

Motor starter SIRIUS 3RM1 DOL starter SAFETY 500 V; 0.1 - 0.5 A;  
24 V DC Control circuit push-in Main circuit screw terminal



Figure similar

| General technical data                                  |                                                                      |
|---------------------------------------------------------|----------------------------------------------------------------------|
| Product brand name                                      | SIRIUS                                                               |
| Product category                                        | Motor starter                                                        |
| Product designation                                     | Fail-safe direct starter                                             |
| 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/s², 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>                                                           |                                                                |
| • due to conductor-conductor surge acc. to IEC 61000-4-5                                | 2 kV                                                           |
| • due to conductor-earth surge acc. to IEC 61000-4-5                                    | 4 kV signal lines 2 kV                                         |
| • due to burst acc. to IEC 61000-4-4                                                    | 3 kV / 5 kHz                                                   |
| • due to high-frequency radiation acc. to IEC 61000-4-6                                 | 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>                                   |                                                                |
| • between main and auxiliary circuit                                                    | 500 V                                                          |
| • between control and auxiliary circuit                                                 | 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 <ul style="list-style-type: none"> <li>• 1 rated value</li> <li>• 2 rated value</li> </ul> | 50 Hz<br>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                                  | 0.5 A          |
| Minimum load [%]                                                                                               | 20 %           |
| Power loss [W] typical                                                                                         | 0.02 W         |
| Adjustable pick-up value current of the current-dependent overload release                                     | 0.1 ... 0.5 A  |
| Ampacity when starting maximum                                                                                 | 4 A            |
| Operating power for three-phase motors at 400 V at 50 Hz                                                       | 0 ... 0.12 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> |               |
| • at DC                                                          | 0.8 ... 1.25  |
| <b>Control current</b>                                           |               |
| • at DC                                                          |               |
| — in standby mode                                                | 13 mA         |
| — during operation                                               | 57 mA         |
| — when switching on                                              | 150 mA        |
| <b>Input voltage at digital input</b>                            |               |
| • for signal <1>                                                 |               |
| — at DC                                                          | 15 ... 30 V   |
| • with signal <0>                                                |               |
| — at DC                                                          | 0 ... 5 V     |
| <b>Input current at digital input</b>                            |               |
| • for signal <1>                                                 |               |
| — at DC                                                          | 8 mA          |
| • with signal <0>                                                |               |
| — at DC                                                          | 1 mA          |
| <b>Switch-on delay time</b>                                      | 90 ... 120 ms |
| <b>Off-delay time</b>                                            | 40 ... 55 ms  |

#### Auxiliary circuit

|                                                     |     |
|-----------------------------------------------------|-----|
| <b>Number of CO contacts for auxiliary contacts</b> | 1   |
| <b>Operating current of auxiliary contacts</b>      |     |
| • at AC-15 at 230 V maximum                         | 3 A |
| • at DC-13 at 24 V maximum                          | 1 A |

#### 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>Width</b>             | 22.5 mm                                                      |
| <b>Height</b>            | 100 mm                                                       |
| <b>Depth</b>             | 141.6 mm                                                     |

#### Connections/Terminals

|                                                                       |                                               |
|-----------------------------------------------------------------------|-----------------------------------------------|
| <b>Type of electrical connection</b>                                  |                                               |
| • for main current circuit                                            | screw-type terminals                          |
| • for auxiliary and control current circuit                           | PUSH-IN connection (spring-loaded connection) |
| <b>Type of connectable conductor cross-sections for main contacts</b> |                                               |
| • solid                                                               | 1x (0,5 ... 4 mm²), 2x (0,5 ... 2,5 mm²)      |
| • finely stranded                                                     |                                               |
| — with core end processing                                            | 1x (0,5 ... 4 mm²), 2x (0,5 ... 1,5 mm²)      |

|                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of connectable conductor cross-sections at AWG conductors for main contacts                                                                                                                                                                                              | 1x (20 ... 12), 2x (20 ... 14)                                                                                                                                                                                           |
| Type of connectable conductor cross-sections for auxiliary contacts <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded <ul style="list-style-type: none"> <li>— with core end processing</li> <li>— without core end processing</li> </ul> </li> </ul> | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )<br><br>1x (0,5 ... 1,0 mm <sup>2</sup> ), 2x (0,5 ... 1,0 mm <sup>2</sup> )<br>1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| Type of connectable conductor cross-sections at AWG conductors for auxiliary contacts                                                                                                                                                                                         | 1x (20 ... 16), 2x (20 ... 16)                                                                                                                                                                                           |

| UL ratings                                                            |       |
|-----------------------------------------------------------------------|-------|
| Full-load current (FLA) for three-phase AC motor at 480 V rated value | 0.5 A |

#### Certificates/approvals

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

| Declaration of Conformity                                                                       | other                        |
|-------------------------------------------------------------------------------------------------|------------------------------|
| <br>EG-Konf. | <a href="#">Confirmation</a> |

#### Further information

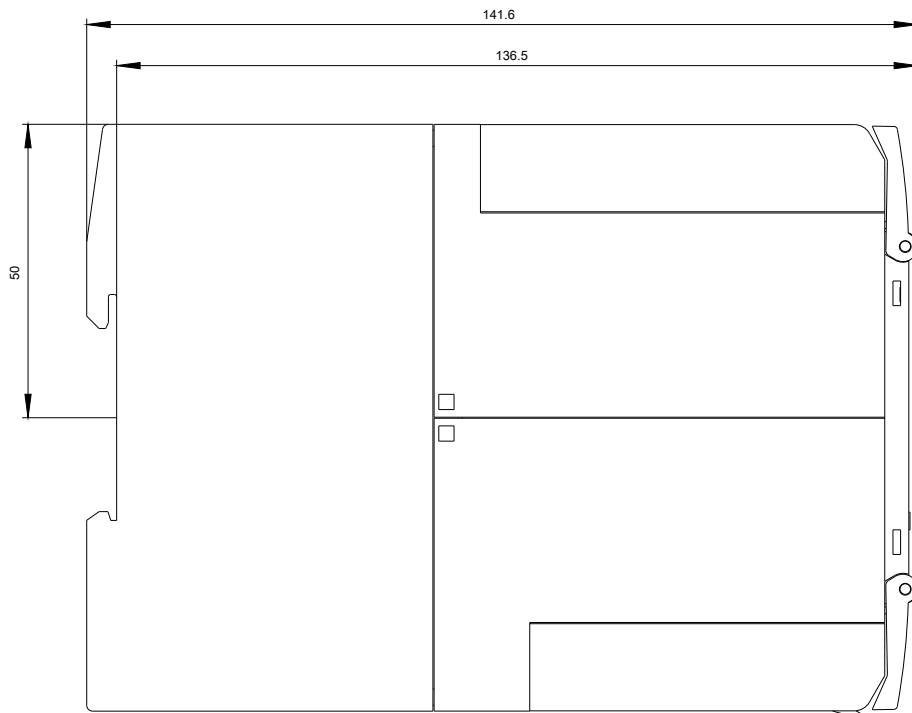
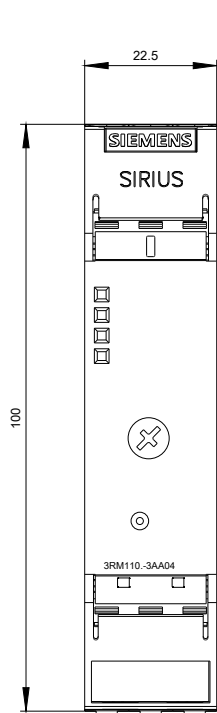
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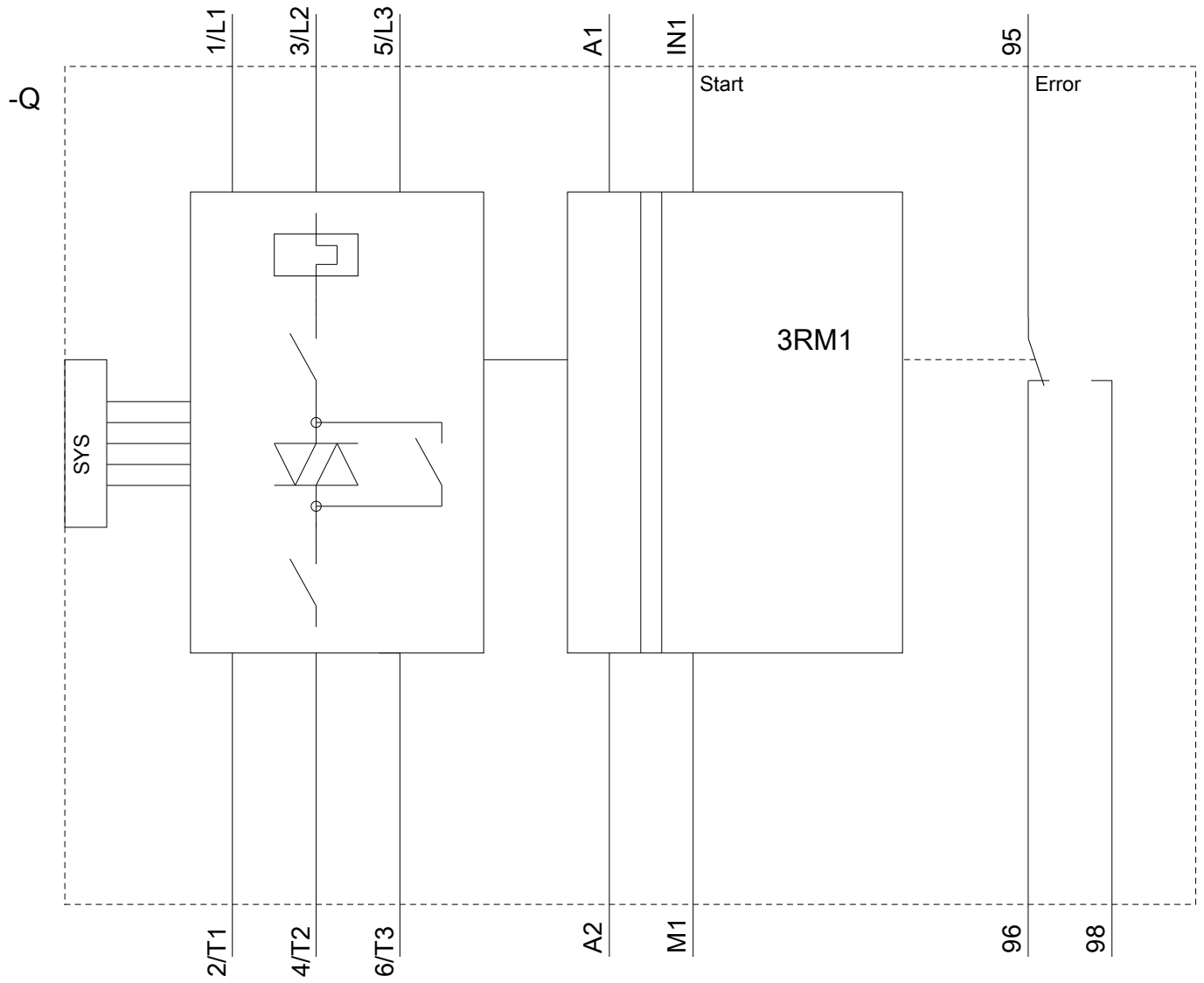
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