

Direct starter, 3RM1, 500 V, 0.55 - 3 kW, 1.6 - 7 A, 24 V DC,  
screw/spring-type terminals



|                          |                                     |
|--------------------------|-------------------------------------|
| 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                                |

| General technical data                                                              |           |
|-------------------------------------------------------------------------------------|-----------|
| Trip class                                                                          | CLASS 10A |
| Product function                                                                    |           |
| • Intrinsic device protection                                                       | Yes       |
| 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    |
| Insulation voltage                                                                  |           |
| • rated value                                                                       | 500 V     |
| Surge voltage resistance rated value                                                | 6 kV      |
| maximum permissible voltage for safe isolation                                      |           |
| • between main and auxiliary circuit                                                | 500 V     |
| • between control and auxiliary circuit                                             | 250 V     |
| Protection class IP                                                                 | IP20      |

|                                                                                         |                                                 |
|-----------------------------------------------------------------------------------------|-------------------------------------------------|
| <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>Operating frequency maximum</b>                                                      | 1 1/s                                           |
| <b>Mechanical service life (switching cycles)</b>                                       |                                                 |
| • typical                                                                               | 30 000 000                                      |
| <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 81346-2</b>                                            | Q                                               |
| <b>Reference code acc. to DIN EN 61346-2</b>                                            | Q                                               |
| <b>Product function</b>                                                                 |                                                 |
| • direct start                                                                          | Yes                                             |
| • reverse starting                                                                      | No                                              |
| <b>Product function Short circuit protection</b>                                        | No                                              |

#### Electromagnetic compatibility

|                                                             |                                                                |
|-------------------------------------------------------------|----------------------------------------------------------------|
| <b>Conducted interference</b>                               |                                                                |
| • due to burst acc. to IEC 61000-4-4                        | 3 kV / 5 kHz                                                   |
| • due to conductor-earth surge acc. to IEC 61000-4-5        | 2 kV                                                           |
| • due to conductor-conductor surge acc. to IEC 61000-4-5    | 1 kV                                                           |
| • due to high-frequency radiation acc. to IEC 61000-4-6     | 10 V                                                           |
| <b>Electrostatic discharge acc. to IEC 61000-4-2</b>        | 4 kV contact discharge / 8 kV air discharge                    |
| <b>Conducted HF-interference emissions acc. to CISPR11</b>  | Class B for the domestic, business and commercial environments |
| <b>Field-bound HF-interference emission acc. to CISPR11</b> | Class B for the domestic, business and commercial environments |

#### Safety related data

|                                            |             |
|--------------------------------------------|-------------|
| <b>Protection against electrical shock</b> | finger-safe |
|--------------------------------------------|-------------|

#### Main circuit

|                                                                                   |                                 |
|-----------------------------------------------------------------------------------|---------------------------------|
| <b>Number of poles for main current circuit</b>                                   | 3                               |
| <b>Design of the switching contact as NO contact for signaling function</b>       | OUT, electronic, 24 V DC, 15 mA |
| <b>Adjustable pick-up value current of the current-dependent overload release</b> | 1.6 ... 7 A                     |
| <b>Minimum load [%]</b>                                                           | 20 %                            |
| <b>Type of the motor protection</b>                                               | solid-state                     |
| <b>Operating voltage</b>                                                          |                                 |
| • rated value                                                                     | 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>Operating current</b>                                         |               |
| • at AC at 400 V rated value                                     | 7 A           |
| • at AC-53a at 400 V at ambient temperature 40 °C rated value    | 7 A           |
| <b>Ampacity when starting maximum</b>                            | 56 A          |
| Operating power for three-phase motors at 400 V at 50 Hz         | 0.55 ... 3 kW |
| <b>Derating temperature</b>                                      | 40 °C         |

#### Inputs/ Outputs

|                                                                          |           |
|--------------------------------------------------------------------------|-----------|
| <b>Input voltage at digital input</b>                                    |           |
| • at DC rated value                                                      | 24 V      |
| • with signal <0> at DC                                                  | 0 ... 5 V |
| • for signal <1> at DC                                                   | 15 ... 30 |
| <b>Input current at digital input</b>                                    |           |
| • with signal <0> typical                                                | 0.001 A   |
| • for signal <1> typical                                                 | 0.011 A   |
| <b>Input current at digital input</b>                                    |           |
| • for signal <1> at DC                                                   | 11 mA     |
| • with signal <0> at DC                                                  | 1 mA      |
| Number of CO contacts for auxiliary contacts                             | 1         |
| <b>Operating current of auxiliary contacts at AC-15 at 230 V maximum</b> | 3 A       |
| <b>Operating current of auxiliary contacts at DC-13 at 24 V maximum</b>  | 1 A       |

#### Control circuit/ Control

|                                                                        |        |
|------------------------------------------------------------------------|--------|
| <b>Type of voltage of the control supply voltage</b>                   | DC     |
| <b>Control supply voltage 1</b>                                        |        |
| • at DC rated value                                                    | 24 V   |
| <b>Operating range factor control supply voltage rated value at DC</b> |        |
| • initial value                                                        | 0.8    |
| • Full-scale value                                                     | 1.25   |
| <b>Control current at DC</b>                                           |        |
| • in standby mode                                                      | 25 mA  |
| • when switching on                                                    | 150 mA |
| • during operation                                                     | 70 mA  |

#### Response times

|                             |              |
|-----------------------------|--------------|
| <b>Switch-on delay time</b> | 60 ... 90 ms |
| <b>Off-delay time</b>       | 60 ... 90 ms |

#### Installation/ mounting/ dimensions

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <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>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 0 mm</li> <li>— Backwards 0 mm</li> <li>— upwards 50 mm</li> <li>— downwards 50 mm</li> <li>— at the side 0 mm</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards 0 mm</li> <li>— Backwards 0 mm</li> <li>— upwards 50 mm</li> <li>— at the side 3.5 mm</li> <li>— downwards 50 mm</li> </ul> </li> </ul> |                                                              |

#### Ambient conditions

|                                                                                                                                                                         |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Installation altitude at height above sea level</b>                                                                                                                  |             |
| <ul style="list-style-type: none"> <li>• maximum 4 000 m</li> </ul>                                                                                                     |             |
| <b>Ambient temperature</b>                                                                                                                                              |             |
| <ul style="list-style-type: none"> <li>• during operation -25 ... +60 °C</li> <li>• during storage -40 ... +70 °C</li> <li>• during transport -40 ... +70 °C</li> </ul> |             |
| <b>Relative humidity during operation</b>                                                                                                                               | 10 ... 95 % |
| <b>Air pressure</b>                                                                                                                                                     |             |
| <ul style="list-style-type: none"> <li>• acc. to SN 31205 900 ... 1 060 hPa</li> </ul>                                                                                  |             |

#### Communication/ Protocol

|                                           |    |
|-------------------------------------------|----|
| <b>Product function Bus communication</b> | No |
|-------------------------------------------|----|

#### Connections/ Terminals

|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| <b>Type of electrical connection</b>                                                                                                                                                                                                                                                                                                                                                             | screw-type terminals for main circuit, spring-loaded terminals (push-in) for control circuit |
| <ul style="list-style-type: none"> <li>• for main current circuit screw-type terminals</li> <li>• for auxiliary and control current circuit spring-loaded terminals (push-in)</li> </ul>                                                                                                                                                                                                         |                                                                                              |
| <b>Type of connectable conductor cross-sections</b>                                                                                                                                                                                                                                                                                                                                              |                                                                                              |
| <ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid 1x (0,5 ... 4 mm<sup>2</sup>), 2x (0,5 ... 2,5 mm<sup>2</sup>)</li> <li>— finely stranded with core end processing 1x (0,5 ... 4 mm<sup>2</sup>), 2x (0,5 ... 1,5 mm<sup>2</sup>)</li> </ul> </li> <li>• at AWG conductors for main contacts 1x (20 ... 12), 2x (20 ... 14)</li> </ul> |                                                                                              |

|                                                                   |                                                                      |
|-------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Connectable conductor cross-section for main contacts</b>      |                                                                      |
| • single or multi-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> |                                                                      |
| • single or multi-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> ) |
| • at AWG conductors 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 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

| General Product Approval                                                            |                                                                                     |                                                                                     | EMC                                                                                 | other                                                                                 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |
| CCC                                                                                 | CSA                                                                                 | UL                                                                                  |                                                                                     | RCM                                                                                   |

[Confirmation](#)

#### Further information

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

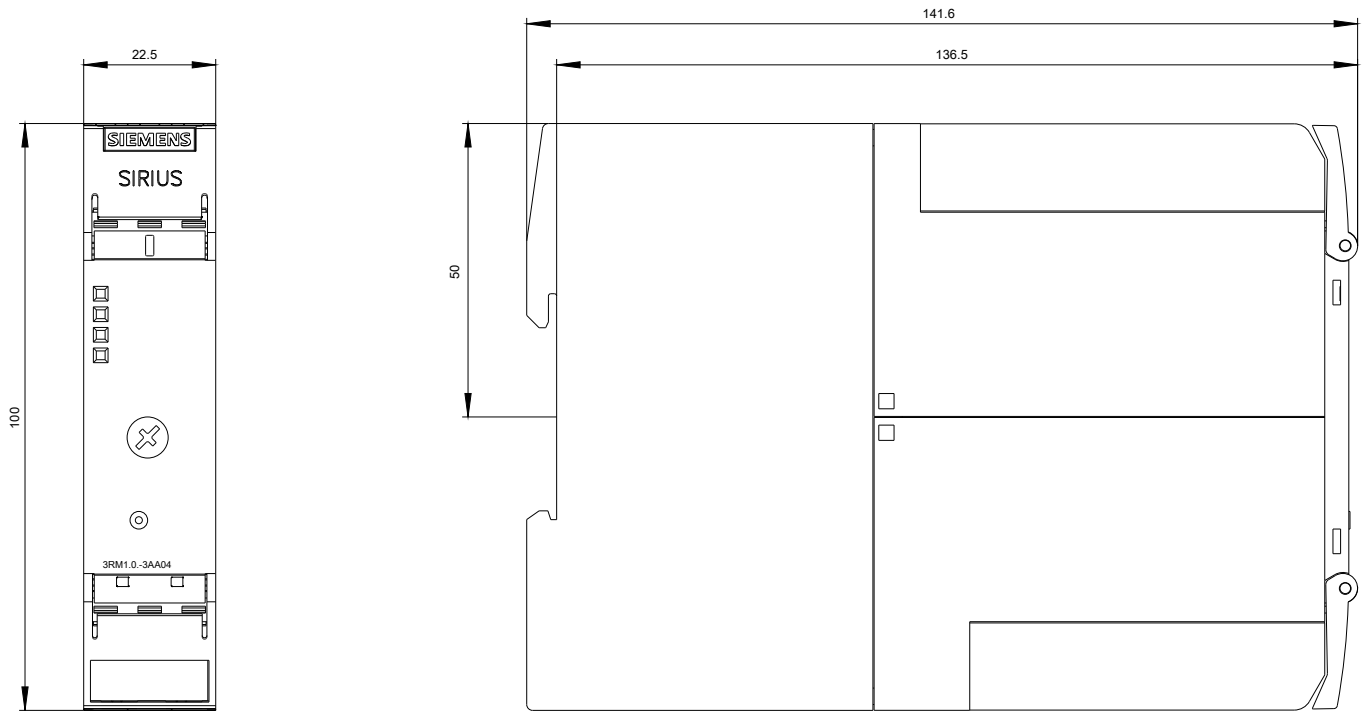
[www.siemens.com/ic10](http://www.siemens.com/ic10)

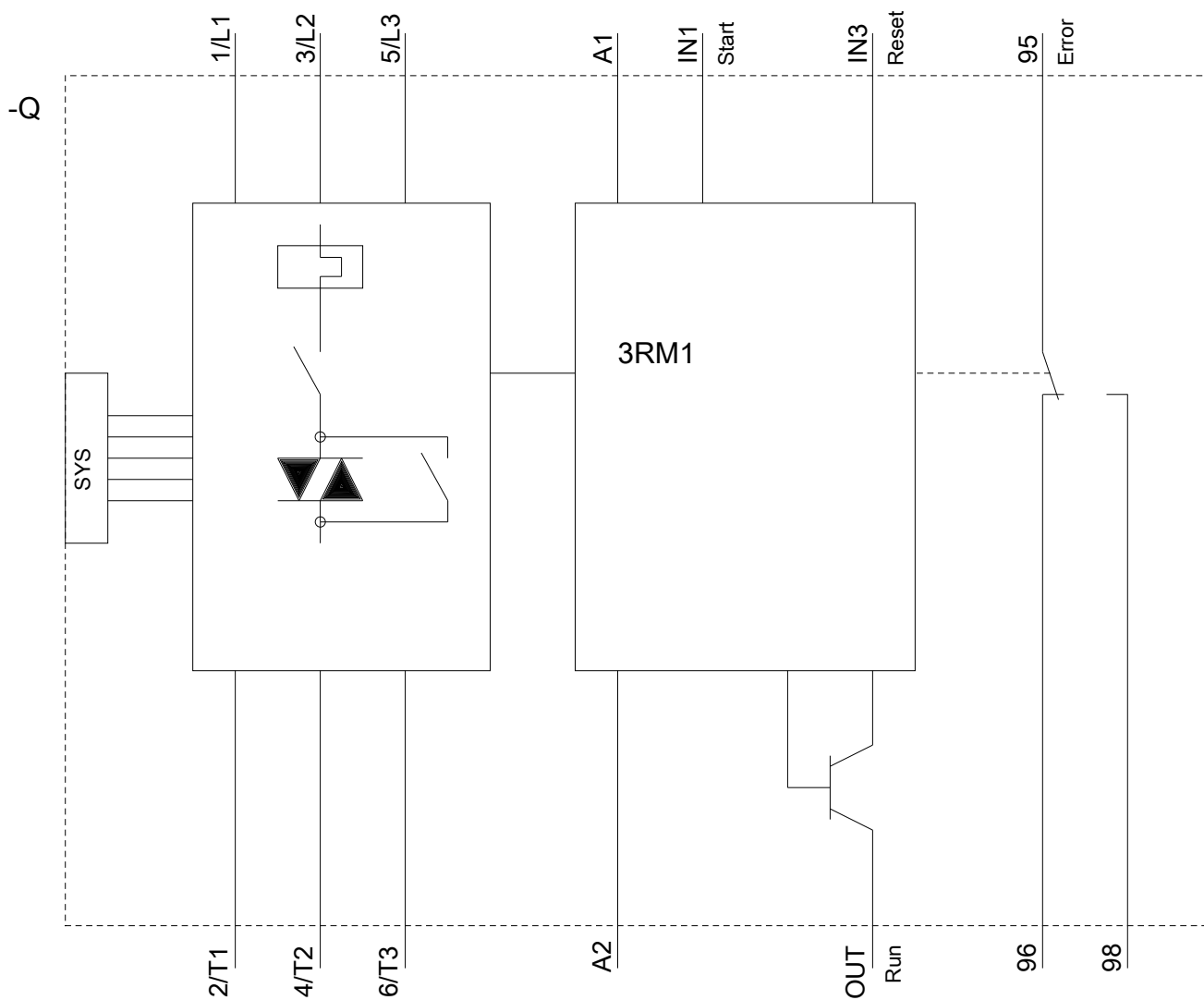
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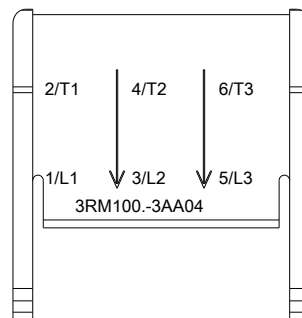
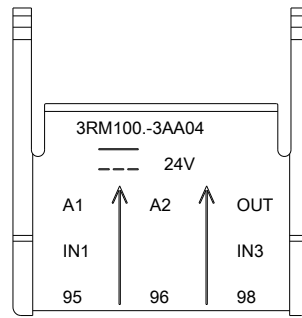
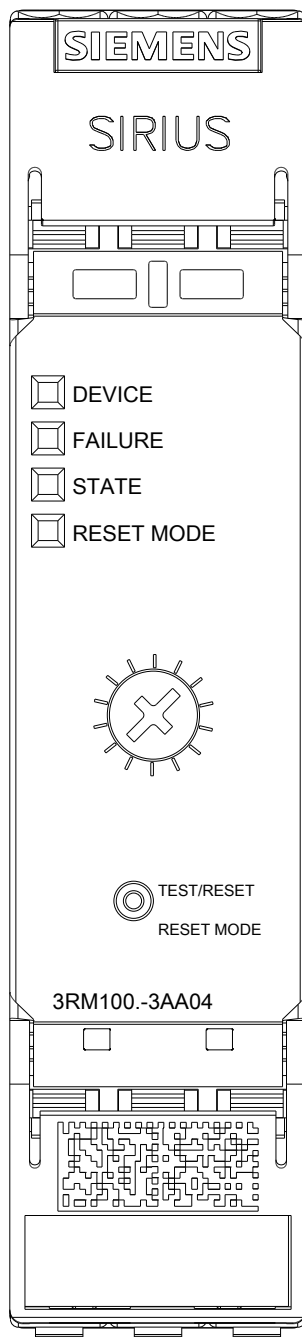
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RM1007-3AA04>

**Cax online generator**

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







last modified:

03/25/2020