

Solid-state contactor 1-phase 3RF2 AC 51 / 88 A / 40 °C 48-600 V / 24 V DC Ring cable connection Phased-out product, no successor available!

|                                                                                                                                                                                                   |                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| product brand name                                                                                                                                                                                | SIRIUS                                                                                          |
| product designation                                                                                                                                                                               | solid-state contactor                                                                           |
| product type designation                                                                                                                                                                          | 3RF23                                                                                           |
| manufacturer's article number                                                                                                                                                                     |                                                                                                 |
| <ul style="list-style-type: none"> <li>_1 of the accessories that can be ordered</li> <li>_3 of the accessories that can be ordered</li> <li>_4 of the accessories that can be ordered</li> </ul> | <a href="#">3RF2900-3PA88</a><br><a href="#">3RF2900-0EA18</a><br><a href="#">3RF2990-0GA16</a> |
| product designation                                                                                                                                                                               |                                                                                                 |
| <ul style="list-style-type: none"> <li>_1 of the accessories that can be ordered</li> <li>_3 of the accessories that can be ordered</li> <li>_4 of the accessories that can be ordered</li> </ul> | terminal cover<br>converter<br>load monitoring                                                  |
| General technical data                                                                                                                                                                            |                                                                                                 |
| product function                                                                                                                                                                                  | zero-point switching                                                                            |
| power loss [W] for rated value of the current                                                                                                                                                     |                                                                                                 |
| <ul style="list-style-type: none"> <li>at AC in hot operating state</li> <li>at AC in hot operating state per pole</li> <li>without load current share typical</li> </ul>                         | 117 W<br>117 W<br>0.4 W                                                                         |
| insulation voltage rated value                                                                                                                                                                    | 600 V                                                                                           |
| degree of pollution                                                                                                                                                                               | 3                                                                                               |
| type of voltage                                                                                                                                                                                   |                                                                                                 |
| <ul style="list-style-type: none"> <li>of the operating voltage</li> <li>of the control supply voltage</li> </ul>                                                                                 | AC<br>DC                                                                                        |
| surge voltage resistance of main circuit rated value                                                                                                                                              | 6 kV                                                                                            |
| protection class IP                                                                                                                                                                               | IP00                                                                                            |
| protection class IP on the front according to IEC 60529                                                                                                                                           | IP00                                                                                            |
| shock resistance according to IEC 60068-2-27                                                                                                                                                      | 15g / 11 ms                                                                                     |
| vibration resistance according to IEC 60068-2-6                                                                                                                                                   | 2g                                                                                              |
| reference code according to IEC 81346-2                                                                                                                                                           | Q                                                                                               |
| Substance Prohibitance (Date)                                                                                                                                                                     | 07/01/2006                                                                                      |
| SVHC substance name                                                                                                                                                                               | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8                                      |
| Weight                                                                                                                                                                                            | 3.086 kg                                                                                        |
| Main circuit                                                                                                                                                                                      |                                                                                                 |
| number of poles for main current circuit                                                                                                                                                          | 1                                                                                               |
| number of NO contacts for main contacts                                                                                                                                                           | 1                                                                                               |
| number of NC contacts for main contacts                                                                                                                                                           | 0                                                                                               |
| type of voltage of the operating voltage                                                                                                                                                          | AC                                                                                              |
| operating voltage                                                                                                                                                                                 |                                                                                                 |
| <ul style="list-style-type: none"> <li>at AC</li> <li>— at 50 Hz rated value</li> <li>— at 60 Hz rated value</li> </ul>                                                                           | 48 ... 600 V<br>48 ... 600 V                                                                    |
| operating frequency rated value                                                                                                                                                                   | 50 ... 60 Hz                                                                                    |
| operating range relative to the operating voltage at AC                                                                                                                                           |                                                                                                 |
| <ul style="list-style-type: none"> <li>at 50 Hz</li> <li>at 60 Hz</li> </ul>                                                                                                                      | 40 ... 660 V<br>40 ... 660 V                                                                    |
| operational current                                                                                                                                                                               |                                                                                                 |
| <ul style="list-style-type: none"> <li>at AC-51 rated value</li> <li>at AC-51 according to IEC 60947-4-3</li> <li>according to UL 508 rated value</li> </ul>                                      | 88 A<br>88 A<br>80 A                                                                            |
| operational current minimum                                                                                                                                                                       | 500 mA                                                                                          |
| rate of voltage rise at the thyristor for main contacts                                                                                                                                           | 1 000 V/μs                                                                                      |

|                                                                         |                                                                      |
|-------------------------------------------------------------------------|----------------------------------------------------------------------|
| maximum permissible                                                     |                                                                      |
| blocking voltage at the thyristor for main contacts maximum permissible | 1 600 V                                                              |
| reverse current of the thyristor                                        | 10 mA                                                                |
| derating temperature                                                    | 40 °C                                                                |
| surge current resistance rated value                                    | 1 150 A                                                              |
| I <sup>2</sup> t value maximum                                          | 6 600 A <sup>2</sup> ·s                                              |
| <b>Control circuit/ Control</b>                                         |                                                                      |
| type of voltage of the control supply voltage                           | DC                                                                   |
| control supply voltage 1 at DC rated value maximum permissible          | 30 V                                                                 |
| control supply voltage 1 at DC                                          | 15 ... 24 V                                                          |
| control supply voltage                                                  |                                                                      |
| • at DC initial value for signal <1> detection                          | 15 V                                                                 |
| • at DC full-scale value for signal<0> recognition                      | 5 V                                                                  |
| control current at minimum control supply voltage                       |                                                                      |
| • at DC                                                                 | 13 mA                                                                |
| control current at DC rated value                                       | 15 mA                                                                |
| ON-delay time                                                           | 1 ms; additionally max. one half-wave                                |
| OFF-delay time                                                          | 1 ms; additionally max. one half-wave                                |
| <b>Auxiliary circuit</b>                                                |                                                                      |
| type of switching contact                                               | normally open contact (NO)                                           |
| number of NC contacts for auxiliary contacts                            | 0                                                                    |
| number of NO contacts for auxiliary contacts                            | 0                                                                    |
| number of CO contacts for auxiliary contacts                            | 0                                                                    |
| <b>Installation/ mounting/ dimensions</b>                               |                                                                      |
| fastening method side-by-side mounting                                  | Yes                                                                  |
| fastening method                                                        | screw fixing                                                         |
| design of the thread of the screw for securing the equipment            | M4                                                                   |
| height                                                                  | 200 mm                                                               |
| width                                                                   | 180 mm                                                               |
| depth                                                                   | 163 mm                                                               |
| <b>Connections/ Terminals</b>                                           |                                                                      |
| product component removable terminal for auxiliary and control circuit  | Yes                                                                  |
| type of electrical connection                                           |                                                                      |
| • for main current circuit                                              | Ring cable lug connection                                            |
| • for auxiliary and control circuit                                     | ring terminal lug connection                                         |
| type of connectable conductor cross-sections                            |                                                                      |
| • for main contacts for JIS cable lug                                   | JIS C 2805 R 2-5, 5,5-5, 8-5, 14-5                                   |
| • for DIN cable lug for main contacts                                   | DIN 46234 -5-2,5, -5-6, -5-10, -5-16, -5-25                          |
| type of connectable conductor cross-sections                            |                                                                      |
| • for auxiliary and control contacts                                    |                                                                      |
| — solid                                                                 | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) |
| — finely stranded with core end processing                              | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) |
| — finely stranded without core end processing                           | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) |
| • for AWG cables for auxiliary and control contacts                     | 1x (AWG 20 ... 12)                                                   |
| tightening torque                                                       |                                                                      |
| • for main contacts with screw-type terminals                           | 2 ... 2.5 N·m                                                        |
| • for auxiliary and control contacts with screw-type terminals          | 0.5 ... 0.6 N·m                                                      |
| tightening torque [lbf·in]                                              |                                                                      |
| • for auxiliary and control contacts with screw-type terminals          | 4.5 ... 5.3 lbf·in                                                   |
| design of the thread of the connection screw                            |                                                                      |
| • for main contacts                                                     | M5                                                                   |
| • of the auxiliary and control contacts                                 | M3                                                                   |
| stripped length of the cable                                            |                                                                      |
| • for main contacts                                                     | 10 mm                                                                |
| • for auxiliary and control contacts                                    | 10 mm                                                                |
| Electrical Safety                                                       |                                                                      |

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| protection class IP on the front according to IEC 60529                                       | IP00; IP20 with cover                                                                             |
| touch protection on the front according to IEC 60529                                          | finger-safe, for vertical contact from the front with cover                                       |
| <b>Ambient conditions</b>                                                                     |                                                                                                   |
| installation altitude at height above sea level maximum                                       | 1 000 m                                                                                           |
| <b>ambient temperature</b>                                                                    |                                                                                                   |
| • during operation                                                                            | -25 ... +60 °C                                                                                    |
| • during storage                                                                              | -55 ... +80 °C                                                                                    |
| <b>Electromagnetic compatibility</b>                                                          |                                                                                                   |
| <b>conducted interference</b>                                                                 |                                                                                                   |
| • due to burst according to IEC 61000-4-4                                                     | 2 kV / 5 kHz behavior criterion 2                                                                 |
| • due to conductor-earth surge according to IEC 61000-4-5                                     | 2 kV behavior criterion 2                                                                         |
| • due to conductor-conductor surge according to IEC 61000-4-5                                 | 1 kV behavior criterion 2                                                                         |
| • due to high-frequency radiation according to IEC 61000-4-6                                  | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1                             |
| <b>field-based interference according to IEC 61000-4-3</b>                                    | 80 MHz ... 1 GHz 10 V/m, behavior criterion 1                                                     |
| <b>electrostatic discharge according to IEC 61000-4-2</b>                                     | 4 kV contact discharging / 8 kV air discharging, behavior criterion 2                             |
| <b>conducted HF interference emissions according to CISPR11</b>                               | Class A for industrial environment                                                                |
| <b>field-bound HF interference emission according to CISPR11</b>                              | Class B for the domestic, business and commercial environments                                    |
| <b>Short-circuit protection, design of the fuse link</b>                                      |                                                                                                   |
| manufacturer's article number                                                                 |                                                                                                   |
| • of full range R fuse link for semiconductor protection at NH design usable                  | <a href="#">3NE1020-2: These fuses have a smaller rated current than the semiconductor relays</a> |
| • of back-up R fuse link for semiconductor protection at NH design usable                     | <a href="#">3NE8021-1</a>                                                                         |
| • of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable | <a href="#">3NC2280: These fuses have a smaller rated current than the semiconductor relays</a>   |
| <b>Approvals Certificates</b>                                                                 |                                                                                                   |
| General Product Approval                                                                      | EMV                                                                                               |



[Confirmation](#)



| Test Certificates                                  | other                        | Environment                                 |
|----------------------------------------------------|------------------------------|---------------------------------------------|
| <a href="#">Type Test Certificates/Test Report</a> | <a href="#">Confirmation</a> | <a href="#">Environmental Confirmations</a> |
|                                                    |                              |                                             |

#### Further information

##### Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

##### Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

##### Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF2390-3AA06>

##### Cax online generator

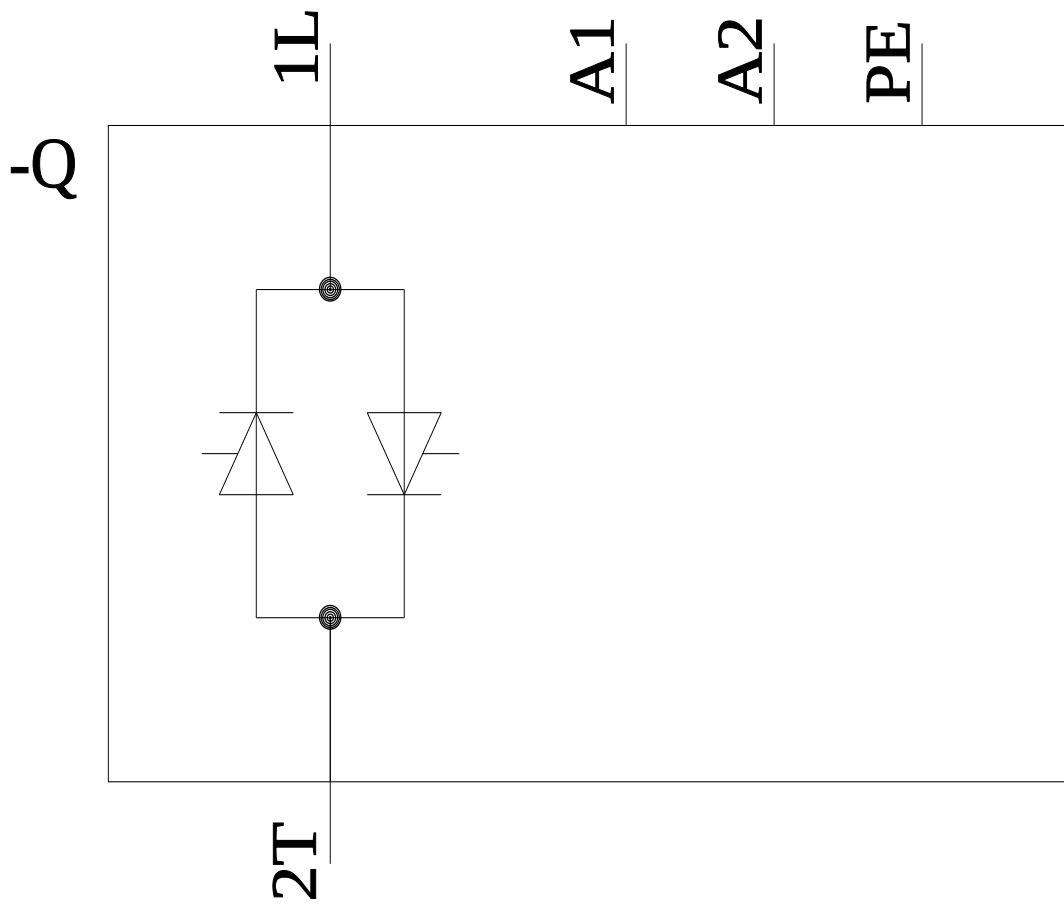
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2390-3AA06>

##### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2390-3AA06>

##### Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2390-3AA06&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2390-3AA06&lang=en)



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