

Motor starter SIRIUS 3RM1 Reversing starter SAFETY 500 V; 1.6 - 7.0 A; 24 V DC Push-in connection method



Figure similar

| General technical data                                  |  |
|---|--|
| Product brand name                                      | SIRIUS   |
| Product category  | Motor starter  |
| Product designation                                     | Failsafe reversing starters  |
| Design of the product                                   | With electronic overload protection and safety-related disconnection |
| Trip class  | CLASS 10A  |
| Protection class IP                                     | IP20   |
| Suitability for operation Device connector 3ZY12        | Yes  |
| Product function Intrinsic device protection            | Yes  |
| Type of the motor protection                            | solid-state  |
| Installation altitude at height above sea level maximum | 2 000 m  |
| Ambient temperature                                     |  |
| • during operation                                      | -25 ... +60 °C   |
| • during transport                                      | -40 ... +70 °C   |
| • during storage  | -40 ... +70 °C   |
| Relative humidity during operation                      | 10 ... 95 %  |

|  |  |
|--|--|
| <b>Air pressure acc. to SN 31205</b>   | 900 ... 1 060 hPa  |
| <b>Shock resistance</b>  | 6g / 11 ms   |
| <b>Vibration resistance</b>  | 1 ... 6 Hz, 15 mm; 20 m/s <sup>2</sup> , 500 Hz                |
| <b>Surge voltage resistance rated value</b>  | 6 kV   |
| <b>Insulation voltage rated value</b>  | 500 V  |
| <b>Mechanical service life (switching cycles) typical</b>  | 30 000 000   |
| <b>Conducted interference</b>  |  |
| <ul style="list-style-type: none"> <li>• due to conductor-conductor surge acc. to IEC 61000-4-5</li> </ul> | 2 kV   |
| <ul style="list-style-type: none"> <li>• due to conductor-earth surge acc. to IEC 61000-4-5</li> </ul>     | 4 kV signal lines 2 kV   |
| <ul style="list-style-type: none"> <li>• due to burst acc. to IEC 61000-4-4</li> </ul>                     | 3 kV / 5 kHz   |
| <ul style="list-style-type: none"> <li>• due to high-frequency radiation acc. to IEC 61000-4-6</li> </ul>  | 10 V   |
| <b>Electrostatic discharge acc. to IEC 61000-4-2</b>   | 6 kV contact discharge / 8 kV air discharge                    |
| <b>Field-bound HF-interference emission acc. to CISPR11</b>  | Class B for the domestic, business and commercial environments |
| <b>Conducted HF-interference emissions acc. to CISPR11</b>   | Class B for the domestic, business and commercial environments |
| <b>maximum permissible voltage for safe isolation</b>  |  |
| <ul style="list-style-type: none"> <li>• between main and auxiliary circuit</li> </ul>                     | 500 V  |
| <ul style="list-style-type: none"> <li>• between control and auxiliary circuit</li> </ul>                  | 250 V  |
| <b>Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750</b>                    | Q  |
| <b>Reference code acc. to DIN EN 61346-2</b>   | Q  |

#### Safety related data

|   |                   |
|---|-------------------|
| <b>Safety Integrity Level (SIL) acc. to IEC 61508</b>                     | 3                 |
| <b>Performance level (PL) acc. to EN ISO 13849-1</b>                      | e                 |
| <b>Category acc. to EN ISO 13849-1</b>                                    | 4                 |
| <b>Safety device type acc. to IEC 61508-2</b>                             | Type B            |
| <b>Hardware fault tolerance acc. to IEC 61508</b>                         | 1                 |
| <b>PFHD with high demand rate acc. to EN 62061</b>                        | 0.00000002 1/h    |
| <b>PFDavg with low demand rate acc. to IEC 61508</b>                      | 0.000018          |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b> | 20 y              |
| <b>Safe state</b>   | Load circuit open |
| <b>Stop category acc. to DIN EN 60204-1</b>                               | 0                 |
| <b>Safe failure fraction (SFF)</b>  | 99.4 %            |
| <b>MTTFd</b>  | 75 y              |
| <b>Average diagnostic coverage level (DCavg)</b>                          | 99 %              |
| <b>Function test interval maximum</b>                                     | 1 y               |
| <b>Diagnostics test interval by internal test function maximum</b>        | 600 s             |

|   |             |
|---|-------------|
| Failure rate [FIT] at rate of recognizable hazardous failures ( $\lambda_{dd}$ )        | 1 400 FIT   |
| Failure rate [FIT] at rate of non-recognizable hazardous failures ( $\lambda_{du}$ )    | 16 FIT      |
| Protection against electrical shock   | finger-safe |
| Off-delay time with safety-related request when switched off via control inputs maximum | 65 ms       |
| Off-delay time with safety-related request when switched off via supply voltage maximum | 120 ms      |

#### ATEX

|   |                |
|---|----------------|
| Hardware fault tolerance acc. to IEC 61508 relating to ATEX                         | 0              |
| PFDAvg with low demand rate acc. to IEC 61508 relating to ATEX                      | 0.0005         |
| PFHD with high demand rate acc. to EN 62061 relating to ATEX                        | 0.00000005 1/h |
| Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX                     | SIL2           |
| T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX | 3 y            |

#### Main circuit

|   |               |
|---|---------------|
| Number of poles for main current circuit                                      | 3             |
| Operating voltage rated value   | 48 ... 500 V  |
| Relative symmetrical tolerance of the operating voltage                       | 10 %          |
| Operating frequency   |               |
| • 1 rated value   | 50 Hz         |
| • 2 rated value   | 60 Hz         |
| Relative symmetrical tolerance of the operating frequency                     | 10 %          |
| Operating current at AC-53a at 400 V at ambient temperature 40 °C rated value | 7 A           |
| Derating temperature  | 40 °C         |
| Minimum load [%]  | 20 %          |
| Power loss [W] typical  | 3.4 W         |
| Adjustable pick-up value current of the current-dependent overload release    | 1.6 ... 7 A   |
| Ampacity when starting maximum  | 56 A          |
| Operating power for three-phase motors at 400 V at 50 Hz                      | 0.55 ... 3 kW |
| Operating frequency maximum   | 1 1/s         |

#### Control circuit/ Control

|   |    |
|---|----|
| Type of voltage of the control supply voltage | DC |
| Control supply voltage 1                      |    |

|   |                          |
|---|--------------------------|
| <ul style="list-style-type: none"> <li>• at DC rated value</li> </ul>   | 24 V                     |
| <b>Operating range factor control supply voltage rated value</b>  |                          |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 0.8 ... 1.25             |
| <b>Control current</b>  |                          |
| <ul style="list-style-type: none"> <li>• at DC <ul style="list-style-type: none"> <li>— in standby mode</li> <li>— during operation</li> <li>— when switching on</li> </ul> </li> </ul>   | 13 mA<br>57 mA<br>150 mA |
| <b>Input voltage at digital input</b>   |                          |
| <ul style="list-style-type: none"> <li>• for signal &lt;1&gt; <ul style="list-style-type: none"> <li>— at DC</li> </ul> </li> <li>• with signal &lt;0&gt; <ul style="list-style-type: none"> <li>— at DC</li> </ul> </li> </ul> | 15 ... 30 V<br>0 ... 5 V |
| <b>Input current at digital input</b>   |                          |
| <ul style="list-style-type: none"> <li>• for signal &lt;1&gt; <ul style="list-style-type: none"> <li>— at DC</li> </ul> </li> <li>• with signal &lt;0&gt; <ul style="list-style-type: none"> <li>— at DC</li> </ul> </li> </ul> | 8 mA<br>1 mA             |
| <b>Switch-on delay time</b>   | 90 ... 120 ms            |
| <b>Off-delay time</b>   | 40 ... 55 ms             |

|   |            |
|---|------------|
| <b>Auxiliary circuit</b>  |            |
| <b>Number of CO contacts for auxiliary contacts</b>   | 1          |
| <b>Operating current of auxiliary contacts</b>  |            |
| <ul style="list-style-type: none"> <li>• at AC-15 at 230 V maximum</li> <li>• at DC-13 at 24 V maximum</li> </ul> | 3 A<br>1 A |

|   |  |
|---|--|
| <b>Installation/ mounting/ dimensions</b> |  |
| <b>Mounting position</b>                  | vertical, horizontal, standing (observe derating)            |
| <b>Mounting type</b>                      | screw and snap-on mounting onto 35 mm standard mounting rail |
| <b>Width</b>                              | 22.5 mm  |
| <b>Height</b>                             | 100 mm   |
| <b>Depth</b>                              | 141.6 mm   |

|  |  |
|--|--|
| <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 current circuit</li> </ul>                                  | PUSH-IN connection (spring-loaded connection)<br>PUSH-IN connection (spring-loaded connection) |
| <b>Type of connectable conductor cross-sections for main contacts</b>  |  |
| <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded <ul style="list-style-type: none"> <li>— with core end processing</li> </ul> </li> </ul> | 1x (0.5 ... 4 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> )                           |


|  |  |
|--|--|
| — without core end processing  | 1x (0.5 ... 4 mm <sup>2</sup> )                                      |
| <b>Type of connectable conductor cross-sections at AWG conductors for main contacts</b>      | 1x (20 ... 12)   |
| <b>Type of connectable conductor cross-sections for auxiliary contacts</b>                   |  |
| • 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> ) |
| — without core end processing  | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| <b>Type of connectable conductor cross-sections at AWG conductors for auxiliary contacts</b> | 1x (20 ... 16), 2x (20 ... 16)                                       |

### UL ratings

|  |         |
|--|---------|
| <b>Full-load current (FLA) for three-phase AC motor at 480 V rated value</b> | 6.1 A   |
| <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 three-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    |

### Certificates/approvals

|  |   |   |
|--|---|---|
| <b>General Product Approval</b>  | <b>For use in hazardous locations</b>   | <b>Functional Safety/Safety of Machinery</b>  |
| <br>CCC | <br>CSA    | <br>UL |
| <br>EAC | <br>ATEX | <a href="#">Type Examination</a>  |

|   |  |  |
|---|--|--|
| <b>Declaration of Conformity</b>  | <b>Test Certificates</b>                           | <b>other</b>                             |
| <br>EG-Konf. | <a href="#">Type Test Certificates/Test Report</a> | <a href="#">Special Test Certificate</a> |
|   |  | <a href="#">Confirmation</a>             |

### Further information

**Information- and Downloadcenter (Catalogs, Brochures,...)**  
<http://www.siemens.com/industrial-controls/catalogs>

**Industry Mall (Online ordering system)**

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RM1307-2AA04>

**Cax online generator**

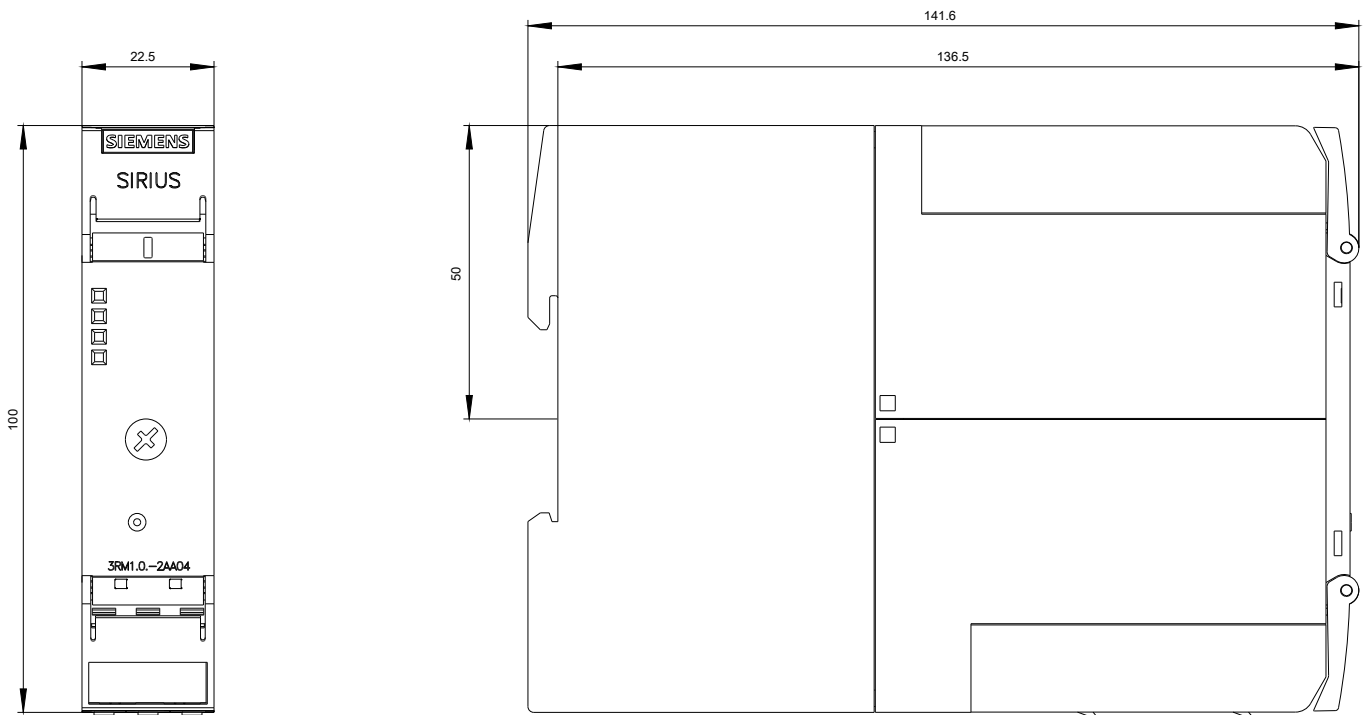
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1307-2AA04>

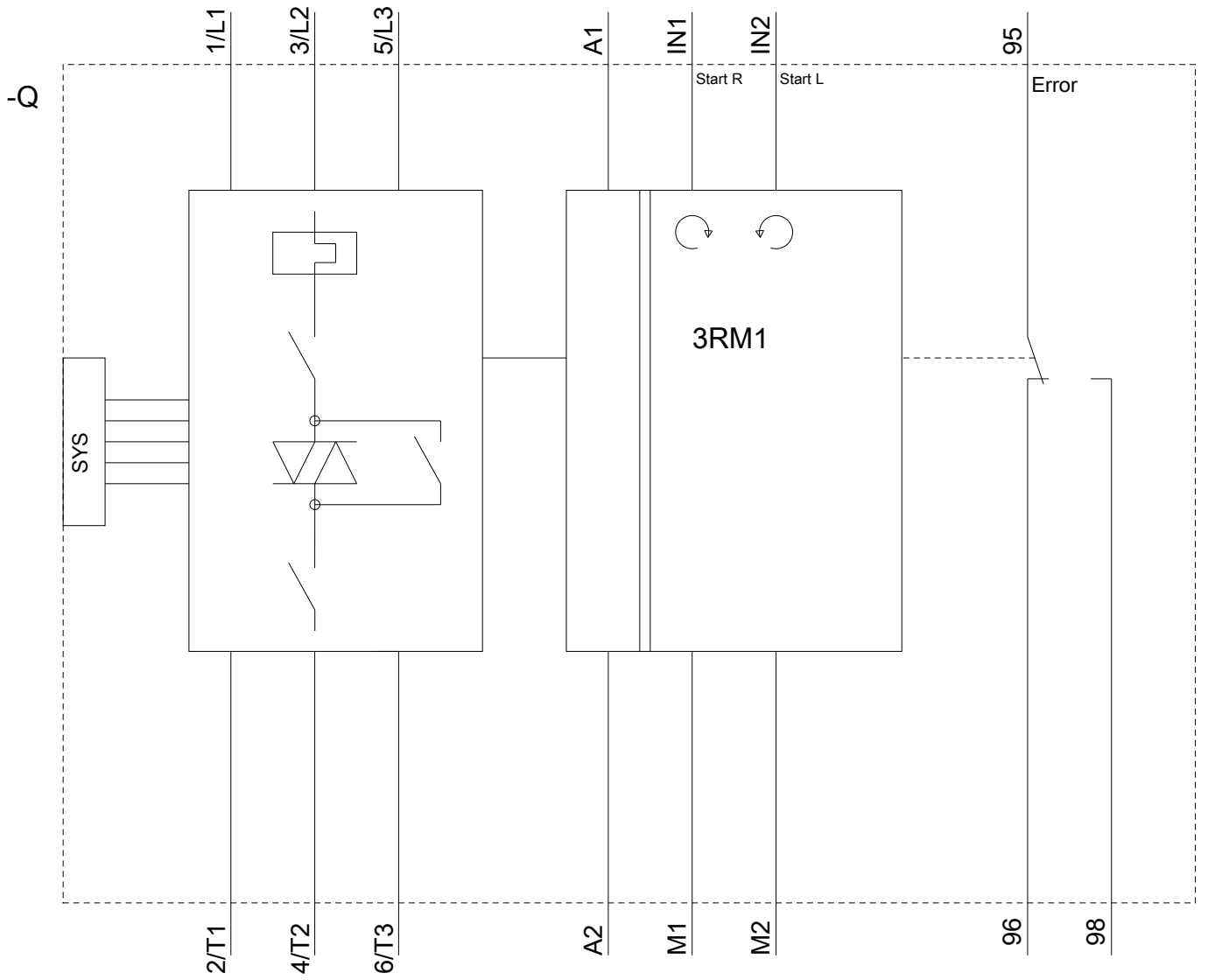
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

<https://support.industry.siemens.com/cs/ww/en/ps/3RM1307-2AA04>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RM1307-2AA04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1307-2AA04&lang=en)





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