...                       | 3RF23...-D... |
|-----------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------|
| Dimensions (W x H x D)                                                                                                |      | See page 6/86                                                       |                                                                                                                                   |                                     |               |
| General data                                                                                                          |      |                                                                     |                                                                                                                                   |                                     |               |
| Ambient temperature                                                                                                   |      |                                                                     |                                                                                                                                   |                                     |               |
| • During operation, derating from 40 °C                                                                               | °C   | -25 ... +60                                                         |                                                                                                                                   |                                     |               |
| • During storage                                                                                                      | °C   | -55 ... +80                                                         |                                                                                                                                   |                                     |               |
| Installation altitude                                                                                                 | m    | 0 ... 1000; derating from 1000                                      |                                                                                                                                   |                                     |               |
| Shock resistance<br>Acc. to IEC 60068-2-27                                                                            | g/ms | 15/11                                                               |                                                                                                                                   |                                     |               |
| Vibration resistance<br>Acc. to IEC 60068-2-6                                                                         | g    | 2                                                                   |                                                                                                                                   |                                     |               |
| Degree of protection                                                                                                  |      | IP20                                                                |                                                                                                                                   |                                     |               |
| Electromagnetic compatibility (EMC)                                                                                   |      |                                                                     |                                                                                                                                   |                                     |               |
| • Emitted interference according to IEC 60947-4-3<br>- Conducted interference voltage                                 |      | Class A for industrial applications                                 | Class A for industrial applications;<br>Class B for residential, business and commercial applications up to 16 A, AC-51 Low Noise | Class A for industrial applications |               |
| - Emitted, high-frequency interference voltage                                                                        |      | Class B for residential, business and commercial applications       |                                                                                                                                   |                                     |               |
| • Interference immunity<br>- Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV   | Contact discharge 4; air discharge 8; behavior criterion 2          |                                                                                                                                   |                                     |               |
| - Induced RF fields according to IEC 61000-4-6                                                                        | MHz  | 0.15 ... 80; 140 dBµV; behavior criterion 1                         |                                                                                                                                   |                                     |               |
| - Burst acc. to IEC 61000-4-4                                                                                         | kV   | 2/5.0 kHz; behavior criterion 2                                     |                                                                                                                                   |                                     |               |
| - Surge acc. to IEC 61000-4-5                                                                                         | kV   | Conductor - around 2; conductor - conductor 1; behavior criterion 2 |                                                                                                                                   |                                     |               |

| Type                                                                                | 3RF23...-1....                                                                                             | 3RF23...-2....                                                                                                   | 3RF23...-3....                                                                                                             |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>General data</b>                                                                 |                                                                                                            |                                                                                                                  |                                                                                                                            |
| <b>Connection type</b>                                                              |  <b>Screw terminals</b> |  <b>Spring-type terminals</b> |  <b>Ring terminal lug connections</b> |
| <b>Connection, main contacts</b>                                                    |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Conductor cross-section                                                           | mm <sup>2</sup>                                                                                            | 2 x (1.5 ... 2.5) <sup>1)</sup> , 2 x (2.5 ... 6) <sup>1)</sup>                                                  | 2 x (0.5 ... 2.5)                                                                                                          |
| - Solid                                                                             | mm <sup>2</sup>                                                                                            | 2 x (1 ... 2.5) <sup>1)</sup> , 2 x (2.5 ... 6) <sup>1)</sup> , 1 x 10                                           | 2 x (0.5 ... 1.5)                                                                                                          |
| - Finely stranded with end sleeve                                                   | mm <sup>2</sup>                                                                                            | --                                                                                                               | --                                                                                                                         |
| - Finely stranded without end sleeve                                                | mm <sup>2</sup>                                                                                            | --                                                                                                               | 2 x (0.5 ... 2.5)                                                                                                          |
| - Solid or stranded, AWG cables                                                     | mm <sup>2</sup>                                                                                            | 2 x (AWG 14 ... 10)                                                                                              | 2 x (AWG 18 ... 14)                                                                                                        |
| • Terminal screws                                                                   |                                                                                                            | M4                                                                                                               | M5                                                                                                                         |
| • Tightening torque                                                                 | Nm<br>lb.in                                                                                                | 2 ... 2.5<br>7 ... 10.3                                                                                          | 2 ... 2.5<br>7 ... 10.3                                                                                                    |
| • Cable lugs                                                                        |                                                                                                            | --                                                                                                               | --                                                                                                                         |
| - According to DIN 46234                                                            |                                                                                                            |                                                                                                                  | 5-2.5, 5-6, 5-10, 5-16, 5-25                                                                                               |
| - According to JIS C 2805                                                           |                                                                                                            |                                                                                                                  | R 2-5, R 5.5-5, R 8-5, R 14-5                                                                                              |
| - Width, maximum                                                                    | mm                                                                                                         | --                                                                                                               | 12                                                                                                                         |
| <b>Connection, auxiliary/control contacts</b>                                       |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Conductor cross-section                                                           | mm<br>AWG                                                                                                  | 1 x (0.5 ... 2.5) <sup>1)</sup> , 2 x (0.5 ... 1.0)<br>AWG 20 ... 12                                             | 0.5 ... 2.5<br>AWG 20 ... 12                                                                                               |
| • Stripped length                                                                   | mm                                                                                                         | 7                                                                                                                | 10                                                                                                                         |
| • Terminal screw                                                                    |                                                                                                            | M3                                                                                                               | M3                                                                                                                         |
| • Tightening torque                                                                 | Nm<br>lb.in                                                                                                | 0.5 ... 0.6<br>4.5 ... 5.3                                                                                       | 0.5 ... 0.6<br>4.5 ... 5.3                                                                                                 |
| <b>Grounding screw<sup>2)</sup></b>                                                 |                                                                                                            |                                                                                                                  |                                                                                                                            |
| • Size (standard screw)                                                             |                                                                                                            | M5                                                                                                               |                                                                                                                            |
| <b>Permissible mounting position</b>                                                |                                                                                                            |                                                                                                                  |                                                                                                                            |
|  |                                                                                                            |                                                                                                                  |                                                                                                                            |

<sup>1)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

<sup>2)</sup> The screw is not included in the scope of supply.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

| Type                                              |      | 3RF23...-....2 | 3RF23...-....4 | 3RF23...-....5 | 3RF23...-....6 |
|---------------------------------------------------|------|----------------|----------------|----------------|----------------|
| <b>Main circuit</b>                               |      |                |                |                |                |
| <b>Rated operational voltage <math>U_e</math></b> | V AC | 24 ... 230     | 48 ... 460     | 48 ... 600     | 48 ... 600     |
| • Operating range                                 | V AC | 20 ... 253     | 40 ... 506     | 40 ... 660     | 40 ... 660     |
| • Rated frequency                                 | Hz   | 50/60 ± 10 %   |                |                |                |
| <b>Rated insulation voltage <math>U_i</math></b>  | V    | 600            |                |                |                |
| <b>Blocking voltage</b>                           | V    | 800            | 1200           |                | 1600           |
| <b>Rate of voltage rise</b>                       | V/μs | 1000           |                |                |                |

| Type                                                 |    | 3RF23...-....0.                      | 3RF23...-....1.                       | 3RF23...-....2                        | 3RF23...-....4.                      |
|------------------------------------------------------|----|--------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
| <b>Control circuit</b>                               |    |                                      |                                       |                                       |                                      |
| <b>Method of operation</b>                           |    | DC operation                         | AC/DC operation                       | AC operation                          | DC operation                         |
| <b>Rated control supply voltage <math>U_s</math></b> | V  | 24 DC                                | 24 AC    24 DC                        | 110 ... 230 AC                        | 4 ... 30 DC                          |
| <b>Rated frequency of the control supply voltage</b> | Hz | --                                   | 50/60 ± 10 %                          | 50/60 ± 10 %                          | --                                   |
| <b>Actuating voltage, max.</b>                       | V  | 30                                   | 26.5 AC    30 DC                      | 253                                   | 30                                   |
| <b>Typical actuating current</b>                     | mA | 20/Low Power: <10 <sup>1)</sup>      | 20    20                              | 15                                    | 20                                   |
| <b>Response voltage</b>                              | V  | 15                                   | 14 AC    15 DC                        | 90                                    | 4                                    |
| <b>Drop-out voltage</b>                              | V  | 5                                    | 5 AC    55 DC                         | 40                                    | 1                                    |
| <b>Operating times</b>                               |    |                                      |                                       |                                       |                                      |
| • ON-delay                                           | ms | 1 + max. one half-wave <sup>2)</sup> | 10 + max. one half-wave <sup>2)</sup> | 40 + max. one half-wave <sup>2)</sup> | 1 + max. one half-wave <sup>2)</sup> |
| • OFF-delay                                          | ms | 1 + max. one half-wave               | 15 + max. one half-wave               | 40 + max. one half-wave               | 1 + max. one half-wave               |

1) Applies to the version "Low Power" 3RF23 ...-AA..-0KN0

2) Only for zero-point switching devices.

| Type | Type current/<br>performance<br>capacity <sup>1)</sup><br>$I_{AC-51}$<br>A | Dimensions (W x H x D)<br>(including heat sink)<br>mm |
|------|----------------------------------------------------------------------------|-------------------------------------------------------|
|      |                                                                            |                                                       |

|                                              |      |                    |
|----------------------------------------------|------|--------------------|
| <b>Main circuit</b>                          |      |                    |
| 3RF2310-AA..                                 | 10.5 | 22.5 x 100 x 89    |
| 3RF2320-AA..<br>3RF2320-CA..<br>3RF2320-DA.. | 20   | 22.5 x 100 x 135.5 |
| 3RF2330-AA..<br>3RF2330-CA..                 | 30   | 30 x 100 x 151     |
| 3RF2330-DA..                                 | 30   | 22.5 x 100 x 135.5 |
| 3RF2340-AA..                                 | 40   | 67 x 100 x 151     |
| 3RF2350-AA..                                 | 50   | 67 x 100 x 151     |
| 3RF2370-AA..                                 | 70   | 135 x 100 x 157.5  |
| 3RF2390-AA..                                 | 88   | 180 x 200 x 157.5  |

1) The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

| Type                | Type current AC-51/performance capacity <sup>1)</sup> |                                      |                               | Power loss<br>at $I_{\max}$ | Minimum<br>load<br>current | Off-state<br>current | Rated peak<br>withstand<br>current $I_{\text{tsm}}$ | $I^2t$ value |
|---------------------|-------------------------------------------------------|--------------------------------------|-------------------------------|-----------------------------|----------------------------|----------------------|-----------------------------------------------------|--------------|
|                     | For $I_{\max}$<br>at 40 °C                            | Acc. to<br>IEC 60947-4-3<br>at 40 °C | Acc. to<br>UL/CSA<br>at 50 °C |                             |                            |                      |                                                     |              |
|                     | A                                                     | A                                    | A                             | W                           | A                          | mA                   | A                                                   | A²s          |
| <b>Main circuit</b> |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2310-AA.2        | 10.5                                                  | 7.5                                  | 9.6                           | 11                          | 0.1                        | 10                   | 200                                                 | 200          |
| 3RF2310-AA.4        |                                                       |                                      |                               |                             |                            |                      | 200                                                 | 200          |
| 3RF2310-AA.5        |                                                       |                                      |                               |                             |                            |                      | 200                                                 | 200          |
| 3RF2310-AA.6        |                                                       |                                      |                               |                             |                            |                      | 400                                                 | 800          |
| 3RF2320-AA.2        | 20                                                    | 13.2                                 | 17.6                          | 20                          | 0.5                        | 10                   | 600                                                 | 1800         |
| 3RF2320-AA.4        |                                                       |                                      |                               |                             |                            | 10                   | 600                                                 | 1800         |
| 3RF2320-AA.5        |                                                       |                                      |                               |                             |                            | 10                   | 600                                                 | 1800         |
| 3RF2320-AA.6        |                                                       |                                      |                               |                             |                            | 10                   | 600                                                 | 1800         |
| 3RF2320-CA.2        |                                                       |                                      |                               |                             |                            | 25                   | 600                                                 | 1800         |
| 3RF2320-CA.4        |                                                       |                                      |                               |                             |                            | 25                   | 600                                                 | 1800         |
| 3RF2320-DA.2        |                                                       |                                      |                               |                             |                            | 10                   | 1150                                                | 6600         |
| 3RF2320-DA.4        |                                                       |                                      |                               |                             |                            | 10                   | 1150                                                | 6600         |
| 3RF2330-AA.2        | 30                                                    | 22                                   | 27                            | 33                          | 0.5                        | 10                   | 600                                                 | 1800         |
| 3RF2330-AA.4        |                                                       |                                      |                               |                             |                            | 10                   | 600                                                 | 1800         |
| 3RF2330-AA.5        |                                                       |                                      |                               |                             |                            | 10                   | 600                                                 | 1800         |
| 3RF2330-AA.6        |                                                       |                                      |                               |                             |                            | 10                   | 600                                                 | 1800         |
| 3RF2330-CA.2        |                                                       |                                      |                               |                             |                            | 25                   | 600                                                 | 1800         |
| 3RF2330-DA.4        |                                                       |                                      |                               |                             |                            | 10                   | 1150                                                | 6600         |
| 3RF2340-AA.2        | 40                                                    | 33                                   | 36                            | 44                          | 0.5                        | 10                   | 1200                                                | 7200         |
| 3RF2340-AA.4        |                                                       |                                      |                               |                             |                            |                      | 1200                                                | 7200         |
| 3RF2340-AA.5        |                                                       |                                      |                               |                             |                            |                      | 1200                                                | 7200         |
| 3RF2340-AA.6        |                                                       |                                      |                               |                             |                            |                      | 1150                                                | 6600         |
| 3RF2350-AA.2        | 50                                                    | 36                                   | 45                            | 54                          | 0.5                        | 10                   | 1150                                                | 6600         |
| 3RF2350-AA.4        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2350-AA.5        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2350-AA.6        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2370-AA.2        | 70                                                    | 70                                   | 62                            | 83                          | 0.5                        | 10                   | 1150                                                | 6600         |
| 3RF2370-AA.4        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2370-AA.5        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2370-AA.6        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2390-AA.2        | 88                                                    | 88                                   | 80                            | 117                         | 0.5                        | 10                   | 1150                                                | 6600         |
| 3RF2390-AA.4        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2390-AA.5        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |
| 3RF2390-AA.6        |                                                       |                                      |                               |                             |                            |                      |                                                     |              |

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions.

| Type                | Type current AC-51/performance capacity <sup>1)</sup> |                                       |                               | Type current AC-15/performance capacity 1 |            | Power loss<br>at $I_{\max}$ | Minimum<br>load<br>current | Off-state<br>current | Rated peak<br>withstand<br>current $I_{\text{tsm}}$ | $I^2t$ value |
|---------------------|-------------------------------------------------------|---------------------------------------|-------------------------------|-------------------------------------------|------------|-----------------------------|----------------------------|----------------------|-----------------------------------------------------|--------------|
|                     | For $I_{\max}$<br>at 40 °C                            | Acc. to IEC<br>60947-4-3<br>for 40 °C | Acc. to<br>UL/CSA<br>at 50 °C | $10 \times I_e$<br>for<br>60 ms           | Parameters |                             |                            |                      |                                                     |              |
|                     | A                                                     | A                                     | A                             | A                                         |            | W                           | A                          | mA                   | A                                                   | A²s          |
| <b>Main circuit</b> |                                                       |                                       |                               |                                           |            |                             |                            |                      |                                                     |              |
| 3RF2310-BA.2        | 10.5                                                  | 7.5                                   | 9.6                           | 6                                         | 1200 1/h   | 11                          | 0.1                        | 10                   | 200                                                 | 200          |
| 3RF2310-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      | 200                                                 | 200          |
| 3RF2310-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      | 400                                                 | 800          |
| 3RF2320-BA.2        | 20                                                    | 13.2                                  | 17.6                          | 12                                        | 1200 1/h   | 20                          | 0.5                        | 10                   | 600                                                 | 1800         |
| 3RF2320-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      |                                                     |              |
| 3RF2320-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      |                                                     |              |
| 3RF2330-BA.2        | 30                                                    | 22                                    | 27                            | 15                                        | 1200 1/h   | 33                          | 0.5                        | 10                   | 600                                                 | 1800         |
| 3RF2330-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      |                                                     |              |
| 3RF2330-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      |                                                     |              |
| 3RF2340-BA.2        | 40                                                    | 33                                    | 36                            | 20                                        | 1200 1/h   | 44                          | 0.5                        | 10                   | 1200                                                | 7200         |
| 3RF2340-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      | 1200                                                | 7200         |
| 3RF2340-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      | 1150                                                | 6600         |
| 3RF2350-BA.2        | 50                                                    | 36                                    | 45                            | 25                                        | 1200 1/h   | 54                          | 0.5                        | 10                   | 1150                                                | 6600         |
| 3RF2350-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      |                                                     |              |
| 3RF2350-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      |                                                     |              |
| 3RF2370-BA.2        | 70                                                    | 70                                    | 62                            | 27.5                                      | 1200 1/h   | 83                          | 0.5                        | 10                   | 1150                                                | 6600         |
| 3RF2370-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      |                                                     |              |
| 3RF2370-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      |                                                     |              |
| 3RF2390-BA.2        | 88                                                    | 88                                    | 80                            | 30                                        | 1200 1/h   | 117                         | 0.5                        | 10                   | 1150                                                | 6600         |
| 3RF2390-BA.4        |                                                       |                                       |                               |                                           | 50 %       |                             |                            |                      |                                                     |              |
| 3RF2390-BA.6        |                                                       |                                       |                               |                                           | ON period  |                             |                            |                      |                                                     |              |

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions.

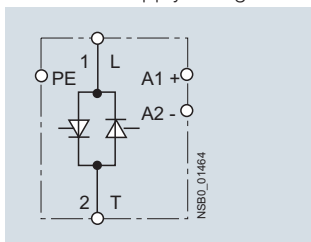
# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

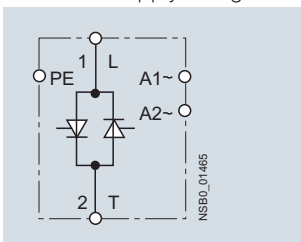
### SIRIUS 3RF23 solid-state contactors, single-phase

#### Circuit diagrams

DC control supply voltage



AC control supply voltage



#### Selection and ordering data

##### Selection notes

The solid-state contactors are selected on the basis of details of the network, the load and the ambient conditions. As the solid-state contactors are already equipped with an optimally matched heat sink, the selection process is considerably simpler than that for solid-state relays.

The following procedure is recommended:

- Determine the rated current of the load and the mains voltage
- Select a solid-state contactor with the same or higher rated current than the load

| Type current/<br>performance capacity <sup>1)</sup><br>$I_{max}$ | Rated control supply voltage $U_s$ | DT | Screw terminals | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|------------------------------------------------------------------|------------------------------------|----|-----------------|-------------------------|-----|----|
|                                                                  |                                    |    | Configurator    |                         |     |    |
|                                                                  |                                    |    | Article No.     | Price<br>per PU         |     |    |

#### Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC



3RF2310-1

|      |                 |   |                    |   |        |     |
|------|-----------------|---|--------------------|---|--------|-----|
| 10.5 | 24 DC           | A | 3RF2310-1AA02      | 1 | 1 unit | 41C |
| 20   |                 | A | 3RF2320-1AA02      | 1 | 1 unit | 41C |
| 30   |                 | A | 3RF2330-1AA02      | 1 | 1 unit | 41C |
| 40   |                 | A | 3RF2340-1AA02      | 1 | 1 unit | 41C |
| 50   |                 | A | 3RF2350-1AA02      | 1 | 1 unit | 41C |
| 20   | 24 DC Low Power | A | 3RF2320-1AA02-0KN0 | 1 | 1 unit | 41C |
| 10.5 | 24 AC/DC        | A | 3RF2310-1AA12      | 1 | 1 unit | 41C |
| 10.5 | 110 ... 230 AC  | A | 3RF2310-1AA22      | 1 | 1 unit | 41C |
| 20   |                 | A | 3RF2320-1AA22      | 1 | 1 unit | 41C |
| 30   |                 | A | 3RF2330-1AA22      | 1 | 1 unit | 41C |
| 40   |                 | B | 3RF2340-1AA22      | 1 | 1 unit | 41C |
| 50   |                 | A | 3RF2350-1AA22      | 1 | 1 unit | 41C |

#### Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC



3RF2320-1

|      |                 |   |                    |   |        |     |
|------|-----------------|---|--------------------|---|--------|-----|
| 10.5 | 24 DC           | A | 3RF2310-1AA04      | 1 | 1 unit | 41C |
| 20   |                 | A | 3RF2320-1AA04      | 1 | 1 unit | 41C |
| 30   |                 | A | 3RF2330-1AA04      | 1 | 1 unit | 41C |
| 40   |                 | A | 3RF2340-1AA04      | 1 | 1 unit | 41C |
| 50   |                 | A | 3RF2350-1AA04      | 1 | 1 unit | 41C |
| 10.5 | 24 DC Low Power | A | 3RF2310-1AA04-0KN0 | 1 | 1 unit | 41C |
| 10.5 | 24 AC/DC        | A | 3RF2310-1AA14      | 1 | 1 unit | 41C |
| 20   |                 | B | 3RF2320-1AA14      | 1 | 1 unit | 41C |
| 30   |                 | A | 3RF2330-1AA14      | 1 | 1 unit | 41C |
| 40   |                 | B | 3RF2340-1AA14      | 1 | 1 unit | 41C |
| 50   |                 | B | 3RF2350-1AA14      | 1 | 1 unit | 41C |
| 10.5 | 110 ... 230 AC  | A | 3RF2310-1AA24      | 1 | 1 unit | 41C |
| 20   |                 | A | 3RF2320-1AA24      | 1 | 1 unit | 41C |
| 30   |                 | A | 3RF2330-1AA24      | 1 | 1 unit | 41C |
| 40   |                 | A | 3RF2340-1AA24      | 1 | 1 unit | 41C |
| 50   |                 | A | 3RF2350-1AA24      | 1 | 1 unit | 41C |
| 10.5 | 4 ... 30 DC     | A | 3RF2310-1AA44      | 1 | 1 unit | 41C |
| 20   |                 | A | 3RF2320-1AA44      | 1 | 1 unit | 41C |
| 30   |                 | A | 3RF2330-1AA44      | 1 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

Other rated control supply voltages on request.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

| Type current/<br>performance capacity <sup>1)</sup><br>$I_{max}$                                                                                             | Rated control supply voltage $U_s$ | DT             | Screw terminals | Configurator  | Article No. | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------|-----------------|---------------|-------------|-----------------|-------------------------|--------|-----|
| A                                                                                                                                                            | V                                  |                |                 |               |             |                 |                         |        |     |
| <b>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 48 ... 600 V AC</b>                                           |                                    |                |                 |               |             |                 |                         |        |     |
| 30                                                                                                                                                           | 110 ... 230 AC                     | B              | 3RF2330-1AA25   |               |             |                 | 1                       | 1 unit | 41C |
| 10.5                                                                                                                                                         | 4 ... 30 DC                        | B              | 3RF2310-1AA45   |               |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                                                           |                                    | A              | 3RF2320-1AA45   |               |             |                 | 1                       | 1 unit | 41C |
| 30                                                                                                                                                           |                                    | A              | 3RF2330-1AA45   |               |             |                 | 1                       | 1 unit | 41C |
| 40                                                                                                                                                           |                                    | A              | 3RF2340-1AA45   |               |             |                 | 1                       | 1 unit | 41C |
| 50                                                                                                                                                           |                                    | A              | 3RF2350-1AA45   |               |             |                 | 1                       | 1 unit | 41C |
| <b>Zero-point switching · Integrated heat sink,<br/>blocking voltage 1600 V,<br/>rated operational voltage <math>U_e</math> 48 ... 600 V AC</b>              |                                    |                |                 |               |             |                 |                         |        |     |
|                                                                             | 10.5                               | 24 DC          | B               | 3RF2310-1AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 20                                 |                | A               | 3RF2320-1AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 30                                 |                | A               | 3RF2330-1AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 40                                 |                | B               | 3RF2340-1AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 50                                 |                | B               | 3RF2350-1AA06 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 10.5                               | 110 ... 230 AC | B               | 3RF2310-1AA26 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 20                                 |                | B               | 3RF2320-1AA26 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 30                                 |                | B               | 3RF2330-1AA26 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 40                                 |                | B               | 3RF2340-1AA26 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 50                                 |                | B               | 3RF2350-1AA26 |             |                 | 1                       | 1 unit | 41C |
| <b>Low Noise<sup>2)</sup>,<br/>zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 24 ... 230 V AC</b>               |                                    |                |                 |               |             |                 |                         |        |     |
|                                                                            | 20                                 | 24 DC          | B               | 3RF2320-1CA02 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 30                                 |                | B               | 3RF2330-1CA02 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 20                                 | 110 ... 230 AC | B               | 3RF2320-1CA22 |             |                 | 1                       | 1 unit | 41C |
| <b>Low Noise<sup>2)</sup>,<br/>zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>               |                                    |                |                 |               |             |                 |                         |        |     |
| 20                                                                                                                                                           | 24 DC                              | B              | 3RF2320-1CA04   |               |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                                                           | 110 ... 230 AC                     | B              | 3RF2320-1CA24   |               |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                                                           | 4 ... 30 DC                        | A              | 3RF2320-1CA44   |               |             |                 | 1                       | 1 unit | 41C |
| <b>Short-circuit proof with B-type MCB ·<br/>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 24 ... 230 V AC</b> |                                    |                |                 |               |             |                 |                         |        |     |
| 20                                                                                                                                                           | 24 DC                              | A              | 3RF2320-1DA02   |               |             |                 | 1                       | 1 unit | 41C |
| 20                                                                                                                                                           | 110 ... 230 AC                     | B              | 3RF2320-1DA22   |               |             |                 | 1                       | 1 unit | 41C |
| <b>Short-circuit proof with B-type MCB ·<br/>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 48 ... 460 V AC</b> |                                    |                |                 |               |             |                 |                         |        |     |
|                                                                           | 20                                 | 24 DC          | A               | 3RF2320-1DA04 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 20                                 | 110 ... 230 AC | B               | 3RF2320-1DA24 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 20                                 | 4 ... 30 DC    | A               | 3RF2320-1DA44 |             |                 | 1                       | 1 unit | 41C |
|                                                                                                                                                              | 30                                 |                | A               | 3RF2330-1DA44 |             |                 | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

Other rated control supply voltages on request.

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

<sup>2)</sup> See page 6/84.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

|                                                                                                                                | Type current/<br>performance<br>capacity <sup>1)</sup><br>$I_{max}$ | Operational<br>current<br>$I_e/AC-15^{(2)}$ | Rated control supply voltage<br>$U_s$ | DT | Screw terminals | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------|---------------------------------------|----|-----------------|-------------------------|--------|-----|
|                                                                                                                                |                                                                     |                                             |                                       |    | Configurator    |                         |        |     |
|                                                                                                                                | A                                                                   | A                                           | V                                     |    | Article No.     |                         |        |     |
| Instantaneous switching · Integrated heat sink,<br>rated operational voltage $U_e$ 24 ... 230 V AC                             |                                                                     |                                             |                                       |    |                 |                         |        |     |
|                                               | 10.5                                                                | 6                                           | 24 DC                                 | A  | 3RF2310-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          |                                       | A  | 3RF2320-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | B  | 3RF2330-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 40                                                                  | 20                                          |                                       | B  | 3RF2340-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 27.5                                        |                                       | B  | 3RF2370-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 30                                          |                                       | B  | 3RF2390-1BA02   | 1                       | 1 unit | 41C |
|                                                                                                                                | 10.5                                                                | 6                                           | 110 ... 230 AC                        | B  | 3RF2310-1BA22   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          |                                       | B  | 3RF2320-1BA22   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | B  | 3RF2330-1BA22   | 1                       | 1 unit | 41C |
|                                                                                                                                | 40                                                                  | 20                                          |                                       | B  | 3RF2340-1BA22   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA22   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 27.5                                        |                                       | B  | 3RF2370-1BA22   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 30                                          |                                       | B  | 3RF2390-1BA22   | 1                       | 1 unit | 41C |
| Instantaneous switching · Integrated heat sink,<br>rated operational voltage $U_e$ 48 ... 460 V AC                             |                                                                     |                                             |                                       |    |                 |                         |        |     |
|                                              | 10.5                                                                | 6                                           | 24 DC                                 | A  | 3RF2310-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          |                                       | A  | 3RF2320-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | A  | 3RF2330-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 40                                                                  | 20                                          |                                       | B  | 3RF2340-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 27.5                                        |                                       | B  | 3RF2370-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 30                                          |                                       | B  | 3RF2390-1BA04   | 1                       | 1 unit | 41C |
|                                                                                                                                | 10.5                                                                | 6                                           | 110 ... 230 AC                        | B  | 3RF2310-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          |                                       | B  | 3RF2320-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | B  | 3RF2330-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 40                                                                  | 20                                          |                                       | B  | 3RF2340-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 27.5                                        |                                       | B  | 3RF2370-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 30                                          |                                       | B  | 3RF2390-1BA24   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          | 4 ... 30 DC                           | B  | 3RF2320-1BA44   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | B  | 3RF2330-1BA44   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA44   | 1                       | 1 unit | 41C |
| Instantaneous switching · Integrated heat sink,<br>blocking voltage 1600 V,<br>rated operational voltage $U_e$ 48 ... 600 V AC |                                                                     |                                             |                                       |    |                 |                         |        |     |
|                                             | 10.5                                                                | 6                                           | 24 DC                                 | B  | 3RF2310-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          |                                       | A  | 3RF2320-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | B  | 3RF2330-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 40                                                                  | 20                                          |                                       | B  | 3RF2340-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 27.5                                        |                                       | B  | 3RF2370-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 30                                          |                                       | B  | 3RF2390-1BA06   | 1                       | 1 unit | 41C |
|                                                                                                                                | 10.5                                                                | 6                                           | 110 ... 230 AC                        | B  | 3RF2310-1BA26   | 1                       | 1 unit | 41C |
|                                                                                                                                | 20                                                                  | 12                                          |                                       | B  | 3RF2320-1BA26   | 1                       | 1 unit | 41C |
|                                                                                                                                | 30                                                                  | 15                                          |                                       | B  | 3RF2330-1BA26   | 1                       | 1 unit | 41C |
|                                                                                                                                | 40                                                                  | 20                                          |                                       | B  | 3RF2340-1BA26   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 25                                          |                                       | B  | 3RF2350-1BA26   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 27.5                                        |                                       | B  | 3RF2370-1BA26   | 1                       | 1 unit | 41C |
|                                                                                                                                | 50                                                                  | 30                                          |                                       | B  | 3RF2390-1BA26   | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

<sup>2)</sup> Utilization category AC-15:  
Electromagnetic loads, e.g. valves according to IEC 60947-5-1.  
Parameters: max. 1200 1/h, 50 % ON period, 10-times inrush current for 60 ms.

Other rated control supply voltages on request.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

| Type current/<br>performance capacity <sup>1)</sup><br>$I_{\max}$                                                                                           | Rated control supply voltage $U_s$ | DT             | Spring-type terminals | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------|-----------------------|-------------------------|--------|-----|
|                                                                                                                                                             |                                    |                | Configurator          |                         |        |     |
| A                                                                                                                                                           | V                                  |                | Article No.           | Price<br>per PU         |        |     |
| <b>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 24 ... 230 V AC</b>                                          |                                    |                |                       |                         |        |     |
|                                                                            | 10.5                               | 24 DC          | B 3RF2310-2AA02       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 |                | A 3RF2320-2AA02       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 10.5                               | 110 ... 230 AC | B 3RF2310-2AA22       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 |                | B 3RF2320-2AA22       | 1                       | 1 unit | 41C |
| <b>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>                                          |                                    |                |                       |                         |        |     |
|                                                                                                                                                             | 10.5                               | 24 DC          | A 3RF2310-2AA04       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 |                | A 3RF2320-2AA04       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 10.5                               | 110 ... 230 AC | B 3RF2310-2AA24       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 |                | B 3RF2320-2AA24       | 1                       | 1 unit | 41C |
| <b>Zero-point switching · Integrated heat sink,<br/>blocking voltage 1600 V,<br/>rated operational voltage <math>U_e</math> 48 ... 600 V AC</b>             |                                    |                |                       |                         |        |     |
|                                                                                                                                                             | 10.5                               | 24 DC          | B 3RF2310-2AA06       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 |                | A 3RF2320-2AA06       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 10.5                               | 110 ... 230 AC | B 3RF2310-2AA26       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 |                | B 3RF2320-2AA26       | 1                       | 1 unit | 41C |
| <b>Low Noise<sup>2)</sup>,<br/>zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 24 ... 230 V AC</b>              |                                    |                |                       |                         |        |     |
|                                                                                                                                                             | 20                                 | 24 DC          | B 3RF2320-2CA02       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 | 110 ... 230 AC | B 3RF2320-2CA22       | 1                       | 1 unit | 41C |
| <b>Low Noise<sup>2)</sup>,<br/>zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>              |                                    |                |                       |                         |        |     |
|                                                                                                                                                             | 20                                 | 24 DC          | B 3RF2320-2CA04       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 | 110 ... 230 AC | B 3RF2320-2CA24       | 1                       | 1 unit | 41C |
| <b>Short-circuit proof with B-type MCB,<br/>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 24 ... 230 V AC</b> |                                    |                |                       |                         |        |     |
|                                                                                                                                                             | 20                                 | 110 ... 230 AC | B 3RF2320-2DA22       | 1                       | 1 unit | 41C |
| <b>Short-circuit proof with B-type MCB,<br/>Zero-point switching · Integrated heat sink,<br/>rated operational voltage <math>U_e</math> 48 ... 460 V AC</b> |                                    |                |                       |                         |        |     |
|                                                                                                                                                             | 20                                 | 24 DC          | B 3RF2320-2DA04       | 1                       | 1 unit | 41C |
|                                                                                                                                                             | 20                                 | 110 ... 230 AC | B 3RF2320-2DA24       | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

Other rated control supply voltages on request.

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

<sup>2)</sup> See page 6/84.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

| Type current/<br>performance capacity <sup>1)</sup><br><i>I</i> <sub>max</sub>                                                              |      | Rated control supply voltage <i>U</i> <sub>s</sub> | DT | Ring terminal lug<br>connection<br>Configurator |  | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|---------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------|----|-------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|--------|-----|
| A                                                                                                                                           |      | V                                                  |    | Article No.                                     | Price<br>per PU                                                                     |                         |        |     |
| Zero-point switching · Integrated heat sink,<br>rated operational voltage <i>U</i> <sub>e</sub> 24 ... 230 V AC                             |      |                                                    |    |                                                 |                                                                                     |                         |        |     |
|                                                            | 10.5 | 24 DC                                              | B  | 3RF2310-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   |                                                    | B  | 3RF2320-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | B  | 3RF2330-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 40   |                                                    | B  | 3RF2340-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | B  | 3RF2350-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | A  | 3RF2370-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | B  | 3RF2390-3AA02                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 10.5 | 110 ... 230 AC                                     | B  | 3RF2310-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   |                                                    | B  | 3RF2320-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | B  | 3RF2330-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 40   |                                                    | B  | 3RF2340-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | B  | 3RF2350-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | B  | 3RF2370-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | B  | 3RF2390-3AA22                                   |                                                                                     | 1                       | 1 unit | 41C |
| Zero-point switching · Integrated heat sink,<br>rated operational voltage <i>U</i> <sub>e</sub> 48 ... 460 V AC                             |      |                                                    |    |                                                 |                                                                                     |                         |        |     |
|                                                           | 10.5 | 24 DC                                              | B  | 3RF2310-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   |                                                    | B  | 3RF2320-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | A  | 3RF2330-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 40   |                                                    | B  | 3RF2340-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | A  | 3RF2350-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | A  | 3RF2370-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | A  | 3RF2390-3AA04                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 10.5 | 110 ... 230 AC                                     | B  | 3RF2310-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   |                                                    | B  | 3RF2320-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | B  | 3RF2330-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 40   |                                                    | B  | 3RF2340-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | B  | 3RF2350-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | B  | 3RF2370-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | B  | 3RF2390-3AA24                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   | 4 ... 30 DC                                        | B  | 3RF2320-3AA44                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | B  | 3RF2330-3AA44                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | B  | 3RF2350-3AA44                                   |                                                                                     | 1                       | 1 unit | 41C |
| Zero-point switching · Integrated heat sink,<br>rated operational voltage <i>U</i> <sub>e</sub> 48 ... 600 V AC                             |      |                                                    |    |                                                 |                                                                                     |                         |        |     |
|                                                                                                                                             | 40   | 4 ... 30 DC                                        | B  | 3RF2340-3AA45                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | A  | 3RF2370-3AA45                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | B  | 3RF2390-3AA45                                   |                                                                                     | 1                       | 1 unit | 41C |
| Zero-point switching · Integrated heat sink,<br>blocking voltage 1600 V,<br>rated operational voltage <i>U</i> <sub>e</sub> 48 ... 600 V AC |      |                                                    |    |                                                 |                                                                                     |                         |        |     |
|                                                                                                                                             | 10.5 | 24 DC                                              | B  | 3RF2310-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   |                                                    | B  | 3RF2320-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | B  | 3RF2330-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 40   |                                                    | B  | 3RF2340-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | B  | 3RF2350-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | B  | 3RF2370-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | B  | 3RF2390-3AA06                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 10.5 | 110 ... 230 AC                                     | B  | 3RF2310-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 20   |                                                    | B  | 3RF2320-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 30   |                                                    | B  | 3RF2330-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 40   |                                                    | B  | 3RF2340-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 50   |                                                    | B  | 3RF2350-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 70   |                                                    | B  | 3RF2370-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |
|                                                                                                                                             | 88   |                                                    | B  | 3RF2390-3AA26                                   |                                                                                     | 1                       | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

Other rated control supply voltages on request.

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF23 solid-state contactors, single-phase

| Type current/performance capacity <sup>1)</sup><br>$I_{max}$                                                                                        | Operational current<br>$I_e/AC-15^{(2)}$ | Rated control supply voltage<br>$U_s$ | DT | Ring terminal lug connection<br>Configurator | PU<br>(UNIT, SET, M) | PS*    | PG  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------|----|----------------------------------------------|----------------------|--------|-----|
| A                                                                                                                                                   | A                                        | V                                     |    | Article No.                                  | Price per PU         |        |     |
| <b>Instantaneous switching · Integrated heat sink, rated operational voltage <math>U_e</math> 24 ... 230 V AC</b>                                   |                                          |                                       |    |                                              |                      |        |     |
| 70                                                                                                                                                  | 27.5                                     | 24 DC                                 | B  | 3RF2370-3BA02                                | 1                    | 1 unit | 41C |
| 88                                                                                                                                                  | 30                                       |                                       | B  | 3RF2390-3BA02                                | 1                    | 1 unit | 41C |
| 70                                                                                                                                                  | 27.5                                     | 110 ... 230 AC                        | B  | 3RF2370-3BA22                                | 1                    | 1 unit | 41C |
| 88                                                                                                                                                  | 30                                       |                                       | B  | 3RF2390-3BA22                                | 1                    | 1 unit | 41C |
| <b>Instantaneous switching · Integrated heat sink, rated operational voltage <math>U_e</math> 48 ... 460 V AC</b>                                   |                                          |                                       |    |                                              |                      |        |     |
| 70                                                                                                                                                  | 27.5                                     | 24 DC                                 | B  | 3RF2370-3BA04                                | 1                    | 1 unit | 41C |
| 88                                                                                                                                                  | 30                                       |                                       | B  | 3RF2390-3BA04                                | 1                    | 1 unit | 41C |
| 70                                                                                                                                                  | 27.5                                     | 110 ... 230 AC                        | B  | 3RF2370-3BA24                                | 1                    | 1 unit | 41C |
| 88                                                                                                                                                  | 30                                       |                                       | B  | 3RF2390-3BA24                                | 1                    | 1 unit | 41C |
| <b>Instantaneous switching · Integrated heat sink, blocking voltage 1600 V, rated operational voltage <math>U_e</math> 48 ... 600 V AC</b>          |                                          |                                       |    |                                              |                      |        |     |
| 70                                                                                                                                                  | 27.5                                     | 24 DC                                 | B  | 3RF2370-3BA06                                | 1                    | 1 unit | 41C |
| 88                                                                                                                                                  | 30                                       |                                       | B  | 3RF2390-3BA06                                | 1                    | 1 unit | 41C |
| 70                                                                                                                                                  | 27.5                                     | 110 ... 230 AC                        | B  | 3RF2370-3BA26                                | 1                    | 1 unit | 41C |
| 88                                                                                                                                                  | 30                                       |                                       | B  | 3RF2390-3BA26                                | 1                    | 1 unit | 41C |
| <b>Short-circuit proof with B-type MCB, Zero-point switching · Integrated heat sink, rated operational voltage <math>U_e</math> 24 ... 230 V AC</b> |                                          |                                       |    |                                              |                      |        |     |
| 20                                                                                                                                                  | --                                       | 24 DC                                 | B  | 3RF2320-3DA02                                | 1                    | 1 unit | 41C |
| 20                                                                                                                                                  | --                                       | 110 ... 230 AC                        | B  | 3RF2320-3DA22                                | 1                    | 1 unit | 41C |
| <b>Short-circuit proof with B-type MCB, Zero-point switching · Integrated heat sink, rated operational voltage <math>U_e</math> 48 ... 460 V AC</b> |                                          |                                       |    |                                              |                      |        |     |
| 20                                                                                                                                                  | --                                       | 24 DC                                 | B  | 3RF2320-3DA04                                | 1                    | 1 unit | 41C |
| 20                                                                                                                                                  | --                                       | 110 ... 230 AC                        | B  | 3RF2320-3DA24                                | 1                    | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

<sup>2)</sup> Utilization category AC-15:  
Electromagnetic loads, e.g. valves according to IEC 60947-5-1.  
Parameters: max. 1 200 1/h, 50 % ON period, 10-times inrush current for 60 ms.

Other rated control supply voltages on request.

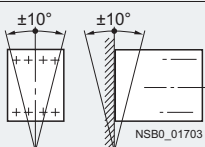
| Version                                                                                                                                                                                                                                                                                                              | DT | Article No.   | Price per PU | PU<br>(UNIT, SET, M) | PS*      | PG  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------|--------------|----------------------|----------|-----|
| <b>Optional accessories</b>                                                                                                                                                                                                                                                                                          |    |               |              |                      |          |     |
| <b>Spring-type terminals</b>                                                                                                                                                                                                                                                                                         |    |               |              |                      |          |     |
| <br><b>Screwdrivers</b><br>for all SIRIUS devices with spring-type terminals<br>Length approx. 200 mm, size 3.0 mm x 0.5 mm, titanium gray/black, partially insulated<br>3RA2908-1A                                               | A  | 3RA2908-1A    |              | 1                    | 1 unit   | 41B |
|                                                                                                                                                                                                                                                                                                                      |    |               |              |                      |          |     |
| <br><b>Terminal covers</b> for 3RF21 solid-state relays and 3RF23 solid-state contactors in ring terminal lug connection<br>(After simple adaptation, this terminal cover can also be used for screw terminals).<br>3RF2900-3PA88 | A  | 3RF2900-3PA88 |              | 1                    | 10 units | 41C |
|                                                                                                                                                                                                                                                                                                                      |    |               |              |                      |          |     |
| <b>Control connector</b>                                                                                                                                                                                                                                                                                             |    |               |              |                      |          |     |
| Replacement control connector for 3RF20/21/22 and 3RF23/24<br>Spring-type terminals<br>Control connector for 3RF20/21/22 and 3RF23/24<br>Spring-type terminals with two clamping points per contact                                                                                                                  | B  | 3RF2900-2TA88 |              | 1                    | 50 units | 41C |
|                                                                                                                                                                                                                                                                                                                      | B  | 3RF2900-2TB88 |              | 1                    | 10 units | 41C |

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF24 solid-state contactors, three-phase

#### Technical specifications

| Type                                                                                       | 3RF24...-1....  |                                                                                                   | 3RF24...-2....                                                                                          |                                                                                                                  | 3RF24...-3.... |               |
|--------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| Dimensions (W x H x D)                                                                     |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                | See page 6/95 |
| General data                                                                               |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| Ambient temperature                                                                        |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| • During operation, derating from 40 °C                                                    | °C              | -25 ... +60                                                                                       |                                                                                                         |                                                                                                                  |                |               |
| • During storage                                                                           | °C              | -55 ... +80                                                                                       |                                                                                                         |                                                                                                                  |                |               |
| Installation altitude                                                                      | m               | 0 ... 1000; derating from 1000                                                                    |                                                                                                         |                                                                                                                  |                |               |
| Shock resistance acc. to IEC 60068-2-27                                                    | g/ms            | 15/11                                                                                             |                                                                                                         |                                                                                                                  |                |               |
| Vibration resistance acc. to IEC 60068-2-6                                                 | g               | 2                                                                                                 |                                                                                                         |                                                                                                                  |                |               |
| Degree of protection                                                                       |                 | IP20                                                                                              |                                                                                                         |                                                                                                                  |                |               |
| Insulation strength at 50/60 Hz (main/control circuit to floor)                            | V rms           | 4000                                                                                              |                                                                                                         |                                                                                                                  |                |               |
| Electromagnetic compatibility (EMC)                                                        |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| • Emitted interference according to IEC 60947-4-3                                          |                 | Class A for industrial applications <sup>1)</sup>                                                 |                                                                                                         |                                                                                                                  |                |               |
| - Conducted interference voltage                                                           |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| • Interference immunity                                                                    |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV              | Contact discharge 4; air discharge 8; behavior criterion 2                                        |                                                                                                         |                                                                                                                  |                |               |
| - Induced RF fields according to IEC 61000-4-6                                             | MHz             | 0.15 ... 80; 140 dBµV; behavior criterion 1                                                       |                                                                                                         |                                                                                                                  |                |               |
| - Burst acc. to IEC 61000-4-4                                                              | kV              | 2/5.0 kHz; behavior criterion 2                                                                   |                                                                                                         |                                                                                                                  |                |               |
| - Surge acc. to IEC 61000-4-5                                                              | kV              | Conductor - ground 2; conductor - conductor 1; behavior criterion 2                               |                                                                                                         |                                                                                                                  |                |               |
| Connection type                                                                            |                 |  Screw terminals |  Spring-type terminals |  Ring terminal lug connection |                |               |
| Connection, main contacts                                                                  |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| • Conductor cross-section                                                                  |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| - Solid                                                                                    | mm <sup>2</sup> | 2 x (1.5 ... 2.5) <sup>2)</sup> , 2 x (2.5 ... 6) <sup>2)</sup>                                   |                                                                                                         | 2 x (0.5 ... 2.5)                                                                                                |                |               |
| - Finely stranded with end sleeve                                                          | mm <sup>2</sup> | 2 x (1 ... 2.5) <sup>2)</sup> , 2 x (2.5 ... 6) <sup>2)</sup> , 1 x 10                            |                                                                                                         | 2 x (0.5 ... 1.5)                                                                                                |                |               |
| - Finely stranded without end sleeve                                                       | mm <sup>2</sup> | --                                                                                                |                                                                                                         | 2 x (0.5 ... 2.5)                                                                                                |                |               |
| - Solid or stranded, AWG cables                                                            |                 | 2 x (AWG 14 ... 10)                                                                               |                                                                                                         | 2 x (AWG 18 ... 14)                                                                                              |                |               |
| • Stripped length                                                                          | mm              | 10                                                                                                |                                                                                                         | 10                                                                                                               |                |               |
| • Terminal screws                                                                          |                 | M4                                                                                                |                                                                                                         | --                                                                                                               |                |               |
| - Tightening torque                                                                        | Nm<br>lb.in     | 2 ... 2.5<br>18 ... 22                                                                            |                                                                                                         | M5<br>2 ... 2.5<br>18 ... 22                                                                                     |                |               |
| • Cable lugs                                                                               |                 | --                                                                                                |                                                                                                         | --                                                                                                               |                |               |
| - According to DIN 46234                                                                   |                 |                                                                                                   |                                                                                                         | 5-2.5 ... 5-25                                                                                                   |                |               |
| - According to JIS C 2805                                                                  |                 |                                                                                                   |                                                                                                         | R 2-5 ... R 14-5                                                                                                 |                |               |
| - Width, maximum                                                                           | mm              |                                                                                                   |                                                                                                         | 12                                                                                                               |                |               |
| Connection, auxiliary/control contacts                                                     |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| • Conductor cross-section                                                                  | mm<br>AWG       | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)<br>AWG 20 ... 12                                             |                                                                                                         | 0.5 ... 2.5<br>AWG 20 ... 12                                                                                     |                |               |
| • Stripped length                                                                          | mm              | 7                                                                                                 |                                                                                                         | 10                                                                                                               |                |               |
| • Terminal screw                                                                           |                 | M3                                                                                                |                                                                                                         | --                                                                                                               |                |               |
| - Tightening torque, Ø 3.5, PZ 1                                                           | Nm<br>lb.in     | 0.5 ... 0.6<br>4.5 ... 5.3                                                                        |                                                                                                         | M3<br>0.5 ... 0.6<br>4.5 ... 5.3                                                                                 |                |               |
| Grounding screw <sup>3)</sup>                                                              |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
| • Size (standard screw)                                                                    |                 | M5                                                                                                |                                                                                                         |                                                                                                                  |                |               |
| Permissible mounting position                                                              |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |
|         |                 |                                                                                                   |                                                                                                         |                                                                                                                  |                |               |

<sup>1)</sup> These products were built as Class A devices. The use of these devices in residential areas could result in lead in radio interference. In this case these may be required to introduce additional interference suppression measures. The versions 3RF24 ...-1AC55 comply with Class B for residential, business and commercial applications.

<sup>2)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

<sup>3)</sup> The screw is not included in the scope of supply.

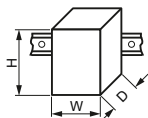
# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

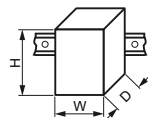
### SIRIUS 3RF24 solid-state contactors, three-phase

| Type                | Type current/<br>performance<br>capacity <sup>1)</sup><br><br>$I_{AC-51}$<br>at 40 °C | Rated operational current $I_e$<br><br>Acc. to<br>IEC 60947-4-3<br>at 40 °C |    | Power loss<br>at $I_{AC-51}$ | Minimum load<br>current | Max. off-state<br>current | Rated peak<br>withstand<br>current $I_{tsm}$ | $I^2t$ value |
|---------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----|------------------------------|-------------------------|---------------------------|----------------------------------------------|--------------|
|                     | A                                                                                     | A                                                                           | A  | W                            | A                       | mA                        | A                                            | A²s          |
| <b>Main circuit</b> |                                                                                       |                                                                             |    |                              |                         |                           |                                              |              |
| 3RF2410-AB.5        | 10.5                                                                                  | 7                                                                           | 7  | 23                           | 0.1                     | 10                        | 200                                          | 200          |
| 3RF2420-AB.5        | 22                                                                                    | 15                                                                          | 15 | 44                           | 0.5                     | 10                        | 600                                          | 1800         |
| 3RF2430-AB.5        | 30                                                                                    | 22                                                                          | 22 | 61                           | 0.5                     | 10                        | 1200                                         | 7200         |
| 3RF2440-AB.5        | 40                                                                                    | 30                                                                          | 30 | 80                           | 0.5                     | 10                        | 1150                                         | 6600         |
| 3RF2450-AB.5        | 50                                                                                    | 38                                                                          | 38 | 107                          | 0.5                     | 10                        | 1150                                         | 6600         |
| 3RF2410-AC.5        | 10.5                                                                                  | 7                                                                           | 7  | 31                           | 0.5                     | 10                        | 300                                          | 450          |
| 3RF2420-AC.5        | 22                                                                                    | 15                                                                          | 15 | 66                           | 0.5                     | 10                        | 600                                          | 1800         |
| 3RF2430-AC.5        | 30                                                                                    | 22                                                                          | 22 | 91                           | 0.5                     | 10                        | 1200                                         | 7200         |
| 3RF2440-AC.5        | 40                                                                                    | 30                                                                          | 30 | 121                          | 0.5                     | 10                        | 1150                                         | 6600         |
| 3RF2450-AC.5        | 50                                                                                    | 38                                                                          | 38 | 160                          | 0.5                     | 10                        | 1150                                         | 6600         |

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions.

| Type | Type current<br>$I_{AC-51}$<br>A | Dimensions (W x H x D)<br>(including heat sink)<br>mm                             |
|------|----------------------------------|-----------------------------------------------------------------------------------|
|      |                                  |  |

|                     |      |                    |
|---------------------|------|--------------------|
| <b>Main circuit</b> |      |                    |
| 3RF2410-AB..        | 10.5 | 45 x 100 x 105     |
| 3RF2410-AC..        |      |                    |
| 3RF2420-AB..        | 22   | 67 x 100 x 112.5   |
| 3RF2420-AC..        | 22   | 89.5 x 100 x 112.5 |
| 3RF2430-AB..        | 30   |                    |

| Type | Type current<br>$I_{AC-51}$<br>A | Dimensions (W x H x D)<br>(including heat sink)<br>mm                               |
|------|----------------------------------|-------------------------------------------------------------------------------------|
|      |                                  |  |

|                     |    |                   |
|---------------------|----|-------------------|
| <b>Main circuit</b> |    |                   |
| 3RF2430-AC..        | 30 | 113.5 x 100 x 121 |
| 3RF2440-AB..        | 40 |                   |
| 3RF2440-AC..        | 40 | 157.5 x 100 x 121 |
| 3RF2450-AB..        | 50 |                   |
| 3RF2450-AC..        | 50 | 157.5 x 180 x 121 |

| Type                                      |      | 3RF24...-AB.5 | 3RF24...-AC.5 |
|-------------------------------------------|------|---------------|---------------|
| <b>Main circuit</b>                       |      |               |               |
| Controlled phases                         |      | 2-phase       | 3-phase       |
| Rated operational voltage $U_e$           | V AC | 48 ... 600    | 48 ... 600    |
| • Operating range                         | V AC | 40 ... 660    | 40 ... 660    |
| • Rated frequency                         | Hz   | 50/60 ± 10 %  | 50/60 ± 10 %  |
| Rated insulation voltage $U_i$            | V    | 600           | 600           |
| Rated impulse withstand voltage $U_{imp}$ | kV   | 6             | 6             |
| Blocking voltage                          | V    | 1200          | 1200          |
| Rate of voltage rise                      | V/μs | 1000          | 1000          |

| Type                                             |    | 3RF24...-...3.          | 3RF24...-...4.         | 3RF24...-...5.          |
|--------------------------------------------------|----|-------------------------|------------------------|-------------------------|
| <b>Control circuit</b>                           |    |                         |                        |                         |
| Method of operation                              |    | AC operation            | DC operation           | AC operation            |
| Rated control supply voltage $U_s$               | V  | 110                     | 4 ... 30               | 190 ... 230             |
| Rated frequency<br>of the control supply voltage | Hz | 50/60 ± 10 %            | --                     | 50/60 ± 10 %            |
| Actuating voltage, max.                          | V  | 121                     | 30                     | 253                     |
| Typical actuating current                        | mA | 15                      | 30                     | 15                      |
| Response voltage                                 | V  | 90                      | 4                      | 180                     |
| Drop-out voltage                                 | V  | < 40                    | < 1                    | < 40                    |
| <b>Operating times</b>                           |    |                         |                        |                         |
| • ON-delay                                       | ms | 40 + max. one half-wave | 1 + max. one half-wave | 40 + max. one half-wave |
| • OFF-delay                                      | ms | 40 + max. one half-wave | 1 + max. one half-wave | 40 + max. one half-wave |

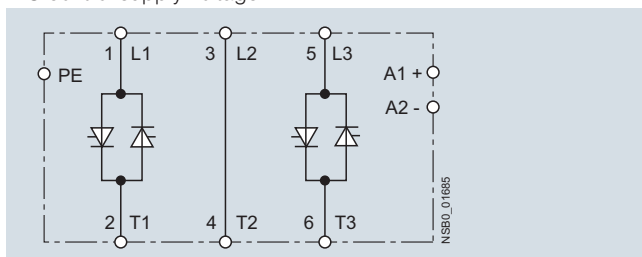
# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

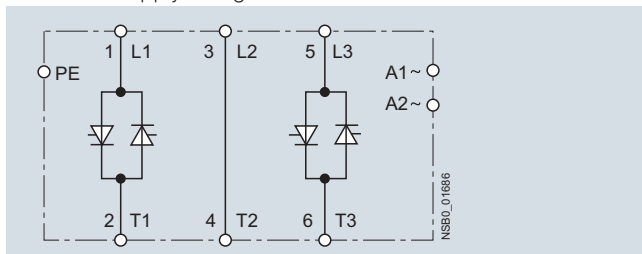
### SIRIUS 3RF24 solid-state contactors, three-phase

#### Circuit diagrams

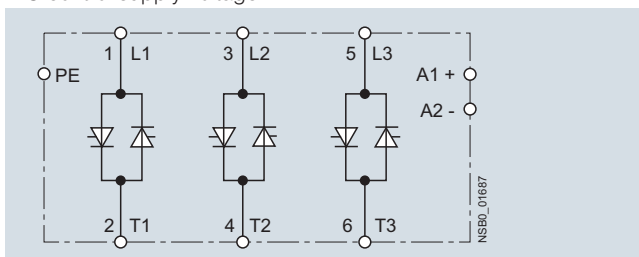
Two-phase controlled,  
DC control supply voltage



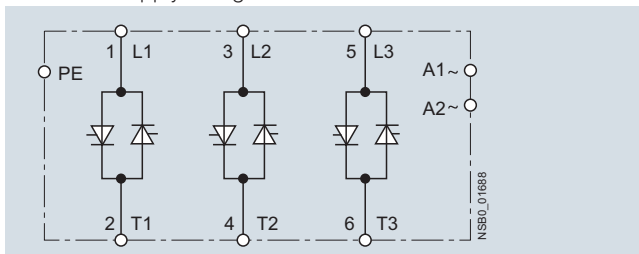
Two-phase controlled,  
AC control supply voltage



Three-phase controlled,  
DC control supply voltage



Three-phase controlled,  
AC control supply voltage



#### Selection and ordering data

| Type current/<br>performance capacity <sup>1)</sup><br>$I_{max}$ | Rated control supply voltage $U_s$ | DT | Screw terminals | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|------------------------------------------------------------------|------------------------------------|----|-----------------|-------------------------|-----|----|
|                                                                  |                                    |    | Configurator    |                         |     |    |
|                                                                  |                                    |    | Article No.     | Price<br>per PU         |     |    |

Zero-point switching · Integrated heat sink,  
rated operational voltage  $U_e$  48 ... 600 V AC



3RF2420-1AB45

#### Two-phase controlled

|      |             |   |               |   |        |     |
|------|-------------|---|---------------|---|--------|-----|
| 10.5 | 4 ... 30 DC | A | 3RF2410-1AB45 | 1 | 1 unit | 41C |
| 20   |             | A | 3RF2420-1AB45 | 1 | 1 unit | 41C |
| 30   |             | A | 3RF2430-1AB45 | 1 | 1 unit | 41C |
| 40   |             | B | 3RF2440-1AB45 | 1 | 1 unit | 41C |
| 50   |             | A | 3RF2450-1AB45 | 1 | 1 unit | 41C |
| 10.5 | 110 AC      | B | 3RF2410-1AB35 | 1 | 1 unit | 41C |
| 20   |             | B | 3RF2420-1AB35 | 1 | 1 unit | 41C |
| 30   |             | B | 3RF2430-1AB35 | 1 | 1 unit | 41C |
| 40   |             | B | 3RF2440-1AB35 | 1 | 1 unit | 41C |
| 50   |             | B | 3RF2450-1AB35 | 1 | 1 unit | 41C |
| 10.5 | 230 AC      | B | 3RF2410-1AB55 | 1 | 1 unit | 41C |
| 20   |             | B | 3RF2420-1AB55 | 1 | 1 unit | 41C |
| 30   |             | A | 3RF2430-1AB55 | 1 | 1 unit | 41C |
| 40   |             | B | 3RF2440-1AB55 | 1 | 1 unit | 41C |
| 50   |             | B | 3RF2450-1AB55 | 1 | 1 unit | 41C |



3RF2410-1AC45

#### Three-phase controlled

|      |             |   |               |   |        |     |
|------|-------------|---|---------------|---|--------|-----|
| 10.5 | 4 ... 30 DC | A | 3RF2410-1AC45 | 1 | 1 unit | 41C |
| 20   |             | A | 3RF2420-1AC45 | 1 | 1 unit | 41C |
| 30   |             | A | 3RF2430-1AC45 | 1 | 1 unit | 41C |
| 40   |             | A | 3RF2440-1AC45 | 1 | 1 unit | 41C |
| 50   |             | A | 3RF2450-1AC45 | 1 | 1 unit | 41C |
| 10.5 | 110 AC      | B | 3RF2410-1AC35 | 1 | 1 unit | 41C |
| 20   |             | B | 3RF2420-1AC35 | 1 | 1 unit | 41C |
| 30   |             | B | 3RF2430-1AC35 | 1 | 1 unit | 41C |
| 40   |             | B | 3RF2440-1AC35 | 1 | 1 unit | 41C |
| 50   |             | B | 3RF2450-1AC35 | 1 | 1 unit | 41C |
| 10.5 | 230 AC      | B | 3RF2410-1AC55 | 1 | 1 unit | 41C |
| 20   |             | B | 3RF2420-1AC55 | 1 | 1 unit | 41C |
| 30   |             | B | 3RF2430-1AC55 | 1 | 1 unit | 41C |
| 40   |             | B | 3RF2440-1AC55 | 1 | 1 unit | 41C |
| 50   |             | B | 3RF2450-1AC55 | 1 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

# Solid-State Switching Devices for Resistive/Inductive Loads

## Solid-State Contactors

### SIRIUS 3RF24 solid-state contactors, three-phase

| Type current/<br>performance capacity <sup>1)</sup><br>$I_{max}$ | Rated control supply voltage $U_s$ | DT | Spring-type terminals | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|------------------------------------------------------------------|------------------------------------|----|-----------------------|-------------------------|-----|----|
|                                                                  |                                    |    | Configurator          |                         |     |    |
| A                                                                | V                                  |    | Article No.           | Price<br>per PU         |     |    |

Zero-point switching · Integrated heat sink,  
rated operational voltage  $U_e$  48 ... 600 V AC



3RF2410-2AB45

#### Two-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 10 | 4 ... 30 DC | B | 3RF2410-2AB45 | 1 | 1 unit | 41C |
| 20 |             | B | 3RF2420-2AB45 | 1 | 1 unit | 41C |
| 10 | 230 AC      | B | 3RF2410-2AB55 | 1 | 1 unit | 41C |
| 20 |             | B | 3RF2420-2AB55 | 1 | 1 unit | 41C |

#### Three-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 10 | 4 ... 30 DC | B | 3RF2410-2AC45 | 1 | 1 unit | 41C |
| 20 |             | B | 3RF2420-2AC45 | 1 | 1 unit | 41C |
| 10 | 230 AC      | B | 3RF2410-2AC55 | 1 | 1 unit | 41C |
| 20 |             | B | 3RF2420-2AC55 | 1 | 1 unit | 41C |

| Type current/<br>performance capacity <sup>1)</sup><br>$I_{max}$ | Rated control supply voltage $U_s$ | DT | Ring terminal lug<br>connection | PU<br>(UNIT,<br>SET, M) | PS* | PG |
|------------------------------------------------------------------|------------------------------------|----|---------------------------------|-------------------------|-----|----|
|                                                                  |                                    |    | Configurator                    |                         |     |    |
| A                                                                | V                                  |    | Article No.                     | Price<br>per PU         |     |    |

Zero-point switching · Integrated heat sink,  
rated operational voltage  $U_e$  48 ... 600 V AC

#### Two-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 50 | 4 ... 30 DC | B | 3RF2450-3AB45 | 1 | 1 unit | 41C |
| 50 | 230 AC      | B | 3RF2450-3AB55 | 1 | 1 unit | 41C |

#### Three-phase controlled

|    |             |   |               |   |        |     |
|----|-------------|---|---------------|---|--------|-----|
| 50 | 4 ... 30 DC | B | 3RF2450-3AC45 | 1 | 1 unit | 41C |
| 50 | 230 AC      | B | 3RF2450-3AC55 | 1 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current  $I_e$  can be smaller depending on the connection method and start-up conditions. For derating characteristic curves, see page 6/70, "More Information".

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### General data

### Overview

#### Function modules for SIRIUS 3RF2 solid-state switching devices

A great variety of applications demand an expanded range of functionality. With our function modules, these requirements can be met really easily. The modules are mounted simply by clicking them into place; straight away the necessary connections are made with the solid-state relay or contactor.

The plug-in connection to control the solid-state switching devices can simply remain in use. The external connections have screw terminals.

The following function modules are available:

- Converters
- Load monitoring
- Heating current monitoring
- Power controllers
- Power regulators

With the exception of the converter, the function modules can be used only with single-phase solid-state switching devices.

#### Recommended assignment of the function modules to the 3RF21 single-phase solid-state relays

| Type                       | Accessories   |                          |                        |                                             |                                 |                                |
|----------------------------|---------------|--------------------------|------------------------|---------------------------------------------|---------------------------------|--------------------------------|
|                            | Converters    | Load monitoring<br>Basic | Extended <sup>1)</sup> | Heating current<br>monitoring <sup>1)</sup> | Power controllers <sup>1)</sup> | Power regulators <sup>1)</sup> |
| <b>Type current = 20 A</b> |               |                          |                        |                                             |                                 |                                |
| 3RF2120-1A.02              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2920-0GA13          | --                                          | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| 3RF2120-1A.04              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2920-0GA16          | 3RF2932-0JA16                               | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| 3RF2120-1A.22              | --            | --                       | 3RF2920-0GA33          | --                                          | --                              | --                             |
| 3RF2120-1A.24              | --            | --                       | 3RF2920-0GA36          | --                                          | --                              | --                             |
| 3RF2120-1A.42              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2920-0GA13          | --                                          | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| 3RF2120-1A.45              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2920-0GA16          | 3RF2932-0JA16                               | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| 3RF2120-1B.04              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2920-0GA16          | 3RF2932-0JA16                               | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| 3RF2120-2A.02              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2120-2A.04              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2120-2A.22              | --            | --                       | --                     | --                                          | --                              | --                             |
| 3RF2120-2A.24              | --            | --                       | --                     | --                                          | --                              | --                             |
| 3RF2120-2A.42              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2120-2A.45              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2120-3A.02              | 3RF2900-0EA18 | --                       | 3RF2920-0GA13          | --                                          | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| 3RF2120-3A.04              | 3RF2900-0EA18 | --                       | 3RF2920-0GA16          | 3RF2932-0JA16                               | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| 3RF2120-3A.22              | --            | --                       | 3RF2920-0GA33          | --                                          | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| 3RF2120-3A.24              | --            | --                       | 3RF2920-0GA36          | --                                          | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| <b>Type current = 30 A</b> |               |                          |                        |                                             |                                 |                                |
| 3RF2130-1A.02              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2130-1A.04              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2130-1A.06              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2130-1A.22              | --            | --                       | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2130-1A.24              | --            | --                       | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2130-1A.26              | --            | --                       | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2130-1A.42              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2130-1A.45              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2130-1B.04              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>Type current = 50 A</b> |               |                          |                        |                                             |                                 |                                |
| 3RF2150-1A.02              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2150-1A.04              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-1A.06              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-1A.22              | --            | --                       | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2150-1A.24              | --            | --                       | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2150-1A.26              | --            | --                       | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2150-1A.45              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-1B.04              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-1B.06              | 3RF2900-0EA18 | 3RF2920-0FA08            | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-1B.22              | --            | --                       | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2150-2A.02              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-2A.04              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-2A.06              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-2A.14              | 3RF2900-0EA18 | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-2A.22              | --            | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-2A.24              | --            | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-2A.26              | --            | --                       | --                     | --                                          | --                              | --                             |
| 3RF2150-3A.02              | 3RF2900-0EA18 | --                       | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2150-3A.04              | 3RF2900-0EA18 | --                       | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-3A.06              | 3RF2900-0EA18 | --                       | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2150-3A.22              | --            | --                       | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2150-3A.24              | --            | --                       | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2150-3A.26              | --            | --                       | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |

<sup>1)</sup> For line voltages in the range from 110 to 230 V, the versions of the 3RF29 ...0.A13 function modules can also be combined with more voltage-resistant versions of the solid-state relays (3RF21 ...-...4, ...-...5 or ...-...6).

## Solid-State Switching Devices for Resistive/Inductive Loads

### 3RF29 Function Modules

#### General data

| Type                       | Accessories   |                 |                        |                                          |                                 |                                |
|----------------------------|---------------|-----------------|------------------------|------------------------------------------|---------------------------------|--------------------------------|
|                            | Converters    | Load monitoring |                        | Heating current monitoring <sup>1)</sup> | Power controllers <sup>1)</sup> | Power regulators <sup>1)</sup> |
|                            |               | Basic           | Extended <sup>1)</sup> |                                          |                                 |                                |
| <b>Type current = 70 A</b> |               |                 |                        |                                          |                                 |                                |
| <b>3RF2170-1A.02</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA13          | --                                       | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| <b>3RF2170-1A.04</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2170-1A.05</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2170-1A.06</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2170-1A.22</b>       | --            | --              | 3RF2950-0GA33          | --                                       | --                              | 3RF2950-0HA33                  |
| <b>3RF2170-1A.24</b>       | --            | --              | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| <b>3RF2170-1A.26</b>       | --            | --              | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| <b>3RF2170-1A.45</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2170-1B.04</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2170-1C.04</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>Type current = 90 A</b> |               |                 |                        |                                          |                                 |                                |
| <b>3RF2190-1A.02</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA13          | --                                       | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| <b>3RF2190-1A.04</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2190-1A.06</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2190-1A.22</b>       | --            | --              | 3RF2950-0GA33          | --                                       | --                              | 3RF2950-0HA33                  |
| <b>3RF2190-1A.24</b>       | --            | --              | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| <b>3RF2190-1A.26</b>       | --            | --              | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| <b>3RF2190-1A.45</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2190-1B.04</b>       | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2950-0GA16          | 3RF2932-0JA16                            | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| <b>3RF2190-2A.02</b>       | 3RF2900-0EA18 | --              | --                     | --                                       | --                              | --                             |
| <b>3RF2190-2A.04</b>       | 3RF2900-0EA18 | --              | --                     | --                                       | --                              | --                             |
| <b>3RF2190-2A.06</b>       | 3RF2900-0EA18 | --              | --                     | --                                       | --                              | --                             |
| <b>3RF2190-2A.22</b>       | --            | --              | --                     | --                                       | --                              | --                             |
| <b>3RF2190-2A.24</b>       | --            | --              | --                     | --                                       | --                              | --                             |
| <b>3RF2190-2A.26</b>       | --            | --              | --                     | --                                       | --                              | --                             |
| <b>3RF2190-3A.02</b>       | 3RF2900-0EA18 | --              | 3RF2990-0GA13          | --                                       | 3RF2990-0KA13                   | 3RF2990-0HA13                  |
| <b>3RF2190-3A.04</b>       | 3RF2900-0EA18 | --              | 3RF2990-0GA16          | 3RF2932-0JA16                            | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| <b>3RF2190-3A.06</b>       | 3RF2900-0EA18 | --              | 3RF2990-0GA16          | 3RF2932-0JA16                            | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| <b>3RF2190-3A.22</b>       | --            | --              | 3RF2990-0GA33          | --                                       | --                              | 3RF2990-0HA33                  |
| <b>3RF2190-3A.24</b>       | --            | --              | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| <b>3RF2190-3A.26</b>       | --            | --              | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| <b>3RF2190-3A.44</b>       | 3RF2900-0EA18 | --              | 3RF2990-0GA16          | 3RF2932-0JA16                            | 3RF2990-0KA16                   | 3RF2990-0HA16                  |

<sup>1)</sup> For line voltages in the range from 110 to 230 V, the versions of the 3RF29 ...0.A13 function modules can also be combined with more voltage-resistant versions of the solid-state relays (3RF21 ...-...4 , -...5 or -...6).

#### Recommended assignment of the function modules to the 3RF22 three-phase solid-state relays

| Type                           | Accessories   |                 |          |                            |                   |                  |
|--------------------------------|---------------|-----------------|----------|----------------------------|-------------------|------------------|
|                                | Converters    | Load monitoring |          | Heating current monitoring | Power controllers | Power regulators |
|                                |               | Basic           | Extended |                            |                   |                  |
| <b>Type current up to 55 A</b> |               |                 |          |                            |                   |                  |
| <b>3RF22...-1A...</b>          | 3RF2900-0EA18 | --              | --       | --                         | --                | --               |
| <b>3RF22...-2A...</b>          | 3RF2900-0EA18 | --              | --       | --                         | --                | --               |
| <b>3RF22...-3A...</b>          | 3RF2900-0EA18 | --              | --       | --                         | --                | --               |

#### Recommended assignment of the function modules to the 3RF23 single-phase solid-state contactors

| Type                                          | Accessories   |                 |                        |                                          |                                 |                                |
|-----------------------------------------------|---------------|-----------------|------------------------|------------------------------------------|---------------------------------|--------------------------------|
|                                               | Converters    | Load monitoring |                        | Heating current monitoring <sup>1)</sup> | Power controllers <sup>1)</sup> | Power regulators <sup>1)</sup> |
|                                               |               | Basic           | Extended <sup>1)</sup> |                                          |                                 |                                |
| <b>Type current <math>I_e = 10.5 A</math></b> |               |                 |                        |                                          |                                 |                                |
| <b>3RF2310-1A.02</b>                          | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2920-0GA13          | 3RF2916-0JA13                            | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| <b>3RF2310-1A.04</b>                          | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2920-0GA16          | 3RF2932-0JA16                            | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| <b>3RF2310-1A.06</b>                          | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2920-0GA16          | 3RF2932-0JA16                            | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| <b>3RF2310-1A.12</b>                          | 3RF2900-0EA18 | --              | 3RF2920-0GA13          | 3RF2916-0JA13                            | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| <b>3RF2310-1A.14</b>                          | 3RF2900-0EA18 | --              | 3RF2920-0GA16          | 3RF2932-0JA16                            | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| <b>3RF2310-1A.22</b>                          | --            | --              | 3RF2920-0GA33          | --                                       | --                              | 3RF2920-0HA33                  |
| <b>3RF2310-1A.24</b>                          | --            | --              | 3RF2920-0GA36          | --                                       | --                              | 3RF2920-0HA36                  |
| <b>3RF2310-1A.26</b>                          | --            | --              | 3RF2920-0GA36          | --                                       | --                              | 3RF2920-0HA36                  |
| <b>3RF2310-1A.44</b>                          | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2920-0GA16          | 3RF2932-0JA16                            | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| <b>3RF2310-1A.45</b>                          | 3RF2900-0EA18 | 3RF2920-0FA08   | 3RF2920-0GA16          | 3RF2932-0JA16                            | 3RF2920-0KA16                   | 3RF2920-0HA16                  |

<sup>1)</sup> For line voltages in the range from 110 to 230 V, the versions of the 3RF29 ...0.A13 function modules can also be combined with more voltage-resistant versions of the solid-state contactors (3RF23 ...-...4 , -...5 or -...6).

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### General data

| Type                                 | Accessories   |               | Load monitoring |                        | Heating current monitoring <sup>1)</sup> | Power controllers <sup>1)</sup> | Power regulators <sup>1)</sup> |
|--------------------------------------|---------------|---------------|-----------------|------------------------|------------------------------------------|---------------------------------|--------------------------------|
|                                      | Converters    |               | Basic           | Extended <sup>1)</sup> |                                          |                                 |                                |
| Type current I <sub>e</sub> = 10.5 A |               |               |                 |                        |                                          |                                 |                                |
| 3RF2310-1B.02                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA13   | 3RF2916-0JA13          | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2310-1B.04                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2310-1B.06                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2310-1B.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2310-1B.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2310-1B.26                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2310-2A.02                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2310-2A.04                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2310-2A.06                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2310-2A.22                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2310-2A.24                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2310-2A.26                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2310-3A.02                        | 3RF2900-0EA18 | --            | 3RF2920-0GA13   | 3RF2916-0JA13          | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2310-3A.04                        | 3RF2900-0EA18 | --            | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2310-3A.06                        | 3RF2900-0EA18 | --            | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2310-3A.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2310-3A.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2310-3A.26                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| Type current I <sub>e</sub> = 20 A   |               |               |                 |                        |                                          |                                 |                                |
| 3RF2320-1A.02                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA13   | --                     | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2320-1A.04                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1A.06                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1A.14                        | 3RF2900-0EA18 | --            | 3RF2920-0GA16   | --                     | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1A.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2320-1A.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-1A.26                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-1A.44                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1A.45                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1B.02                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA13   | --                     | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2320-1B.04                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1B.06                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1B.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2320-1B.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-1B.26                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-1B.44                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1C.02                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA13   | --                     | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2320-1C.04                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1C.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2320-1C.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-1C.44                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1D.02                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA13   | --                     | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2320-1D.04                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-1D.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2320-1D.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-1D.44                        | 3RF2900-0EA18 | 3RF2920-0FA08 | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-2A.02                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2A.04                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2A.06                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2A.22                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2A.24                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2A.26                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2C.02                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2C.04                        | 3RF2900-0EA18 | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2C.22                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2C.24                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2D.22                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-2D.24                        | --            | --            | --              | --                     | --                                       | --                              |                                |
| 3RF2320-3A.02                        | 3RF2900-0EA18 | --            | 3RF2920-0GA13   | --                     | 3RF2920-0KA13                            | 3RF2920-0HA13                   |                                |
| 3RF2320-3A.04                        | 3RF2900-0EA18 | --            | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-3A.06                        | 3RF2900-0EA18 | --            | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |
| 3RF2320-3A.22                        | --            | --            | 3RF2920-0GA33   | --                     | --                                       | 3RF2920-0HA33                   |                                |
| 3RF2320-3A.24                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-3A.26                        | --            | --            | 3RF2920-0GA36   | --                     | --                                       | 3RF2920-0HA36                   |                                |
| 3RF2320-3A.44                        | 3RF2900-0EA18 | --            | 3RF2920-0GA16   | 3RF2932-0JA16          | 3RF2920-0KA16                            | 3RF2920-0HA16                   |                                |

<sup>1)</sup> For line voltages in the range from 110 to 230 V, the versions of the 3RF29 ...0.A13 function modules can also be combined with more voltage-resistant versions of the solid-state contactors (3RF23 ...4, ...5 or ...6).

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### General data

| Type                             | Accessories   |    | Load monitoring<br>Basic <sup>1)</sup> | Extended <sup>2)</sup> | Heating current<br>monitoring <sup>2)</sup> | Power controllers <sup>2)</sup> | Power regulators <sup>2)</sup> |
|----------------------------------|---------------|----|----------------------------------------|------------------------|---------------------------------------------|---------------------------------|--------------------------------|
|                                  | Converters    |    |                                        |                        |                                             |                                 |                                |
| Type current $I_e = 20\text{ A}$ |               |    |                                        |                        |                                             |                                 |                                |
| 3RF2320-3D.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2920-0GA13          | --                                          | 3RF2920-0KA13                   | 3RF2920-0HA13                  |
| 3RF2320-3D.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2920-0GA16          | 3RF2932-0JA16                               | 3RF2920-0KA16                   | 3RF2920-0HA16                  |
| 3RF2320-3D.22                    | --            | -- |                                        | 3RF2920-0GA33          | --                                          | --                              | 3RF2920-0HA33                  |
| 3RF2320-3D.24                    | --            | -- |                                        | 3RF2920-0GA36          | --                                          | --                              | 3RF2920-0HA36                  |
| Type current $I_e = 30\text{ A}$ |               |    |                                        |                        |                                             |                                 |                                |
| 3RF2330-1A.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2330-1A.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1A.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1A.14                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1A.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2330-1A.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-1A.25                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-1A.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-1A.44                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1A.45                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1B.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2330-1B.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1B.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1B.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2330-1B.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-1B.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-1B.44                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-1C.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | --                              | 3RF2950-0HA13                  |
| 3RF2330-1D.44                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-3A.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2330-3A.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-3A.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2330-3A.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2330-3A.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-3A.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2330-3A.44                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | 3RF2932-0JA16                               | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| Type current $I_e = 40\text{ A}$ |               |    |                                        |                        |                                             |                                 |                                |
| 3RF2340-1A.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2340-1A.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-1A.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-1A.14                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-1A.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2340-1A.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2340-1A.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2340-1A.45                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-1B.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2340-1B.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-1B.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-1B.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2340-1B.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2340-1B.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2340-3A.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2340-3A.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-3A.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2340-3A.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2340-3A.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2340-3A.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2340-3A.45                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| Type current $I_e = 50\text{ A}$ |               |    |                                        |                        |                                             |                                 |                                |
| 3RF2350-1A.02                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA13          | --                                          | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2350-1A.04                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-1A.06                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-1A.14                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-1A.22                    | --            | -- |                                        | 3RF2950-0GA33          | --                                          | --                              | 3RF2950-0HA33                  |
| 3RF2350-1A.24                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2350-1A.26                    | --            | -- |                                        | 3RF2950-0GA36          | --                                          | --                              | 3RF2950-0HA36                  |
| 3RF2350-1A.45                    | 3RF2900-0EA18 | -- |                                        | 3RF2950-0GA16          | --                                          | 3RF2950-0KA16                   | 3RF2950-0HA16                  |

<sup>1)</sup> The technical specifications must be taken into account when selecting the function modules. More combinations may be possible if the solid-state relays and contactors are not fully loaded, e.g. a load monitor for 20 A can also be operated with a solid-state contactor for 30 A if the load current during operation does not exceed 20 A.

<sup>2)</sup> For line voltages in the range from 110 to 230 V, the versions of the 3RF29 ...-0.A13 function modules can also be combined with more voltage-resistant versions of the solid-state contactors (3RF23 ...-4, ...-5 or ...-6).

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### General data

| Type                               | Accessories   |    | Load monitoring |                        | Heating current monitoring <sup>1)</sup> | Power controllers <sup>1)</sup> | Power regulators <sup>1)</sup> |
|------------------------------------|---------------|----|-----------------|------------------------|------------------------------------------|---------------------------------|--------------------------------|
|                                    | Converters    |    | Basic           | Extended <sup>1)</sup> |                                          |                                 |                                |
| Type current I <sub>e</sub> = 50 A |               |    |                 |                        |                                          |                                 |                                |
| 3RF2350-1B.02                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA13          | --                                       | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2350-1B.04                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-1B.06                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-1B.22                      | --            | -- |                 | 3RF2950-0GA33          | --                                       | --                              | 3RF2950-0HA33                  |
| 3RF2350-1B.24                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2350-1B.26                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2350-1B.44                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-3A.02                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA13          | --                                       | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2350-3A.04                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-3A.06                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2350-3A.22                      | --            | -- |                 | 3RF2950-0GA33          | --                                       | --                              | 3RF2950-0HA33                  |
| 3RF2350-3A.24                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2350-3A.26                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2350-3A.44                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| Type current I <sub>e</sub> = 70 A |               |    |                 |                        |                                          |                                 |                                |
| 3RF2370-1B.02                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA13          | --                                       | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2370-1B.04                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2370-1B.06                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2370-1B.22                      | --            | -- |                 | 3RF2950-0GA33          | --                                       | --                              | 3RF2950-0HA33                  |
| 3RF2370-1B.24                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2370-1B.26                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2370-3A.02                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA13          | --                                       | 3RF2990-0KA13                   | 3RF2990-0HA13                  |
| 3RF2370-3A.04                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2370-3A.06                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2370-3A.22                      | --            | -- |                 | 3RF2990-0GA33          | --                                       | --                              | 3RF2990-0HA33                  |
| 3RF2370-3A.24                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| 3RF2370-3A.26                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| 3RF2370-3A.45                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2370-3B.02                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA13          | --                                       | 3RF2990-0KA13                   | 3RF2990-0HA13                  |
| 3RF2370-3B.04                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2370-3B.06                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2370-3B.22                      | --            | -- |                 | 3RF2990-0GA33          | --                                       | --                              | 3RF2990-0HA33                  |
| 3RF2370-3B.24                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| 3RF2370-3B.26                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| Type current I <sub>e</sub> = 90 A |               |    |                 |                        |                                          |                                 |                                |
| 3RF2390-1B.02                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA13          | --                                       | 3RF2950-0KA13                   | 3RF2950-0HA13                  |
| 3RF2390-1B.04                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2390-1B.06                      | 3RF2900-0EA18 | -- |                 | 3RF2950-0GA16          | --                                       | 3RF2950-0KA16                   | 3RF2950-0HA16                  |
| 3RF2390-1B.22                      | --            | -- |                 | 3RF2950-0GA33          | --                                       | --                              | 3RF2950-0HA33                  |
| 3RF2390-1B.24                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2390-1B.26                      | --            | -- |                 | 3RF2950-0GA36          | --                                       | --                              | 3RF2950-0HA36                  |
| 3RF2390-3A.02                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA13          | --                                       | 3RF2990-0KA13                   | 3RF2990-0HA13                  |
| 3RF2390-3A.04                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2390-3A.06                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2390-3A.22                      | --            | -- |                 | 3RF2990-0GA33          | --                                       | --                              | 3RF2990-0HA33                  |
| 3RF2390-3A.24                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| 3RF2390-3A.26                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| 3RF2390-3A.45                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2390-3B.02                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA13          | --                                       | 3RF2990-0KA13                   | 3RF2990-0HA13                  |
| 3RF2390-3B.04                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2390-3B.06                      | 3RF2900-0EA18 | -- |                 | 3RF2990-0GA16          | --                                       | 3RF2990-0KA16                   | 3RF2990-0HA16                  |
| 3RF2390-3B.22                      | --            | -- |                 | 3RF2990-0GA33          | --                                       | --                              | 3RF2990-0HA33                  |
| 3RF2390-3B.24                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |
| 3RF2390-3B.26                      | --            | -- |                 | 3RF2990-0GA36          | --                                       | --                              | 3RF2990-0HA36                  |

<sup>1)</sup> For line voltages in the range from 110 to 230 V, the versions of the 3RF29...0.A13 function modules can also be combined with more voltage-resistant versions of the solid-state contactors (3RF23...4, ...5 or ...6).

### Recommended assignment of the function modules to the 3RF24 three-phase solid-state contactors

| Type                    | Accessories   |                 |          |                            |                   |                  |
|-------------------------|---------------|-----------------|----------|----------------------------|-------------------|------------------|
|                         | Converters    | Load monitoring |          | Heating current monitoring | Power controllers | Power regulators |
|                         |               | Basic           | Extended |                            |                   |                  |
| Type current up to 50 A |               |                 |          |                            |                   |                  |
| 3RF24...1..4.           | 3RF2900-0EA18 | --              | --       | --                         | --                | --               |
| 3RF24...2..4.           | --            | --              | --       | --                         | --                | --               |
| 3RF24...3..4.           | 3RF2900-0EA18 | --              | --       | --                         | --                | --               |
| 3RF24...- ...5.         | --            | --              | --       | --                         | --                | --               |

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### General data

#### Technical specifications

| Type                                                                                       |                 | 3RF29...0EA..                                                                                                            | 3RF29...0FA..   | 3RF29...0GA.. | 3RF29...0HA.. | 3RF29...0JA.. | 3RF29...0KA.. |
|--------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|---------------|---------------|---------------|
| Dimensions (W x H x D)                                                                     | mm              | 22.5 x 84 x 38                                                                                                           | 22.5 x 102 x 39 | 45 x 112 x 44 | 45 x 112 x 44 | 45 x 112 x 44 | 45 x 112 x 44 |
| <b>General data</b>                                                                        |                 |                                                                                                                          |                 |               |               |               |               |
| <b>Ambient temperature</b>                                                                 |                 |                                                                                                                          |                 |               |               |               |               |
| • During operation, derating from 40 °C                                                    | °C              | -25 ... +60                                                                                                              |                 |               |               |               |               |
| • During storage                                                                           | °C              | -55 ... +80                                                                                                              |                 |               |               |               |               |
| <b>Installation altitude</b>                                                               | m               | 0 ... 1000; derating from 1000                                                                                           |                 |               |               |               |               |
| <b>Shock resistance</b> acc. to IEC 60068-2-27                                             | g/ms            | 15/11                                                                                                                    |                 |               |               |               |               |
| <b>Vibration resistance</b> acc. to IEC 60068-2-6                                          | g               | 2                                                                                                                        |                 |               |               |               |               |
| <b>Degree of protection</b>                                                                |                 | IP20                                                                                                                     |                 |               |               |               |               |
| <b>Electromagnetic compatibility (EMC)</b>                                                 |                 |                                                                                                                          |                 |               |               |               |               |
| • Emitted interference                                                                     |                 |                                                                                                                          |                 |               |               |               |               |
| - Conducted interference voltage according to IEC 60947-4-3                                |                 | Class A for industrial applications <sup>1)</sup>                                                                        |                 |               |               |               |               |
| - Emitted, high-frequency interference voltage according to IEC 60947-4-3                  |                 | Class B for residential, business and commercial applications                                                            |                 |               |               |               |               |
| • Interference immunity                                                                    |                 |                                                                                                                          |                 |               |               |               |               |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV              | Contact discharge 4; air discharge 8; behavior criterion 2                                                               |                 |               |               |               |               |
| - Induced RF fields according to IEC 61000-4-6                                             | MHz             | 0.15 ... 80; 140 dBμV; behavior criterion 1                                                                              |                 |               |               |               |               |
| - Burst acc. to IEC 61000-4-4                                                              |                 | 2 kV/5.0 kHz; behavior criterion 2                                                                                       |                 |               |               |               |               |
| - Surge acc. to IEC 61000-4-5                                                              | kV              | Conductor - ground 2; conductor - conductor 1; behavior criterion 2                                                      |                 |               |               |               |               |
| <b>Connection type</b>                                                                     |                 |                                                                                                                          |                 |               |               |               |               |
| Auxiliary/control contacts                                                                 |                 |  <b>Screw terminals</b>                 |                 |               |               |               |               |
| • Conductor cross-section                                                                  | mm <sup>2</sup> | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0), 1 x (AWG 20 ... 12)                                                                |                 |               |               |               |               |
| • Stripped length                                                                          | mm              | 7                                                                                                                        |                 |               |               |               |               |
| • Terminal screw                                                                           |                 | M3                                                                                                                       |                 |               |               |               |               |
| • Tightening torque                                                                        | Nm<br>lb.in     | 0.5 ... 0.6<br>4.5 ... 5.3                                                                                               |                 |               |               |               |               |
| <b>Connection type</b>                                                                     |                 |                                                                                                                          |                 |               |               |               |               |
| Converters                                                                                 |                 |  <b>Straight-through transformers</b> |                 |               |               |               |               |
| • Diameter                                                                                 | mm              | --                                                                                                                       | 7               | 17            |               |               |               |

<sup>1)</sup> Note limitations for power controller function modules. These modules were built as Class A devices. The use of these devices in residential areas could result in lead in radio interference. In this case these may be required to introduce additional interference suppression measures.

| Type                                           |      | 3RF29...0EA18     | 3RF29...0FA08 | 3RF29...0GA.3 | 3RF29...0GA.6 |
|------------------------------------------------|------|-------------------|---------------|---------------|---------------|
| <b>Main circuit</b>                            |      |                   |               |               |               |
| <b>Rated operational voltage</b> $U_e$         | V AC | ... <sup>1)</sup> |               | 110 ... 230   | 400 ... 600   |
| • Operating range                              | V AC | --                |               | 93.5 ... 253  | 340 ... 660   |
| • Rated frequency                              | Hz   | --                |               | 50/60         |               |
| <b>Rated insulation voltage</b> $U_i$          | V    | --                |               | 600           |               |
| <b>Voltage measuring</b>                       |      |                   |               |               |               |
| • Measuring range                              | V    | --                |               | 93.5 ... 253  | 340 ... 660   |
| <b>Mains voltage, fluctuation compensation</b> | %    | --                |               | 20            |               |

<sup>1)</sup> Versions are independent of the main circuit.

| Type                                           |      | 3RF29...0HA.3<br>3RF29...0KA.3 | 3RF29...0HA.6<br>3RF29...0KA.6 | 3RF29...0JA.3 | 3RF29...0JA.6 |
|------------------------------------------------|------|--------------------------------|--------------------------------|---------------|---------------|
| <b>Main circuit</b>                            |      |                                |                                |               |               |
| <b>Rated operational voltage</b> $U_e$         | V AC | 110 ... 230                    | 400 ... 600                    | 110 ... 230   | 400 ... 600   |
| • Operating range                              | V AC | 93.5 ... 253                   | 340 ... 660                    | 93.5 ... 253  | 340 ... 660   |
| • Rated frequency                              | Hz   | 50/60                          |                                |               |               |
| <b>Rated insulation voltage</b> $U_i$          | V    | 600                            |                                |               |               |
| <b>Voltage measuring</b>                       |      |                                |                                |               |               |
| • Measuring range                              | V    | 93.5 ... 253                   | 340 ... 660                    | 93.5 ... 253  | 340 ... 660   |
| <b>Mains voltage, fluctuation compensation</b> | %    | 20                             |                                |               |               |

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### General data

| Type                                          |    | 3RF29...-...0. | 3RF29...-...1.  | 3RF29...-...3. |
|-----------------------------------------------|----|----------------|-----------------|----------------|
| Control circuit                               |    |                |                 |                |
| Method of operation                           |    | DC operation   | AC/DC operation | AC operation   |
| Rated control supply voltage $U_s$            | V  | 24             | 24              | 110            |
| Rated control current                         | mA | 15             | 15              | 15             |
| Rated frequency of the control supply voltage |    | Hz             | --              | 50/60          |
| Actuating voltage, max.                       |    | V              | 30              | 121            |
| Rated control current                         | mA | 15             | 15              | 15             |
| At maximum voltage                            |    |                |                 |                |
| Response voltage                              | V  | 15             | 15              | 90             |
| • For operating current                       | mA | 2              | 2               | 2              |
| Drop-out voltage                              | V  | 5              | 5               | 15             |

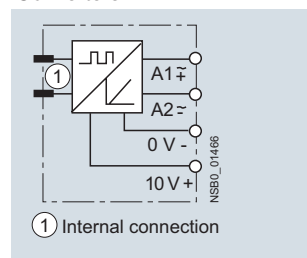
| Type                            |   | 3RF2906-0FA08 | 3RF2920-0FA08 | 3RF2920-0GA.. | 3RF2950-0GA.. | 3RF2990-0GA.. |
|---------------------------------|---|---------------|---------------|---------------|---------------|---------------|
| Current measurement             |   |               |               |               |               |               |
| Rated operational current $I_e$ | A | 6             | 20            | 20            | 50            | 90            |
| Current measurement             |   |               |               |               |               |               |
| • Teach range                   | A | 0.25 ... 6    | 0.65 ... 20   | 0.56 ... 20   | 1.62 ... 50   | 2.93 ... 90   |
| • Measuring range               | A | 0 ... 6.6     | 0 ... 22      | 0 ... 22      | 0 ... 55      | 0 ... 99      |
| • Minimum partial load current  | A | 0.25          | 0.65          | 0.65          | 1.6           | 2.9           |
| Number of partial loads         |   | 1 ... 6       | 1 ... 6       | 1 ... 12      |               |               |

| Type                            |   | 3RF2920-0HA.. | 3RF2950-0HA.. | 3RF2990-0HA.. | 3RF2916-0JA.. | 3RF2932-0JA.. |
|---------------------------------|---|---------------|---------------|---------------|---------------|---------------|
| Current measurement             |   |               |               |               |               |               |
| Rated operational current $I_e$ | A | 20            | 50            | 90            | 16            | 32            |
| Current measurement             |   |               |               |               |               |               |
| • Teach range                   | A | 4 ... 20      | 10 ... 50     | 18 ... 90     | 0.42 ... 16   | 0.8 ... 32    |
| • Measuring range               | A | 0 ... 22      | 0 ... 55      | 4 ... 99      | 0 ... 16      | 0 ... 32      |
| • Minimum partial load current  | A | --            |               |               | 0.42          | 0.8           |
| Number of partial loads         |   | --            |               |               | 1 ... 6       |               |

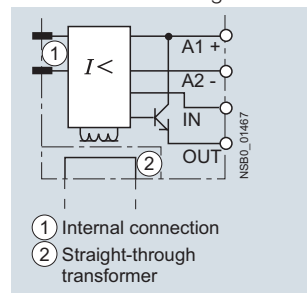
| Type                            |   | 3RF2904-0KA.. | 3RF2920-0KA.. | 3RF2950-0KA.. | 3RF2990-0KA.. |
|---------------------------------|---|---------------|---------------|---------------|---------------|
| Current measurement             |   |               |               |               |               |
| Rated operational current $I_e$ | A | 4             | 20            | 50            | 90            |
| Current measurement             |   |               |               |               |               |
| • Teach range                   | A | 0.15 ... 4    | 0.65 ... 20   | 1.6 ... 50    | 2.9 ... 90    |
| • Measuring range               | A | 0 ... 4       | 0 ... 22      | 0 ... 55      | 0 ... 99      |
| • Minimum partial load current  | A | --            | 0.65          | 1.6           | 2.9           |
| Number of partial loads         |   | --            | 1 ... 6       |               |               |

### Circuit diagrams

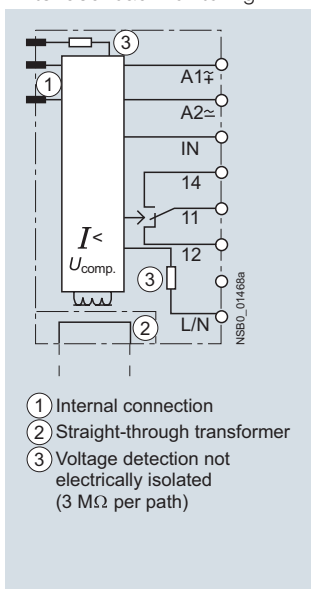
#### Converters



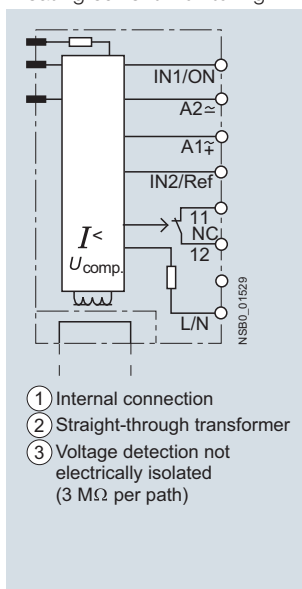
#### Basic load monitoring



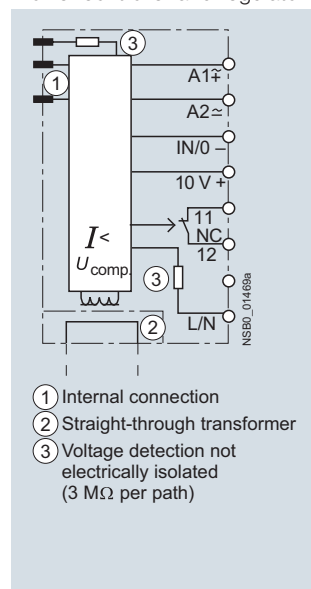
#### Extended load monitoring



#### Heating current monitoring



#### Power controller and regulator



# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

SIRIUS converters for 3RF2

### Overview

#### Converters for 3RF2 solid-state switching devices

These modules are used to convert analog control signals, such as those output from many temperature controllers for example, into a pulse-width-modulated digital signal. The connected solid-state contactors and relays can therefore regulate the output of a load as a percentage.

### Application

This function module is used for conversions from an analog input signal to an on/off ratio with time basis 1 s. The module can only be used in conjunction with 3RF21 and 3RF23 single-phase solid-state switching devices or 3RF22 and 3RF24 three-phase devices. It can be used on versions with 24 V DC and 24 V AC/DC control supply voltage.

#### Note:

The use of single-pole solid-state switching devices with converters, power controllers or power regulators on AC loads in full-wave control mode is not recommended. As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50 %.

### Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | DT | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---------------------------------|---------------------------------|----|-----------------|-------------------|-----|----|
|                                 |                                 |    | Configurator    |                   |     |    |
| A                               | V                               |    | Article No.     | Price per PU      |     |    |

#### Converters



3RF2900-0EA18

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

Rated control supply voltage 24 V AC/DC  
-- --

A **3RF2900-0EA18** 1 1 unit 41C

## Solid-State Switching Devices for Resistive/Inductive Loads

### 3RF29 Function Modules

#### SIRIUS load monitoring for 3RF2

##### Overview

##### Load monitoring for 3RF2 single-phase solid-state switching devices

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of load elements (up to 6 in the basic version or up to 12 in the extended version), alloyed power semiconductors, a lack of voltage or a break in a load circuit. A fault is indicated by one or more LEDs and reported to the controller by way of a PLC-compatible output.

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during start up by the simple press of a button. In order to detect the failure of one of several loads, the current difference must be 1/6 (in the basic version) or 1/12 (in the extended version) of the reference value. In the event of a fault, an output is actuated and one or more LEDs indicate the fault.

##### Application

The device is used for monitoring one or more loads (partial loads). The function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor. The devices with spring-type connections in the load circuit are not suitable.

##### Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | DT | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---------------------------------|---------------------------------|----|-----------------|-------------------|-----|----|
|                                 |                                 |    | Configurator    |                   |     |    |
|                                 |                                 |    | Article No.     | Price per PU      |     |    |

##### Basic load monitoring



3RF29

|                                      |    |   |                           |   |        |     |
|--------------------------------------|----|---|---------------------------|---|--------|-----|
| Rated control supply voltage 24 V DC |    |   |                           |   |        |     |
| 6                                    | -- | A | <b>3RF2906-0FA08</b>      | 1 | 1 unit | 41C |
| 20                                   | -- | A | <b>3RF2920-0FA08</b>      | 1 | 1 unit | 41C |
| • With mounted 3RF2900-ORA88 cover   |    |   |                           |   |        |     |
| 6                                    | -- | A | <b>3RF2906-0FA08-0KH0</b> | 1 | 1 unit | 41C |
| 20                                   | -- | A | <b>3RF2920-0FA08-0KH0</b> | 1 | 1 unit | 41C |

##### Extended load monitoring



3RF29

|                                         |             |   |                      |   |        |     |
|-----------------------------------------|-------------|---|----------------------|---|--------|-----|
| Rated control supply voltage 24 V AC/DC |             |   |                      |   |        |     |
| 20                                      | 110 ... 230 | A | <b>3RF2920-0GA13</b> | 1 | 1 unit | 41C |
| 20                                      | 400 ... 600 | A | <b>3RF2920-0GA16</b> | 1 | 1 unit | 41C |
| 50                                      | 110 ... 230 | A | <b>3RF2950-0GA13</b> | 1 | 1 unit | 41C |
| 50                                      | 400 ... 600 | A | <b>3RF2950-0GA16</b> | 1 | 1 unit | 41C |
| 90                                      | 110 ... 230 | A | <b>3RF2990-0GA13</b> | 1 | 1 unit | 41C |
| 90                                      | 400 ... 600 | A | <b>3RF2990-0GA16</b> | 1 | 1 unit | 41C |
| Rated control supply voltage 110 V AC   |             |   |                      |   |        |     |
| 20                                      | 110 ... 230 | A | <b>3RF2920-0GA33</b> | 1 | 1 unit | 41C |
| 20                                      | 400 ... 600 | A | <b>3RF2920-0GA36</b> | 1 | 1 unit | 41C |
| 50                                      | 110 ... 230 | A | <b>3RF2950-0GA33</b> | 1 | 1 unit | 41C |
| 50                                      | 400 ... 600 | A | <b>3RF2950-0GA36</b> | 1 | 1 unit | 41C |
| 90                                      | 110 ... 230 | A | <b>3RF2990-0GA33</b> | 1 | 1 unit | 41C |
| 90                                      | 400 ... 600 | A | <b>3RF2990-0GA36</b> | 1 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

| Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---------|----|-------------|--------------|-------------------|-----|----|
|---------|----|-------------|--------------|-------------------|-----|----|

##### Optional accessories



3RF2900-ORA88

|                                                                  |   |                      |  |   |          |     |
|------------------------------------------------------------------|---|----------------------|--|---|----------|-----|
| <b>Sealable covers for function modules</b> (not for converters) | B | <b>3RF2900-ORA88</b> |  | 1 | 10 units | 41C |
|------------------------------------------------------------------|---|----------------------|--|---|----------|-----|

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### SIRIUS heating current monitoring for 3RF2

#### Overview

##### Heating current monitoring for 3RF2 single-phase solid-state switching devices

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of up to six load elements, alloyed power semiconductors, a lack of voltage, or a break in the load circuit. A fault is indicated by LEDs and reported to the controller via relay output (NC).

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during start up. In order to detect the failure of one of several loads, the current difference must be 1/6 of the reference value. In the event of a fault, an output is actuated and the LEDs indicate the fault.

The heating current monitoring has a teach input and therefore differs from the load monitoring. This remote teaching function enables simple adjustment to changing loads without manual intervention.

#### Special versions:

##### Deviations from the standard version

##### 3RF29...-0JA1.-1KK0

If the current is below 50 % of the lower teach current during the teach routine, the device will go into "Standby" mode; the LOAD LED will flicker. The device thus detects a non-connected load, e.g. channels not required for tool heaters, and does not signal a fault. This mode can be reset by re-teaching.

#### Application

The device is used for monitoring one or more loads (partial loads). The function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor. The devices with spring-type connections in the load circuit are not suitable.

#### Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | DT | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---------------------------------|---------------------------------|----|-----------------|-------------------|-----|----|
|                                 |                                 |    | Configurator    |                   |     |    |
|                                 |                                 |    | Article No.     | Price per PU      |     |    |

##### Heating current monitoring<sup>1)</sup>



3RF29

Rated control supply voltage 24 V AC/DC

|    |             |   |                           |   |        |     |
|----|-------------|---|---------------------------|---|--------|-----|
| 16 | 110 ... 230 | A | <b>3RF2916-0JA13</b>      | 1 | 1 unit | 41C |
| 16 | 110 ... 230 | B | <b>3RF2916-0JA13-1KK0</b> | 1 | 1 unit | 41C |
| 16 | 400 ... 600 | A | <b>3RF2916-0JA16-1KK0</b> | 1 | 1 unit | 41C |
| 32 | 110 ... 230 | A | <b>3RF2932-0JA13-1KK0</b> | 1 | 1 unit | 41C |
| 32 | 400 ... 600 | A | <b>3RF2932-0JA16</b>      | 1 | 1 unit | 41C |
| 32 | 400 ... 600 | A | <b>3RF2932-0JA16-1KK0</b> | 1 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Supplied without control connector. The control connector can be purchased from Phoenix Contact by quoting Article No. 1982 790 (2.5 HC/6-ST-5.08).

| Version | DT | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---------|----|-------------|--------------|-------------------|-----|----|
|---------|----|-------------|--------------|-------------------|-----|----|

##### Optional accessories



3RF2900-0RA88

**Sealable covers for function modules** (not for converters)

|   |                      |   |          |     |
|---|----------------------|---|----------|-----|
| B | <b>3RF2900-0RA88</b> | 1 | 10 units | 41C |
|---|----------------------|---|----------|-----|

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

### SIRIUS power controllers for 3RF2

#### Overview

##### Power controllers for 3RF2 single-phase solid-state switching devices

The power controller is a function module for the autonomous power control of complex heating systems and inductive loads.

The following functions have been integrated:

- **Power controller** for adjusting the power of the connected load. The setpoint value is selected via a rotary knob on the module as a percentage of the 100 % power value stored.
- **Inrush current limitation**: With the aid of an adjustable voltage ramp, the inrush current is limited by means of phase control. This is useful above all with loads such as lamps or infrared lamps which have an inrush transient current.
- **Load circuit monitoring** for detecting load failure, partial load faults, alloyed power semiconductors, lack of voltage or a break in the load circuit.

##### Note:

With the phase control operating mode, a partial load fault is detected by cyclic "scanning" of the load; the exact mode of operation is described in the data sheets!

##### Special versions: Deviations from the standard version

###### 3RF29 04-0KA13-0KCO

During the teach routine, the connected solid-state relay or contactor is not activated; i.e. no current will flow. No current reference value is stored. No part-load monitoring!

###### 3RF29 ...0KA1.-0KTO

No part-load monitoring!

#### Application

The power controller can be used for:

- Complex heating systems
- Inductive loads
- Loads with temperature-dependent resistor
- Loads with ageing after long-time service
- Simple indirect control of temperature

##### Power control

The power controller adjusts the power in the connected load by means of a solid-state switching device depending on the setpoint selection. It does not compensate for changes in the mains voltage or load resistance. The setpoint value can be predefined externally as a 0 to 10 V signal or internally by means of a potentiometer. Depending on the setting of the potentiometer ( $t_R$ ), the control is carried out according to the principle of full-wave control or generalized phase control.

##### Note:

In the case of ohmic loads, the power is set linear to the setpoint value. During operation of inductive loads, the power control is no longer proportional and linear due to the phase shift between current and voltage.

##### Full-wave control

In this operating mode the output is adjusted to the required setpoint value by changing the on-to-off period. The period duration is predefined at one second.

See note about AC loads on page 6/105.

##### Generalized phase control

In this operating mode the output is adjusted to the required setpoint value by changing the current flow angle. In order to observe the limit values of the conducted interference voltage for industrial networks, the load circuit must include a reactor with a rating of at least 200  $\mu$ H.

#### Selection and ordering data

|                                                                                              | Rated operational current $I_e$         | Rated operational voltage $U_e$ | DT | Screw terminals           | PU (UNIT, SET, M) | PS*    | PG  |
|----------------------------------------------------------------------------------------------|-----------------------------------------|---------------------------------|----|---------------------------|-------------------|--------|-----|
|                                                                                              |                                         |                                 |    | Configurator              |                   |        |     |
|                                                                                              | A                                       | V                               |    | Article No.               | Price per PU      |        |     |
| <b>Power controllers</b>                                                                     |                                         |                                 |    |                           |                   |        |     |
| <br>3RF29 | Rated control supply voltage 24 V AC/DC |                                 |    |                           |                   |        |     |
|                                                                                              | 4                                       | 110 ... 230                     | A  | <b>3RF2904-0KA13-0KCO</b> | 1                 | 1 unit | 41C |
|                                                                                              | 4                                       |                                 | A  | <b>3RF2904-0KA13-0KTO</b> | 1                 | 1 unit | 41C |
|                                                                                              | 20                                      |                                 | A  | <b>3RF2920-0KA13</b>      | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      |                                 | A  | <b>3RF2950-0KA13</b>      | 1                 | 1 unit | 41C |
|                                                                                              | 90                                      |                                 | A  | <b>3RF2990-0KA13</b>      | 1                 | 1 unit | 41C |
|                                                                                              | 20                                      | 400 ... 600                     | A  | <b>3RF2920-0KA16</b>      | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      |                                 | A  | <b>3RF2950-0KA16</b>      | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      |                                 | A  | <b>3RF2950-0KA16-0KTO</b> | 1                 | 1 unit | 41C |
|                                                                                              | 90                                      |                                 | A  | <b>3RF2990-0KA16</b>      | 1                 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

|                                                                                                      | Version                                                          | DT | Article No.          | Price per PU | PU (UNIT, SET, M) | PS*      | PG  |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----|----------------------|--------------|-------------------|----------|-----|
| <b>Optional accessories</b>                                                                          |                                                                  |    |                      |              |                   |          |     |
| <br>3RF2900-ORA88 | <b>Sealable covers for function modules</b> (not for converters) | B  | <b>3RF2900-ORA88</b> |              | 1                 | 10 units | 41C |
|                                                                                                      |                                                                  |    |                      |              |                   |          |     |

# Solid-State Switching Devices for Resistive/Inductive Loads

## 3RF29 Function Modules

SIRIUS power regulators for 3RF2

### Overview

#### Power regulators for 3RF2 single-phase solid-state switching devices

The power regulator is a function module for the autonomous power control of complex heating systems.

The following functions have been integrated:

- **Power controller with proportional-action control** for adjusting the power of the connected load. The setpoint value is selected via a rotary knob on the module as a percentage of the 100 % power value stored. Changes in the mains voltage or in the load resistance are compensated in this case.
- **Inrush current limitation:** With the aid of an adjustable voltage ramp, the inrush current is limited by means of phase control. This is useful above all with loads such as lamps which have an inrush transient current.
- **Load circuit monitoring** for detecting load failure, alloyed power semiconductors, lack of voltage or a break in the load circuit. Part-load monitoring is not possible. Load fluctuations are compensated.

### Application

The power regulator can be used for:

- Complex heating systems
- Heating elements with temperature-dependent resistor
- Heating elements with ageing after long-time service
- Simple indirect control of temperature

### Power control

The power regulator adjusts the power in the connected load by means of a solid-state switching device depending on the taught power and the selected setpoint. Changes in the mains voltage or in the load resistance are thus compensated by the power regulator. The setpoint value can be predefined externally as a 0 to 10 V signal or internally by means of a potentiometer. Depending on the setting of the potentiometer ( $t_R$ ), the adjustment is carried out according to the principle of full-wave control or generalized phase control.

#### Note:

In the case of ohmic loads, the power is set linear to the setpoint value. During operation of inductive loads, the power control is no longer proportional and linear due to the phase shift between current and voltage.

### Full-wave control

In this operating mode the output is adjusted to the required setpoint value by changing the on-to-off period. The period duration is predefined at one second.

See note about AC loads on page 6/105.

### Generalized phase control

In this operating mode the output is adjusted to the required setpoint value by changing the current flow angle. In order to observe the limit values of the conducted interference voltage for industrial networks, the load circuit must include a reactor with a rating of at least 200  $\mu$ H.

### Selection and ordering data

|                                                                                              | Rated operational current $I_e$         | Rated operational voltage $U_e$ | DT | Screw terminals | Configurator | PU (UNIT, SET, M) | PS*    | PG  |
|----------------------------------------------------------------------------------------------|-----------------------------------------|---------------------------------|----|-----------------|--------------|-------------------|--------|-----|
|                                                                                              |                                         |                                 |    |                 |              |                   |        |     |
|                                                                                              | A                                       | V                               |    | Article No.     | Price per PU |                   |        |     |
| <b>Power regulators</b>                                                                      |                                         |                                 |    |                 |              |                   |        |     |
| <br>3RF29 | Rated control supply voltage 24 V AC/DC |                                 |    |                 |              |                   |        |     |
|                                                                                              | 20                                      | 110 ... 230                     | A  | 3RF2920-0HA13   |              | 1                 | 1 unit | 41C |
|                                                                                              | 20                                      | 400 ... 600                     | A  | 3RF2920-0HA16   |              | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      | 110 ... 230                     | A  | 3RF2950-0HA13   |              | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      | 400 ... 600                     | A  | 3RF2950-0HA16   |              | 1                 | 1 unit | 41C |
|                                                                                              | 90                                      | 110 ... 230                     | A  | 3RF2990-0HA13   |              | 1                 | 1 unit | 41C |
|                                                                                              | 90                                      | 400 ... 600                     | A  | 3RF2990-0HA16   |              | 1                 | 1 unit | 41C |
|                                                                                              | Rated control supply voltage 110 V AC   |                                 |    |                 |              |                   |        |     |
|                                                                                              | 20                                      | 110 ... 230                     | A  | 3RF2920-0HA33   |              | 1                 | 1 unit | 41C |
|                                                                                              | 20                                      | 400 ... 600                     | A  | 3RF2920-0HA36   |              | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      | 110 ... 230                     | A  | 3RF2950-0HA33   |              | 1                 | 1 unit | 41C |
|                                                                                              | 50                                      | 400 ... 600                     | A  | 3RF2950-0HA36   |              | 1                 | 1 unit | 41C |
|                                                                                              | 90                                      | 110 ... 230                     | A  | 3RF2990-0HA33   |              | 1                 | 1 unit | 41C |
|                                                                                              | 90                                      | 400 ... 600                     | A  | 3RF2990-0HA36   |              | 1                 | 1 unit | 41C |

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

|                                                                                                      | Version                                                   | DT | Article No. | Price per PU  | PU (UNIT, SET, M) | PS*      | PG  |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----|-------------|---------------|-------------------|----------|-----|
| <b>Optional accessories</b>                                                                          |                                                           |    |             |               |                   |          |     |
| <br>3RF2900-0RA88 | Sealable covers for function modules (not for converters) |    | B           | 3RF2900-0RA88 | 1                 | 10 units | 41C |
|                                                                                                      |                                                           |    |             |               |                   |          |     |

# Solid-State Switching Devices for Switching Motors

## Solid-State Contactors

### General data

#### Overview

##### Solid-state contactors for switching motors



Solid-state contactor for direct-on-line starting

The solid-state contactors for switching motors are intended for frequently switching on and off three-phase current operating mechanisms up to 7.5 kW and reversing up to 3.0 kW. The devices are constructed with complete insulation and can be mounted directly on SIRIUS motor starter protectors, overload relays and current monitoring relays, resulting in a very simple integration into motor feeders.

These three-phase solid-state contactors are equipped with a two-phase control which is particularly suitable for typical motor current circuits without connecting to the neutral conductor.

Important features:

- Insulated enclosure with integrated heat sink
- Degree of protection IP20
- Integrated mounting foot to snap on a standard mounting rail or for assembly onto a support plate
- Variety of connection methods
- Plug-in control connection
- Display via LEDs
- Wide voltage range for AC control supply voltage

##### Switching functions

The solid-state contactors for switching motors are "instantaneous switching" because this method is particularly suited for inductive loads. By distributing the ON point over the entire sine curve of the mains voltage, disturbances are reduced to a minimum.

##### Connection methods

You can choose between the following connection methods for the solid-state contactors for switching motors:

###### Screw connection

The screw connection system is the standard among industrial controls. Open terminals and a plus-minus screw are just two features of this technology. Two conductors of up to 6 mm<sup>2</sup> can be connected in just one terminal.

###### Spring-type terminals

This innovative technology manages without any screw connection. This means that very high vibration resistance is achieved. Two conductors of up to 2.5 mm<sup>2</sup> can be connected to each terminal.

##### Motor feeders

The devices can use a link module to directly connect to a circuit breaker. Also possible is the mounting of a 3RB30/3RB31 electronic overload relay (see Chapter 7 "Protection Equipment") or a 3RR2 current monitoring relay (see Chapter 10 "Monitoring and Control Devices") using a link adapter. The simultaneous mounting of a motor starter protector and an overload or current monitoring relay is not recommended for space and heat development reasons.

Rapid-switching fuseless and fuse motor feeders can thereby be implemented in a time-saving manner.

##### Selecting solid-state contactors

The solid-state contactors are selected on the basis of details of the network, the load and the ambient conditions.

The following procedure is recommended:

- Determine the rated current of the load and the mains voltage
- Select a solid-state contactor with the same or higher rated current than the load
- Testing of the maximum permissible switching frequency based on the characteristic curves (see "More Information" → "Product Information"). To do this, the starting current, the starting time and the motor loaded in in the operating phase must be known
- If the permissible switching frequency is under the desired frequency, it is possible to achieve an increase only by overdimensioning the motor and the solid-state contactor!

Alternatively, the tool for "Selection of solid-state contactors for switching motors" can be used. The correct device size can be determined by entering the network and motor data along with the application and ambient conditions.

See [www.siemens.com/solid-state-switching-devices](http://www.siemens.com/solid-state-switching-devices).

##### Short-circuit protection

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOP semiconductor fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly.

##### More information

For additional information, see system manual "SIRIUS Innovations - System Overview" and manual "SIRIUS Innovations - 3RF34 Solid-State Switching Devices".  
<http://support.automation.siemens.com/WW/view/en/60311318>  
<http://support.automation.siemens.com/WW/view/en/60298187>

##### Product information and technical specifications

For product data sheets with detailed technical specifications, dimensional drawings and characteristic curves, see [www.siemens.com/sirius/support](http://www.siemens.com/sirius/support)

For additional information, please enter the article number of the required device under the tab "Product List".

# Solid-State Switching Devices for Switching Motors

## Solid-State Contactors

### General data

#### Article No. scheme

| Digit of the Article No.                              | 1st - 3rd    | 4th      | 5th      | 6th      | 7th      |          | 8th      | 9th      | 10th     | 11th     | 12th     |
|-------------------------------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                                       | □□□          | □        | □        | □        | □        | -        | □        | □        | □        | □        | □        |
| <b>Solid-state switching devices</b>                  | <b>3 R F</b> |          |          |          |          |          |          |          |          |          |          |
| <b>SIRIUS solid-state switching device generation</b> |              | □        |          |          |          |          |          |          |          |          |          |
| <b>Design</b>                                         |              |          | □        |          |          |          |          |          |          |          |          |
| <b>Rated operational current</b>                      |              |          |          | □        | □        |          |          |          |          |          |          |
| <b>Connection type</b>                                |              |          |          |          |          |          | □        |          |          |          |          |
| <b>Switching function</b>                             |              |          |          |          |          |          |          | □        |          |          |          |
| <b>Number of controlled phases</b>                    |              |          |          |          |          |          |          |          | □        |          |          |
| <b>Rated control supply voltage</b>                   |              |          |          |          |          |          |          |          |          | □        |          |
| <b>Rated operational voltage</b>                      |              |          |          |          |          |          |          |          |          |          | □        |
| <b>Example</b>                                        | <b>3 R F</b> | <b>3</b> | <b>4</b> | <b>1</b> | <b>0</b> | <b>-</b> | <b>1</b> | <b>B</b> | <b>B</b> | <b>0</b> | <b>4</b> |

#### Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

#### Benefits

- Units with integrated heat sink, "ready to use"
- Compact and space-saving design
- Reversing contactors with integrated interlocking

#### Application

##### Use in load feeders

There is no typical design of a load feeder with solid-state relays or solid-state contactors; instead, the great variety of connection methods and control voltages offers universal application opportunities. SIRIUS solid-state relays and solid-state contactors can be installed in fuseless or fused feeders, as required.

See the Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders",  
<http://support.automation.siemens.com/WW/view/en/39714188>

##### Standards and approvals

- IEC 60947-4-2
- UL 508, CSA for North America<sup>1)</sup>
- CE marking for Europe
- C-Tick approval for Australia
- CCC approval for China

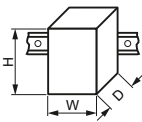
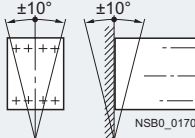
<sup>1)</sup> Please note: Use overvoltage protection device;  
 max. cut-off-voltage 6000 V;  
 min. energy handling capability 100 J.

# Solid-State Switching Devices for Switching Motors

## Solid-State Contactors

### General data

### Technical specifications

|                                                                                                                                         |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------|
| Type                                                                                                                                    |  |                                                                                                     | <b>3RF3405-1BB..<br/>3RF3403-1BD..<br/>3RF3405-1BD..</b> | <b>3RF3410-1BB..<br/>3RF3412-1BB..<br/>3RF3416-1BB..<br/>3RF3410-1BD..</b>                                  | <b>3RF3405-2BB..</b>    | <b>3RF3410-2BB..<br/>3RF3412-2BB..<br/>3RF3416-2BB..</b> |
| Dimensions (W x H x D)<br>• 3RF34...-1BB..<br>• 3RF34...-1BD..                                                                          | mm<br>mm                                                                          | 45 x 95 x 96.5<br>45 x 95 x 108.5                                                                   | 90 x 95 x 96.5<br>90 x 95 x 108.5                        | 45 x 95 x 96.5<br>--                                                                                        | 90 x 95 x 96.5<br>--    |                                                          |
| General technical specifications                                                                                                        |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
| Ambient temperature                                                                                                                     |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
| • During operation, derating from 40 °C                                                                                                 | °C                                                                                | -25 ... +60                                                                                         |                                                          |                                                                                                             |                         |                                                          |
| • During storage                                                                                                                        | °C                                                                                | -55 ... +80                                                                                         |                                                          |                                                                                                             |                         |                                                          |
| Installation altitude                                                                                                                   | m                                                                                 | 0 ... 1 000; derating over 1 000 m on request                                                       |                                                          |                                                                                                             |                         |                                                          |
| Shock resistance acc. to IEC 60068-2-27                                                                                                 | g/ms                                                                              | 15/11                                                                                               |                                                          |                                                                                                             |                         |                                                          |
| Vibration resistance acc. to IEC 60068-2-6                                                                                              | g                                                                                 | 2                                                                                                   |                                                          |                                                                                                             |                         |                                                          |
| Degree of protection                                                                                                                    |                                                                                   | IP20                                                                                                |                                                          |                                                                                                             |                         |                                                          |
| Insulation strength at 50/60 Hz<br>(main/control circuit to floor)                                                                      | V rms                                                                             | 4000                                                                                                |                                                          |                                                                                                             |                         |                                                          |
| Electromagnetic compatibility (EMC)                                                                                                     |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
| • Emitted interference according to IEC 60947-4-2<br>- Conducted interference voltage<br>- Emitted, high-frequency interference voltage |                                                                                   | Class A for industrial applications <sup>1)</sup><br>Class A for industrial applications            |                                                          |                                                                                                             |                         |                                                          |
| • Interference immunity<br>- Electrostatic discharge according to IEC 61000-4-2<br>(corresponds to degree of severity 3)                | kV                                                                                | Contact discharge: 4; air discharge: 8; behavior criterion 2                                        |                                                          |                                                                                                             |                         |                                                          |
| - Induced RF fields according to IEC 61000-4-6                                                                                          | MHz                                                                               | 0.15 ... 80; 140 dBµV; behavior criterion 1                                                         |                                                          |                                                                                                             |                         |                                                          |
| - Burst acc. to IEC 61000-4-4                                                                                                           | kV                                                                                | 2; at 5 kHz; behavior criterion 2                                                                   |                                                          |                                                                                                             |                         |                                                          |
| - Surge according to IEC 61000-4-5 <sup>2)</sup>                                                                                        | kV                                                                                | Conductor - Ground: 2; Conductor - Conductor: 1; Behavior criterion 2                               |                                                          |                                                                                                             |                         |                                                          |
| Connection type                                                                                                                         |                                                                                   |  Screw terminals |                                                          |  Spring-type terminals |                         |                                                          |
| Operating devices                                                                                                                       |                                                                                   | Standard screwdriver size 2 and Pozidriv 2                                                          |                                                          |                                                                                                             | 3.0 x 0.5 and 3.5 x 0.5 |                                                          |
| Conductor cross-sections, main contacts                                                                                                 |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
| • Solid                                                                                                                                 | mm <sup>2</sup>                                                                   | 2 x (1.5 ... 2.5) <sup>3)</sup> , 2 x (2.5 ... 6) <sup>3)</sup>                                     |                                                          |                                                                                                             | 2 x (0.5 ... 2.5)       |                                                          |
| • Finely stranded with end sleeve                                                                                                       | mm <sup>2</sup>                                                                   | 2 x (1 ... 2.5) <sup>3)</sup> , 2 x (2.5 ... 6) <sup>3)</sup> , 1 x 10                              |                                                          |                                                                                                             | 2 x (0.5 ... 1.5)       |                                                          |
| • Finely stranded without end sleeve                                                                                                    | mm <sup>2</sup>                                                                   | --                                                                                                  |                                                          |                                                                                                             | 2 x (0.5 ... 2.5)       |                                                          |
| • AWG cables, solid or stranded                                                                                                         |                                                                                   | 2 x (AWG 14 ... 10)                                                                                 |                                                          |                                                                                                             | 2 x (AWG 18 ... 14)     |                                                          |
| Conductor cross-sections, auxiliary/control contacts                                                                                    |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
| • With/without end sleeve                                                                                                               | mm <sup>2</sup>                                                                   | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)                                                                |                                                          |                                                                                                             | 0.5 ... 2.5             |                                                          |
| • AWG cables, solid or stranded                                                                                                         |                                                                                   | AWG 20 ... 12                                                                                       |                                                          |                                                                                                             | AWG 20 ... 12           |                                                          |
| Permissible mounting position                                                                                                           |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |
|                                                      |                                                                                   |                                                                                                     |                                                          |                                                                                                             |                         |                                                          |

<sup>1)</sup> These products were built as Class A devices. The use of these devices in residential areas could result in lead in radio interference. In this case these may be required to introduce additional interference suppression measures.

<sup>2)</sup> The following applies for reversing contactors: To maintain the values, a 3TX7462-3L surge suppressor (see "3TB Contactors", Chapter 3) should be used between phases L1 and L3 as close as possible to the reversing contactor.

<sup>3)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

## Solid-State Switching Devices for Switching Motors

### Solid-State Contactors

#### 3RF34 solid-state contactors, three-phase

#### Overview

These two-phase controlled, instantaneous switching solid-state contactors in the insulating enclosure are offered in width 45 mm up to 5.2 A – and in width 90 mm up to 16 A. They allow the operation of motors up to 7.5 kW.<sup>1)</sup>

<sup>1)</sup> In accordance with the product standard IEC 60947-4-2, the motor contactors are designed for motors with maximum starting current conditions of  $I/I_e \leq 8$ . For configuring motors with higher starting current conditions (typically  $I/I_e \geq 8$ ) the data in the "SIRIUS 3RF34 Solid-State Switching Devices" manual must be taken into account.

| Type                                                                                                         |    | 3RF3405-.BB.. | 3RF3410-.BB.. | 3RF3412-.BB.. | 3RF3416-.BB.. |
|--------------------------------------------------------------------------------------------------------------|----|---------------|---------------|---------------|---------------|
| <b>Fuseless design with 3RV2 motor starter protector, CLASS 10</b>                                           |    |               |               |               |               |
| <b>Rated operational current <math>I_{AC-53}</math><sup>1)</sup></b><br>according to IEC 60947-4-2           |    |               |               |               |               |
| • At 40 °C                                                                                                   | A  | 5.2 (4.5)     | 9.2           | 12.5          | 16            |
| • UL/CSA, at 50 °C                                                                                           | A  | 4.6 (4.0)     | 8.4           | 11.5          | 14            |
| • At 60 °C                                                                                                   | A  | 4.2 (3.5)     | 7.6           | 10.5          | 12.5          |
| <b>Power loss at <math>I_{AC-53}</math></b>                                                                  |    |               |               |               |               |
| • At 40 °C                                                                                                   | W  | 10 (8)        | 16            | 22            | 28            |
| <b>Short-circuit protection with type of coordination "1"</b><br>at an operational voltage of $U_e$ to 440 V |    |               |               |               |               |
| • Motor starter protector, type                                                                              |    | 3RV2011-1GA10 | 3RV2011-1JA10 | 3RV2011-1KA10 | 3RV2011-4AA10 |
| • Current $I_q$                                                                                              | kA | 50            | 5             | 5             | 3             |

<sup>1)</sup> The reduced values in brackets apply to a directly mounted circuit breaker and simultaneous side-by-side mounting.

| Type                                                                                  |                  | 3RF3405-.BB.4 | 3RF3405-.BB.6 | 3RF3410-.BB.. | 3RF3412-.BB.4 | 3RF3412-.BB.6 | 3RF3416-.BB.. |
|---------------------------------------------------------------------------------------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Fused design with directly connected 3RB3 overload relay</b>                       |                  |               |               |               |               |               |               |
| <b>Rated operational current <math>I_{AC-53}</math></b><br>according to IEC 60947-4-2 |                  |               |               |               |               |               |               |
| • At 40 °C                                                                            | A                | 4             |               | 7.8           | 9.5           |               | 11            |
| • UL/CSA, at 50 °C                                                                    | A                | 3.6           |               | 7             | 8.5           |               | 10            |
| • At 60 °C                                                                            | A                | 3.2           |               | 6.2           | 7.6           |               | 9             |
| <b>Power loss at <math>I_{AC-53}</math></b>                                           |                  |               |               |               |               |               |               |
| • At 40 °C                                                                            | W                | 7             |               | 13            | 16            |               | 18            |
| <b>Minimum load current</b>                                                           | A                | 0.1           | 0.5           |               |               |               |               |
| <b>Max. off-state current</b>                                                         | mA               | 10            |               |               |               |               |               |
| <b>Rated peak withstand current <math>I_{tsm}</math></b>                              | A                | 200           | 600           | 600           | 1 200         | 1 150         | 1 150         |
| <b><math>I^2t</math> value</b>                                                        | A <sup>2</sup> s | 200           | 1 800         | 1 800         | 7 200         | 6 600         | 6 600         |

| Type                                                        |      | 3RF34...-BB.4 | 3RF34...-BB.6 |
|-------------------------------------------------------------|------|---------------|---------------|
| <b>Main circuit</b>                                         |      |               |               |
| <b>Controlled phases</b>                                    |      | 2-phase       | 2-phase       |
| <b>Rated operational voltage <math>U_e</math></b>           | V AC | 48 ... 480    | 48 ... 600    |
| • Operating range                                           | V AC | 40 ... 506    | 40 ... 660    |
| • Rated frequency                                           | Hz   | 50/60 ± 10 %  | 50/60 ± 10 %  |
| <b>Rated insulation voltage <math>U_i</math></b>            | V    | 600           | 600           |
| <b>Rated impulse withstand voltage <math>U_{imp}</math></b> | kV   | 6             | 6             |
| <b>Blocking voltage</b>                                     | V    | 1 200         | 1 600         |
| <b>Rate of voltage rise</b>                                 | V/μs | 1 000         | 1 000         |

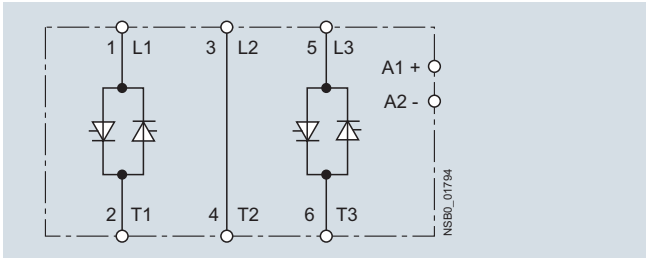
Solid-State Switching Devices for Switching Motors  
Solid-State Contactors

3RF34 solid-state contactors, three-phase

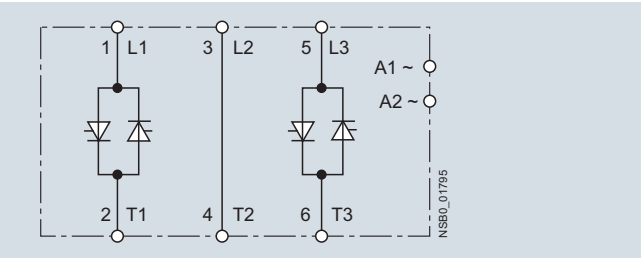
| Type                                          |    | 3RF34...BB0.           | 3RF34...BB2.            |
|-----------------------------------------------|----|------------------------|-------------------------|
| Control circuit                               |    |                        |                         |
| Method of operation                           |    | DC operation           | AC operation            |
| Rated control supply voltage $U_s$            | V  | 24                     | 110 ... 230             |
| Rated frequency of the control supply voltage | Hz | --                     | 50/60 ± 10 %            |
| Control supply voltage, max.                  | V  | 30                     | 253                     |
| Typical actuating current                     | mA | 20                     | 15                      |
| Response voltage                              | V  | 15                     | 90                      |
| Drop-out voltage                              | V  | 5                      | < 40                    |
| Operating times                               |    |                        |                         |
| • ON-delay                                    | ms | 1                      | 5                       |
| • OFF-delay                                   | ms | 1 + max. one half-wave | 30 + max. one half-wave |

Circuit diagrams

DC control supply voltage



AC control supply voltage



# Solid-State Switching Devices for Switching Motors

## Solid-State Contactors

### 3RF34 solid-state contactors, three-phase

#### Selection and ordering data

#### Motor contactors · Instantaneous switching · Two-phase controlled

| Rated operational current $I_e$                                                   | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | DT             | Screw terminals | PU (UNIT, SET, M) | PS* | PG         |
|-----------------------------------------------------------------------------------|--------------------------------|------------------------------------|----------------|-----------------|-------------------|-----|------------|
|                                                                                   |                                |                                    |                | Configurator    |                   |     |            |
| A                                                                                 | 400 V kW                       | V                                  |                | Article No.     | Price per PU      |     |            |
| <b>Rated operational voltage <math>U_e</math></b>                                 |                                |                                    |                |                 |                   |     |            |
| <b>48 ... 480 V AC</b>                                                            |                                |                                    |                |                 |                   |     |            |
|  | 5.2                            | 2.2                                | 24 DC          | A               | 3RF3405-1BB04     | 1   | 1 unit 41C |
|                                                                                   | 9.2                            | 4.0                                |                | B               | 3RF3410-1BB04     | 1   | 1 unit 41C |
|                                                                                   | 12.5                           | 5.5                                |                | B               | 3RF3412-1BB04     | 1   | 1 unit 41C |
|                                                                                   | 16                             | 7.5                                |                | B               | 3RF3416-1BB04     | 1   | 1 unit 41C |
|                                                                                   | 5.2                            | 2.2                                | 110 ... 230 AC | B               | 3RF3405-1BB24     | 1   | 1 unit 41C |
|                                                                                   | 9.2                            | 4.0                                |                | B               | 3RF3410-1BB24     | 1   | 1 unit 41C |
|                                                                                   | 12.5                           | 5.5                                |                | B               | 3RF3412-1BB24     | 1   | 1 unit 41C |
|                                                                                   | 16                             | 7.5                                |                | B               | 3RF3416-1BB24     | 1   | 1 unit 41C |

3RF3405-1BB

|                                                                                   |      |     |                |   |               |   |            |
|-----------------------------------------------------------------------------------|------|-----|----------------|---|---------------|---|------------|
| <b>Rated operational voltage <math>U_e</math></b>                                 |      |     |                |   |               |   |            |
| <b>48 ... 600 V AC, blocking voltage 1600 V</b>                                   |      |     |                |   |               |   |            |
|  | 5.2  | 2.2 | 24 DC          | B | 3RF3405-1BB06 | 1 | 1 unit 41C |
|                                                                                   | 9.2  | 4.0 |                | B | 3RF3410-1BB06 | 1 | 1 unit 41C |
|                                                                                   | 12.5 | 5.5 |                | B | 3RF3412-1BB06 | 1 | 1 unit 41C |
|                                                                                   | 16   | 7.5 |                | B | 3RF3416-1BB06 | 1 | 1 unit 41C |
|                                                                                   | 5.2  | 2.2 | 110 ... 230 AC | B | 3RF3405-1BB26 | 1 | 1 unit 41C |
|                                                                                   | 9.2  | 4.0 |                | B | 3RF3410-1BB26 | 1 | 1 unit 41C |
|                                                                                   | 12.5 | 5.5 |                | B | 3RF3412-1BB26 | 1 | 1 unit 41C |
|                                                                                   | 16   | 7.5 |                | B | 3RF3416-1BB26 | 1 | 1 unit 41C |

3RF3410-1BB

| Rated operational current $I_e$                                                     | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | DT             | Spring-type terminals | PU (UNIT, SET, M) | PS* | PG         |
|-------------------------------------------------------------------------------------|--------------------------------|------------------------------------|----------------|-----------------------|-------------------|-----|------------|
|                                                                                     |                                |                                    |                | Configurator          |                   |     |            |
| A                                                                                   | 400 V kW                       | V                                  |                | Article No.           | Price per PU      |     |            |
| <b>Rated operational voltage <math>U_e</math></b>                                   |                                |                                    |                |                       |                   |     |            |
| <b>48 ... 480 V AC</b>                                                              |                                |                                    |                |                       |                   |     |            |
|  | 5.2                            | 2.2                                | 242 DC         | B                     | 3RF3405-2BB04     | 1   | 1 unit 41C |
|                                                                                     | 9.2                            | 4.0                                |                | B                     | 3RF3410-2BB04     | 1   | 1 unit 41C |
|                                                                                     | 12.5                           | 5.5                                |                | B                     | 3RF3412-2BB04     | 1   | 1 unit 41C |
|                                                                                     | 16                             | 7.5                                |                | B                     | 3RF3416-2BB04     | 1   | 1 unit 41C |
|                                                                                     | 5.2                            | 2.2                                | 110 ... 230 AC | B                     | 3RF3405-2BB24     | 1   | 1 unit 41C |
|                                                                                     | 9.2                            | 4.0                                |                | B                     | 3RF3410-2BB24     | 1   | 1 unit 41C |
|                                                                                     | 12.5                           | 5.5                                |                | B                     | 3RF3412-2BB24     | 1   | 1 unit 41C |
|                                                                                     | 16                             | 7.5                                |                | B                     | 3RF3416-2BB24     | 1   | 1 unit 41C |

3RF3405-2BB

|                                                                                     |      |     |                |   |               |   |            |
|-------------------------------------------------------------------------------------|------|-----|----------------|---|---------------|---|------------|
| <b>Rated operational voltage <math>U_e</math></b>                                   |      |     |                |   |               |   |            |
| <b>48 ... 600 V AC, blocking voltage 1600 V</b>                                     |      |     |                |   |               |   |            |
|  | 5.2  | 2.2 | 24 DC          | B | 3RF3405-2BB06 | 1 | 1 unit 41C |
|                                                                                     | 9.2  | 4.0 |                | B | 3RF3410-2BB06 | 1 | 1 unit 41C |
|                                                                                     | 12.5 | 5.5 |                | B | 3RF3412-2BB06 | 1 | 1 unit 41C |
|                                                                                     | 16   | 7.5 |                | B | 3RF3416-2BB06 | 1 | 1 unit 41C |
|                                                                                     | 5.2  | 2.2 | 110 ... 230 AC | B | 3RF3405-2BB26 | 1 | 1 unit 41C |
|                                                                                     | 9.2  | 4.0 |                | B | 3RF3410-2BB26 | 1 | 1 unit 41C |
|                                                                                     | 12.5 | 5.5 |                | B | 3RF3412-2BB26 | 1 | 1 unit 41C |
|                                                                                     | 16   | 7.5 |                | B | 3RF3416-2BB26 | 1 | 1 unit 41C |

3RF3410-2BB

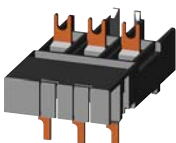
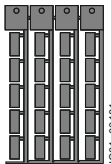
Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

# Solid-State Switching Devices for Switching Motors

## Solid-State Contactors

### 3RF34 solid-state contactors, three-phase

#### Accessories

| Version                                                                                                                                                                                                                                                                          | DT                                                                                                                                                                                                                                                                                                                                                       | Article No. | Price per PU                                                                                                                             | PU (UNIT, SET, M) | PS*       | PG  |                       |     |            |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------|-----|-----------------------|-----|------------|-----|
| Link modules between solid-state contactor and motor starter protector                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <br>3RA2921-1BA00                                                                                                                                                                               | <b>Link module</b><br>between solid-state contactor and motor starter protector with screw terminals<br>For 3RV2 motor starter protectors size S00/S0                                                                                                                                                                                                    |             | <br><b>Screw terminals</b><br><br>3RA2921-1BA00       | 1                 | 1 unit    | 41B |                       |     |            |     |
|                                                                                                                                                                                                                                                                                  | A                                                                                                                                                                                                                                                                                                                                                        |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| Link adapters between solid-state contactor and overload relay                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <br>3RF3900-0QA88                                                                                                                                                                               | <b>Link adapters</b><br>for direct mounting of 3RB3 overload relays or 3RR2 current monitoring relays to the solid-state contactor with screw terminals<br><br>The adapter is snapped onto the enclosure of the 3RF34 contactor and accommodates the fixing hooks of the 3RB3 overload relays or the 3RR2 current monitoring relays for direct mounting. |             | <br><br>3RF3900-0QA88                                                                                                                    | 1                 | 1 unit    | 41C |                       |     |            |     |
|                                                                                                                                                                                                                                                                                  | A                                                                                                                                                                                                                                                                                                                                                        |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| Insulation stop for securely holding back the conductor insulation on conductors up to 1 mm <sup>2</sup>                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <br>3RT2916-4JA02                                                                                                                                                                               | <b>Insulation stop strip</b><br>for all SIRIUS devices with spring-type terminals<br>Can be inserted in cable entry of the spring-type terminal (no more than 2 strips per contactor required; removable in pairs)<br>for terminals with a conductor cross-section up to 2.5 mm <sup>2</sup>                                                             |             | <br><b>Spring-type terminals</b><br><br>3RT2916-4JA02 | 1                 | 20 units  | 41B |                       |     |            |     |
|                                                                                                                                                                                                                                                                                  | B                                                                                                                                                                                                                                                                                                                                                        |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| Tools for opening spring-type terminals                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <br>3RA2908-1A                                                                                                                                                                                | <b>Screwdrivers</b><br>for all SIRIUS devices with spring-type terminals<br>Length approx. 200 mm, size 3.0 mm x 0.5 mm, titanium gray/black, partially insulated                                                                                                                                                                                        |             | <br><br>3RA2908-1A                                                                                                                       | 1                 | 1 unit    | 41B |                       |     |            |     |
|                                                                                                                                                                                                                                                                                  | A                                                                                                                                                                                                                                                                                                                                                        |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| Blank labels                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <br>3SB2900-1SB20                                                                                                                                                                             | <b>Unit labeling plates</b><br>for SIRIUS devices <sup>1)</sup> <ul style="list-style-type: none"><li>• 10 mm x 7 mm, titanium gray</li><li>• 20 mm x 7 mm, titanium gray</li></ul>                                                                                                                                                                      |             | <br><br>3RT2900-1SB10<br>3RT2900-1SB20                                                                                                   | 100               | 816 units | 41B |                       |     |            |     |
|                                                                                                                                                                                                                                                                                  | D                                                                                                                                                                                                                                                                                                                                                        |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
|                                                                                                                                                                                                                                                                                  | <b>Adhesive labels</b><br>for SIRIUS devices <ul style="list-style-type: none"><li>• 19 mm x 6 mm, titanium gray</li></ul>                                                                                                                                                                                                                               |             |                                                                                                                                          |                   |           |     | <br><br>3RT2900-1SB60 | 100 | 3060 units | 41B |
|                                                                                                                                                                                                                                                                                  | D                                                                                                                                                                                                                                                                                                                                                        |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| "SIRIUS Innovations" manuals                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <b>System Manual – System Overview</b><br>The system manual can be downloaded free of charge in PDF format from the Internet, see <a href="http://support.automation.siemens.com/WW/view/en/60311318">http://support.automation.siemens.com/WW/view/en/60311318</a>              |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |
| <b>Manual – SIRIUS 3RF34 Solid-State Switching Devices</b><br>The manual can be downloaded free of charge in PDF format from the Internet, see <a href="http://support.automation.siemens.com/WW/view/en/60298187">http://support.automation.siemens.com/WW/view/en/60298187</a> |                                                                                                                                                                                                                                                                                                                                                          |             |                                                                                                                                          |                   |           |     |                       |     |            |     |

<sup>1)</sup> PC labeling system for the individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see Chapter 16, "Appendix" → "External Partners").

## Solid-State Switching Devices for Switching Motors

### Solid-State Contactors

#### 3RF34 solid-state reversing contactors, three-phase

#### Overview

The integration of four conducting paths to a reverse switch, combined in one enclosure makes this device a particularly compact solution. Compared to conventional systems, for which two contactors are required, it is possible to save up to 50 % width with the three-phase reversing contactors. Devices with 45 mm width cover motors up to 2.2 kW – and those with 90 mm width up to 3 kW.<sup>1)</sup>

<sup>1)</sup> In accordance with the product standard IEC 60947-4-2, the motor contactors are designed for motors with maximum starting current conditions of  $I/I_e \leq 8$ . For configuring motors with higher starting current conditions (typically  $I/I_e \geq 8$ ) the data in the "SIRIUS 3RF34 Solid-State Switching Devices" manual must be taken into account.

#### Technical specifications

| Type                                                                                                         |    | 3RF3403-.BD.4 | 3RF3405-.BD.4 | 3RF3410-.BD.4 |
|--------------------------------------------------------------------------------------------------------------|----|---------------|---------------|---------------|
| <b>Fuseless design with 3RV2 motor starter protector, CLASS 10</b>                                           |    |               |               |               |
| <b>Rated operational current <math>I_{AC-53}</math><sup>1)</sup></b><br>according to IEC 60947-4-2           |    |               |               |               |
| • At 40 °C                                                                                                   | A  | 3.8 (3.4)     | 5.4 (4.8)     | 7.4           |
| • UL/CSA, at 50 °C                                                                                           | A  | 3.5 (3.1)     | 5 (4.3)       | 6.8           |
| • At 60 °C                                                                                                   | A  | 3.2 (2.8)     | 4.6 (3.8)     | 6.2           |
| <b>Power loss at <math>I_{AC-53}</math></b>                                                                  |    |               |               |               |
| • At 40 °C                                                                                                   | W  | 7 (6)         | 9 (8)         | 13            |
| <b>Short-circuit protection with type of coordination "1"</b><br>at an operational voltage of $U_e$ to 440 V |    |               |               |               |
| • Motor starter protector, type                                                                              |    | 3RV2011-1FA10 | 3RV2011-1GA10 | 3RV2011-1JA10 |
| • Current $I_q$                                                                                              | kA | 50            | 50            | 10            |

<sup>1)</sup> The reduced values in brackets apply to a directly mounted circuit breaker and simultaneous side-by-side mounting.

| Type                                                                                  |                  | 3RF3403-.BD.4 | 3RF3405-.BD.4 | 3RF3410-.BD.4 |
|---------------------------------------------------------------------------------------|------------------|---------------|---------------|---------------|
| <b>Fused design with directly connected 3RB3 overload relay</b>                       |                  |               |               |               |
| <b>Rated operational current <math>I_{AC-53}</math></b><br>according to IEC 60947-4-2 |                  |               |               |               |
| • At 40 °C                                                                            | A                | 3.8           | 5.4           | 7.4           |
| • UL/CSA, at 50 °C                                                                    | A                | 3.5           | 5             | 6.8           |
| • At 60 °C                                                                            | A                | 3.2           | 4.6           | 6.2           |
| <b>Power loss at <math>I_{AC-53}</math></b>                                           |                  |               |               |               |
| • At 40 °C                                                                            | W                | 6             | 8             | 16            |
| <b>Minimum load current</b>                                                           | A                | 0.5           |               |               |
| <b>Max. off-state current</b>                                                         | mA               | 10            |               |               |
| <b>Rated peak withstand current <math>I_{tsm}</math></b>                              | A                | 200           | 600           |               |
| <b><math>I^2t</math> value</b>                                                        | A <sup>2</sup> s | 200           | 1 800         |               |

| Type                                                           |      | 3RF34...-BD.4 |
|----------------------------------------------------------------|------|---------------|
| <b>Main circuit</b>                                            |      |               |
| <b>Controlled phases</b>                                       |      |               |
| 2-phase                                                        |      |               |
| <b>Rated operational voltage <math>U_e</math><sup>1)</sup></b> |      |               |
| • Operating range                                              | V AC | 48 ... 480    |
| • Rated frequency                                              | Hz   | 50/60 ± 10 %  |
| <b>Rated insulation voltage <math>U_i</math></b>               | V    | 600           |
| <b>Rated impulse withstand voltage <math>U_{imp}</math></b>    | kV   | 6             |
| <b>Blocking voltage</b>                                        | V    | 1 200         |
| <b>Rate of voltage rise</b>                                    | V/μs | 1 000         |

<sup>1)</sup> To reduce the risk of a phase short circuit due to overvoltage, we recommend implementing a varistor type 3TX7462-3L between the phases L1 and L3 as close as possible to the switchgear.

We recommend a design with semiconductor protection as short-circuit protection.

## Solid-State Switching Devices for Switching Motors

### Solid-State Contactors

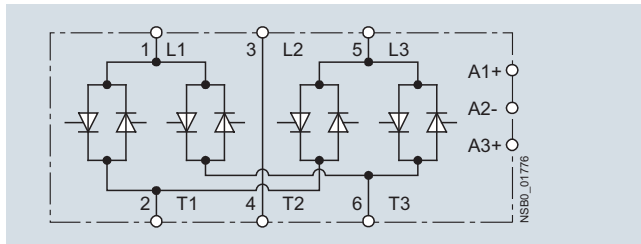
#### 3RF34 solid-state reversing contactors, three-phase

| Type                                                    |    | 3RF34...BD0.           | 3RF34...BD2.            |
|---------------------------------------------------------|----|------------------------|-------------------------|
| <b>Control circuit</b>                                  |    |                        |                         |
| <b>Method of operation</b>                              |    | DC operation           | AC operation            |
| <b>Rated control supply voltage <math>U_s</math></b>    | V  | 24                     | 110 ... 230             |
| <b>Rated frequency</b><br>of the control supply voltage | Hz | --                     | 50/60 $\pm$ 10 %        |
| <b>Control supply voltage, maximum</b>                  | V  | 30                     | 253                     |
| <b>Typical actuating current</b>                        | mA | 15                     | 10                      |
| <b>Response voltage</b>                                 | V  | 15                     | 90                      |
| <b>Drop-out voltage</b>                                 | V  | 5                      | < 40                    |
| <b>Operating times<sup>1)</sup></b>                     |    |                        |                         |
| • ON-delay                                              | ms | 5                      | 20                      |
| • OFF-delay                                             | ms | 5 + max. one half-wave | 10 + max. one half-wave |
| • Interlocking time                                     | ms | 60 ... 100             | 50 ... 100              |

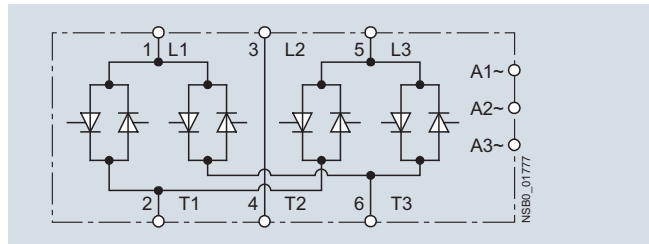
<sup>1)</sup> Caution! Risk of phase short circuit in automatic mode.  
The control inputs must not be actuated until after a delay time of 40 ms after the main voltage is applied.

#### Circuit diagrams

DC control supply voltage



AC control supply voltage



# Solid-State Switching Devices for Switching Motors

## Solid-State Contactors

### 3RF34 solid-state reversing contactors, three-phase

#### Selection and ordering data

##### Reversing contactors · Instantaneous switching · Two-phase controlled

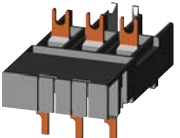
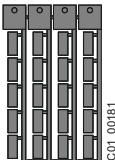
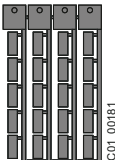
|                                                                                   | Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | DT | Screw terminals | Configurator | Article No. | Price per PU | PU (UNIT, SET, M) | PS*    | PG  |
|-----------------------------------------------------------------------------------|---------------------------------|--------------------------------|------------------------------------|----|-----------------|--------------|-------------|--------------|-------------------|--------|-----|
|                                                                                   |                                 |                                |                                    |    |                 |              |             |              |                   |        |     |
|                                                                                   | A                               | 400 V kW                       | V                                  |    |                 |              |             |              |                   |        |     |
| <b>Rated operational voltage <math>U_e</math> 48 ... 480 V AC</b>                 |                                 |                                |                                    |    |                 |              |             |              |                   |        |     |
|  | 3.8                             | 1.5                            | 24 DC                              | A  | 3RF3403-1BD04   |              |             |              | 1                 | 1 unit | 41C |
|                                                                                   | 5.4                             | 2.2                            |                                    | B  | 3RF3405-1BD04   |              |             |              | 1                 | 1 unit | 41C |
|                                                                                   | 7.4                             | 3.0                            |                                    | B  | 3RF3410-1BD04   |              |             |              | 1                 | 1 unit | 41C |
|                                                                                   |                                 |                                |                                    |    |                 |              |             |              |                   |        |     |
|  | 3.8                             | 1.5                            | 110 ... 230 AC                     | B  | 3RF3403-1BD24   |              |             |              | 1                 | 1 unit | 41C |
|                                                                                   | 5.4                             | 2.2                            |                                    | B  | 3RF3405-1BD24   |              |             |              | 1                 | 1 unit | 41C |
|                                                                                   | 7.4                             | 3.0                            |                                    | B  | 3RF3410-1BD24   |              |             |              | 1                 | 1 unit | 41C |
|                                                                                   |                                 |                                |                                    |    |                 |              |             |              |                   |        |     |

3RF3403-1BD

3RF3410-1BD

Online configurator, see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

#### Accessories

| Version                                                                                                                                                                                                                                                                          | DT | Article No.                                                                                                                                                                                                                                                                                                                                          | Price per PU    | PU (UNIT, SET, M) | PS*        | PG  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|------------|-----|
| <b>Link modules between solid-state contactor and motor starter protector</b>                                                                                                                                                                                                    |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
|                                                                                                                                                                                               |    | <b>Link module</b><br>between solid-state reversing contactor and motor starter protector with screw terminals<br>For 3RV2 motor starter protectors, size S00/S0                                                                                                                                                                                     | Screw terminals |                   |            |     |
|                                                                                                                                                                                                                                                                                  | A  | 3RA2921-1BA00                                                                                                                                                                                                                                                                                                                                        |                 | 1                 | 1 unit     | 41B |
| <b>Link adapters between solid-state contactor and overload relay</b>                                                                                                                                                                                                            |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
|                                                                                                                                                                                               |    | <b>Link adapters</b><br>for direct mounting of 3RB3 overload relays or 3RR2 current monitoring relays to the solid-state contactor with screw terminals<br>The adapter is snapped onto the enclosure of the 3RF34 contactor and accommodates the fixing hooks of the 3RB3 overload relays or the 3RR2 current monitoring relays for direct mounting. |                 |                   |            |     |
|                                                                                                                                                                                                                                                                                  | A  | 3RF3900-0QA88                                                                                                                                                                                                                                                                                                                                        |                 | 1                 | 1 unit     | 41C |
| <b>Blank labels</b>                                                                                                                                                                                                                                                              |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
|                                                                                                                                                                                               |    | <b>Unit labeling plates</b><br>for SIRIUS devices <sup>1)</sup>                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
|                                                                                                                                                                                                                                                                                  | D  | • 10 mm × 7 mm, titanium gray                                                                                                                                                                                                                                                                                                                        |                 | 100               | 816 units  | 41B |
|                                                                                                                                                                                                                                                                                  | D  | • 20 mm × 7 mm, titanium gray                                                                                                                                                                                                                                                                                                                        |                 | 100               | 340 units  | 41B |
|                                                                                                                                                                                                                                                                                  |    | <b>Adhesive labels</b><br>for SIRIUS devices                                                                                                                                                                                                                                                                                                         |                 |                   |            |     |
|                                                                                                                                                                                               | D  | • 19 mm × 6 mm, titanium gray                                                                                                                                                                                                                                                                                                                        |                 | 100               | 3060 units | 41B |
|                                                                                                                                                                                                                                                                                  |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
| <b>"SIRIUS Innovations" manuals</b>                                                                                                                                                                                                                                              |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
| <b>System Manual – System Overview</b><br>The manual can be downloaded free of charge in PDF format from the Internet, see <a href="http://support.automation.siemens.com/WW/view/en/60311318">http://support.automation.siemens.com/WW/view/en/60311318</a>                     |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |
| <b>Manual – SIRIUS 3RF34 Solid-State Switching Devices</b><br>The manual can be downloaded free of charge in PDF format from the Internet, see <a href="http://support.automation.siemens.com/WW/view/en/60298187">http://support.automation.siemens.com/WW/view/en/60298187</a> |    |                                                                                                                                                                                                                                                                                                                                                      |                 |                   |            |     |

<sup>1)</sup> PC labeling system for the individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH

(See Chapter 16, "Appendix" → "External Partners").

## **Solid-State Switching Devices for Switching Motors**

### **Solid-State Contactors**

#### **Notes**