



direct-on-line starter, 3RM1, 500 V, 0.55 - 3 kW, 1.6 - 7 A, 24 V DC, screw/spring-loaded terminals (push-in)

|                                                           |                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                                        | SIRIUS                                                                                                                                                                                                                                                       |
| product category                                          | Motor starter                                                                                                                                                                                                                                                |
| product designation                                       | Direct-on-line starter                                                                                                                                                                                                                                       |
| design of the product                                     | with electronic overload protection                                                                                                                                                                                                                          |
| product type designation                                  | 3RM1                                                                                                                                                                                                                                                         |
| <b>General technical data</b>                             |                                                                                                                                                                                                                                                              |
| equipment version according to IEC 60947-4-2              | 3                                                                                                                                                                                                                                                            |
| product function                                          | Direct-on-line starter                                                                                                                                                                                                                                       |
| • intrinsic device protection                             | Yes                                                                                                                                                                                                                                                          |
| • for power supply reverse polarity protection            | No                                                                                                                                                                                                                                                           |
| suitability for operation device connector 3ZY12          | Yes                                                                                                                                                                                                                                                          |
| power loss [W] for rated value of the current             |                                                                                                                                                                                                                                                              |
| • at AC in hot operating state per pole                   | 1.13 W                                                                                                                                                                                                                                                       |
| • without load current share typical                      | 1.68 W                                                                                                                                                                                                                                                       |
| insulation voltage rated value                            | 500 V                                                                                                                                                                                                                                                        |
| overvoltage category                                      | III                                                                                                                                                                                                                                                          |
| surge voltage resistance rated value                      | 6 kV                                                                                                                                                                                                                                                         |
| maximum permissible voltage for protective separation     |                                                                                                                                                                                                                                                              |
| • between main and auxiliary circuit                      | 500 V                                                                                                                                                                                                                                                        |
| • between control and auxiliary circuit                   | 250 V                                                                                                                                                                                                                                                        |
| shock resistance                                          | 6g / 11 ms                                                                                                                                                                                                                                                   |
| vibration resistance                                      | 1 ... 6 Hz, 15 mm; 20 m/s <sup>2</sup> , 500 Hz                                                                                                                                                                                                              |
| operating frequency maximum                               | 1 1/s                                                                                                                                                                                                                                                        |
| reference code according to IEC 81346-2                   | Q                                                                                                                                                                                                                                                            |
| Substance Prohibitance (Date)                             | 03/01/2017                                                                                                                                                                                                                                                   |
| SVHC substance name                                       | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8<br>2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5<br>6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 |
| Weight                                                    | 0.311 kg                                                                                                                                                                                                                                                     |
| product function                                          |                                                                                                                                                                                                                                                              |
| • direct start                                            | Yes                                                                                                                                                                                                                                                          |
| • reverse starting                                        | No                                                                                                                                                                                                                                                           |
| product function short circuit protection                 | No                                                                                                                                                                                                                                                           |
| <b>Electromagnetic compatibility</b>                      |                                                                                                                                                                                                                                                              |
| EMC emitted interference according to IEC 60947-1         | class A                                                                                                                                                                                                                                                      |
| EMC immunity according to IEC 60947-1                     | Class A                                                                                                                                                                                                                                                      |
| conducted interference                                    |                                                                                                                                                                                                                                                              |
| • due to burst according to IEC 61000-4-4                 | 3 kV / 5 kHz                                                                                                                                                                                                                                                 |
| • due to conductor-earth surge according to IEC 61000-4-5 | 2 kV                                                                                                                                                                                                                                                         |

|                                                                                                                 |                                                                |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• due to conductor-conductor surge according to IEC 61000-4-5</li> </ul> | 1 kV                                                           |
| <ul style="list-style-type: none"> <li>• due to high-frequency radiation according to IEC 61000-4-6</li> </ul>  | 10 V                                                           |
| <b>field-based interference according to IEC 61000-4-3</b>                                                      | 10 V/m                                                         |
| <b>electrostatic discharge according to IEC 61000-4-2</b>                                                       | 4 kV contact discharge / 8 kV air discharge                    |
| <b>conducted HF interference emissions according to CISPR11</b>                                                 | Class B for the domestic, business and commercial environments |
| <b>field-bound HF interference emission according to CISPR11</b>                                                | Class B for the domestic, business and commercial environments |
| <b>Electrical Safety</b>                                                                                        |                                                                |
| <b>protection class IP on the front according to IEC 60529</b>                                                  | IP20                                                           |
| <b>touch protection on the front according to IEC 60529</b>                                                     | finger-safe                                                    |
| <b>Main circuit</b>                                                                                             |                                                                |
| <b>number of poles for main current circuit</b>                                                                 | 3                                                              |
| <b>design of the switching contact</b>                                                                          | Hybrid                                                         |
| <b>design of the switching contact as NO contact for signaling function</b>                                     | OUT, electronic, 24 V DC, 15 mA                                |
| <b>adjustable current response value current of the current-dependent overload release</b>                      | 1.6 ... 7 A                                                    |
| <b>minimum load [%]</b>                                                                                         | 20 %; from set rated current                                   |
| <b>type of the motor protection</b>                                                                             | solid-state                                                    |
| <b>operating voltage rated value</b>                                                                            | 48 ... 500 V                                                   |
| <b>relative symmetrical tolerance of the operating voltage</b>                                                  | 10 %                                                           |
| <b>operating frequency 1 rated value</b>                                                                        | 50 Hz                                                          |
| <b>operating frequency 2 rated value</b>                                                                        | 60 Hz                                                          |
| <b>relative symmetrical tolerance of the operating frequency</b>                                                | 10 %                                                           |
| <b>operational current</b>                                                                                      |                                                                |
| <ul style="list-style-type: none"> <li>• at AC at 400 V rated value</li> </ul>                                  | 7 A                                                            |
| <ul style="list-style-type: none"> <li>• at AC-3 at 400 V rated value</li> </ul>                                | 7 A                                                            |
| <ul style="list-style-type: none"> <li>• at AC-53a at 400 V at ambient temperature 40 °C rated value</li> </ul> | 7 A                                                            |
| <b>ampacity when starting maximum</b>                                                                           | 56 A                                                           |
| <b>operating power for 3-phase motors at 400 V at 50 Hz</b>                                                     | 0.55 ... 3 kW                                                  |
| <b>derating temperature</b>                                                                                     | 40 °C                                                          |
| <b>Inputs/ Outputs</b>                                                                                          |                                                                |
| <b>input voltage at digital input at DC rated value</b>                                                         | 24 V                                                           |
| <b>input current at digital input</b>                                                                           |                                                                |
| <ul style="list-style-type: none"> <li>• for signal &lt;1&gt; at DC</li> </ul>                                  | 11 mA                                                          |
| <ul style="list-style-type: none"> <li>• with signal &lt;0&gt; at DC</li> </ul>                                 | 1 mA                                                           |
| <b>number of CO contacts for auxiliary contacts</b>                                                             | 1                                                              |
| <b>operational current of auxiliary contacts at AC-15 at 230 V maximum</b>                                      | 3 A                                                            |
| <b>operational current of auxiliary contacts at DC-13 at 24 V maximum</b>                                       | 1 A                                                            |
| <b>Control circuit/ Control</b>                                                                                 |                                                                |
| <b>type of voltage of the control supply voltage</b>                                                            | DC                                                             |
| <b>control supply voltage at DC rated value</b>                                                                 | 19.2 ... 30 V                                                  |
| <b>relative negative tolerance of the control supply voltage at DC</b>                                          | 20 %                                                           |
| <b>relative positive tolerance of the control supply voltage at DC</b>                                          | 25 %                                                           |
| <b>control supply voltage 1 at DC rated value</b>                                                               | 24 V                                                           |
| <b>operating range factor control supply voltage rated value at DC</b>                                          |                                                                |
| <ul style="list-style-type: none"> <li>• initial value</li> </ul>                                               | 0.8                                                            |
| <ul style="list-style-type: none"> <li>• full-scale value</li> </ul>                                            | 1.25                                                           |
| <b>control current at DC</b>                                                                                    |                                                                |
| <ul style="list-style-type: none"> <li>• in standby mode of operation</li> </ul>                                | 25 mA                                                          |
| <ul style="list-style-type: none"> <li>• during operation</li> </ul>                                            | 70 mA                                                          |
| <b>inrush current peak</b>                                                                                      |                                                                |
| <ul style="list-style-type: none"> <li>• at 24 V</li> </ul>                                                     | 0.28 A; values at 25 °C                                        |
| <ul style="list-style-type: none"> <li>• at DC at 24 V</li> </ul>                                               | 300 mA                                                         |
| <ul style="list-style-type: none"> <li>• at DC at 24 V at switching on of motor</li> </ul>                      | 130 mA                                                         |
| <b>duration of inrush current peak</b>                                                                          |                                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at DC at 24 V</li> <li>• at DC at 24 V at switching on of motor</li> </ul>                                                                                                                                                                                                                                                                                                   | 85 ms<br>80 ms<br>20 ms                                                                                                                                   |
| <b>power loss [W] in auxiliary and control circuit</b> <ul style="list-style-type: none"> <li>• in switching state OFF <ul style="list-style-type: none"> <li>— with bypass circuit</li> </ul> </li> <li>• in switching state ON <ul style="list-style-type: none"> <li>— with bypass circuit</li> </ul> </li> </ul>                                                                                                                     | 0.6 W<br>1.68 W                                                                                                                                           |
| <b>Response times</b>                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                           |
| <b>ON-delay time</b>                                                                                                                                                                                                                                                                                                                                                                                                                     | 60 ... 90 ms                                                                                                                                              |
| <b>OFF-delay time</b>                                                                                                                                                                                                                                                                                                                                                                                                                    | 60 ... 90 ms                                                                                                                                              |
| <b>Power Electronics</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                           |
| <b>operational current</b> <ul style="list-style-type: none"> <li>• at 40 °C rated value</li> <li>• at 50 °C rated value</li> <li>• at 55 °C rated value</li> <li>• at 60 °C rated value</li> </ul>                                                                                                                                                                                                                                      | 7 A<br>6.1 A<br>5.2 A<br>4.6 A                                                                                                                            |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                           |
| <b>mounting position</b>                                                                                                                                                                                                                                                                                                                                                                                                                 | vertical, horizontal, standing (observe derating)                                                                                                         |
| <b>fastening method</b>                                                                                                                                                                                                                                                                                                                                                                                                                  | screw and snap-on mounting onto 35 mm DIN rail                                                                                                            |
| <b>height</b>                                                                                                                                                                                                                                                                                                                                                                                                                            | 100 mm                                                                                                                                                    |
| <b>width</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | 22.5 mm                                                                                                                                                   |
| <b>depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | 141.6 mm                                                                                                                                                  |
| <b>required spacing</b> <ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> </ul> | 0 mm<br>0 mm<br>50 mm<br>50 mm<br>0 mm<br><br>0 mm<br>0 mm<br>50 mm<br>3.5 mm<br>50 mm                                                                    |
| <b>Ambient conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                           |
| installation altitude at height above sea level maximum                                                                                                                                                                                                                                                                                                                                                                                  | 4 000 m; For derating see manual                                                                                                                          |
| <b>ambient temperature</b> <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> <li>• during transport</li> </ul>                                                                                                                                                                                                                                                                                    | -25 ... +60 °C<br>-40 ... +70 °C<br>-40 ... +70 °C                                                                                                        |
| environmental category during operation according to IEC 60721                                                                                                                                                                                                                                                                                                                                                                           | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6                                   |
| relative humidity during operation                                                                                                                                                                                                                                                                                                                                                                                                       | 10 ... 95 %                                                                                                                                               |
| air pressure according to SN 31205                                                                                                                                                                                                                                                                                                                                                                                                       | 900 ... 1 060 hPa                                                                                                                                         |
| <b>Communication/ Protocol</b>                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           |
| <b>protocol is supported</b> <ul style="list-style-type: none"> <li>• PROFINET IO protocol</li> <li>• PROFI-safe protocol</li> </ul>                                                                                                                                                                                                                                                                                                     | No<br>No                                                                                                                                                  |
| <b>product function bus communication</b>                                                                                                                                                                                                                                                                                                                                                                                                | No                                                                                                                                                        |
| protocol is supported AS-Interface protocol                                                                                                                                                                                                                                                                                                                                                                                              | No                                                                                                                                                        |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                           |
| <b>type of electrical connection</b> <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> </ul>                                                                                                                                                                                                                                                                           | screw-type terminals for main circuit, spring-loaded terminals (push-in) for control circuit<br>screw-type terminals<br>spring-loaded terminals (push-in) |
| <b>wire length for motor unshielded maximum</b>                                                                                                                                                                                                                                                                                                                                                                                          | 100 m                                                                                                                                                     |
| type of connectable conductor cross-sections for main contacts <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> </ul>                                                                                                                                                                                                                                                             | 1x (0,5 ... 4 mm²), 2x (0,5 ... 2,5 mm²)<br>1x (0,5 ... 4 mm²), 2x (0,5 ... 1,5 mm²)                                                                      |

|                                                                   |                                                                      |
|-------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>connectable conductor cross-section for main contacts</b>      |                                                                      |
| • solid or stranded                                               | 0.5 ... 4 mm <sup>2</sup>                                            |
| • finely stranded with core end processing                        | 0.5 ... 4 mm <sup>2</sup>                                            |
| <b>connectable conductor cross-section for auxiliary contacts</b> |                                                                      |
| • solid or stranded                                               | 0.5 ... 1.5 mm <sup>2</sup>                                          |
| • finely stranded with core end processing                        | 0.5 ... 1 mm <sup>2</sup>                                            |
| • finely stranded without core end processing                     | 0.5 ... 1.5 mm <sup>2</sup>                                          |
| <b>type of connectable conductor cross-sections</b>               |                                                                      |
| • for auxiliary contacts                                          |                                                                      |
| — solid                                                           | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| — finely stranded with core end processing                        | 1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) |
| — finely stranded without core end processing                     | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| • for AWG cables for auxiliary contacts                           | 1x (20 ... 16), 2x (20 ... 16)                                       |
| <b>AWG number as coded connectable conductor cross section</b>    |                                                                      |
| • for main contacts                                               | 20 ... 12                                                            |
| • for auxiliary contacts                                          | 20 ... 16                                                            |

#### UL/CSA ratings

|                                                               |         |
|---------------------------------------------------------------|---------|
| <b>yielded mechanical performance [hp]</b>                    |         |
| • for single-phase AC motor                                   |         |
| — at 110/120 V rated value                                    | 0.25 hp |
| — at 230 V rated value                                        | 0.5 hp  |
| • for 3-phase AC motor                                        |         |
| — at 200/208 V rated value                                    | 1 hp    |
| — at 220/230 V rated value                                    | 1.5 hp  |
| — at 460/480 V rated value                                    | 3 hp    |
| <b>operational current at AC at 480 V according to UL 508</b> | 6.1 A   |

#### Approvals Certificates

|                          |     |
|--------------------------|-----|
| General Product Approval | EMV |
|--------------------------|-----|



|       |             |
|-------|-------------|
| other | Environment |
|-------|-------------|



[Confirmation](#)

[Environmental Confirmations](#)

#### Further information

Information on the packaging

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

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3RM1007-3AA04>

Cax online generator

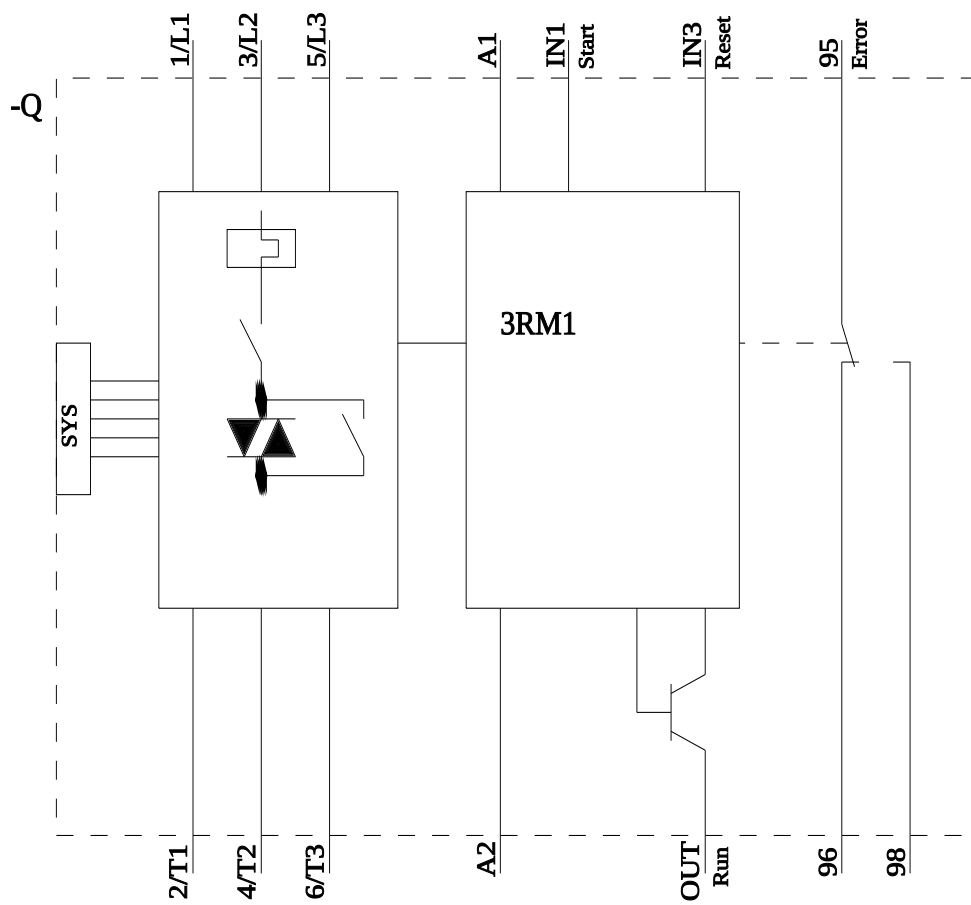
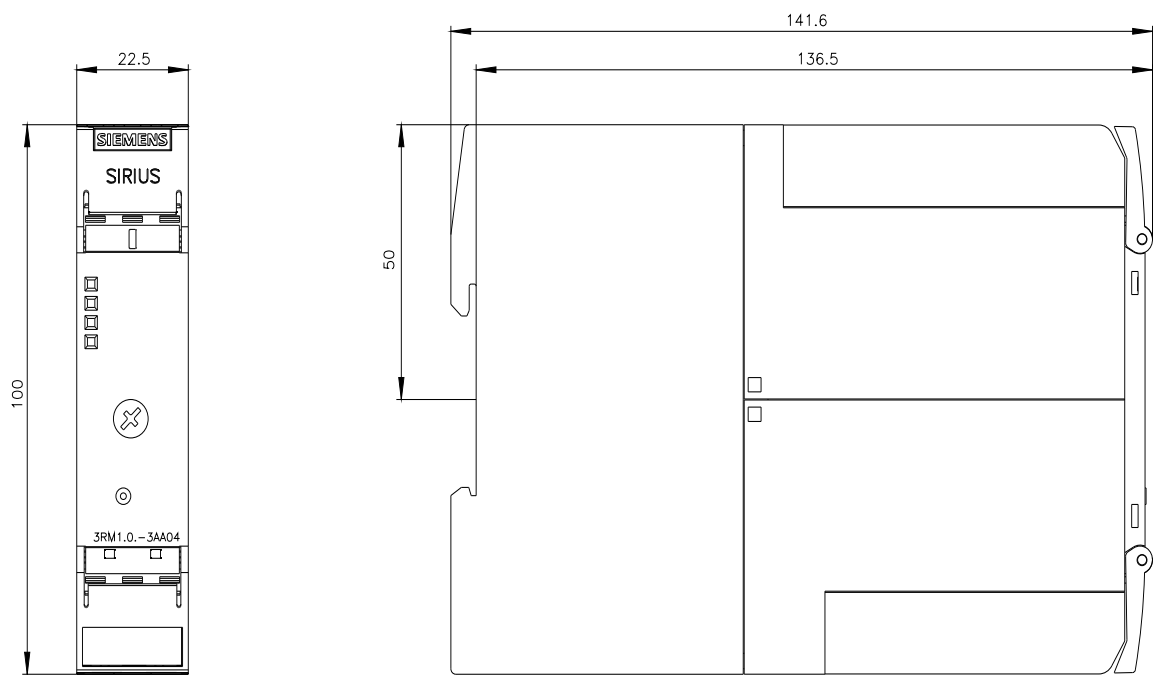
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1007-3AA04>

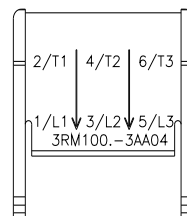
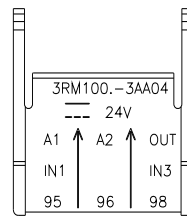
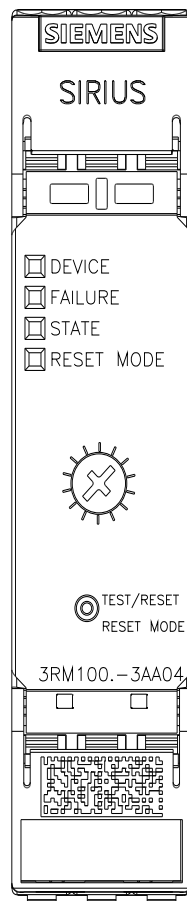
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RM1007-3AA04>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RM1007-3AA04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1007-3AA04&lang=en)





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