



Direct starter, 3RM1, 500 V, 0.09 - 0.75 kW, 0.4 - 2 A, 110-230 V AC, screw terminals

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| 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 | |
| equipment version according to IEC 60947-4-2 | 3 |
| product function | Direct-on-line starter |
| <ul style="list-style-type: none"> intrinsic device protection | Yes |
| <ul style="list-style-type: none"> for power supply reverse polarity protection | No |
| suitability for operation device connector 3ZY12 | No |
| power loss [W] for rated value of the current | |
| <ul style="list-style-type: none"> at AC in hot operating state per pole | 0.1 W |
| <ul style="list-style-type: none"> without load current share typical | 5.06 W |
| insulation voltage rated value | 500 V |
| overvoltage category | III |
| surge voltage resistance rated value | 6 kV |
| maximum permissible voltage for protective separation | |
| <ul style="list-style-type: none"> between main and auxiliary circuit | 500 V |
| <ul style="list-style-type: none"> between control and auxiliary circuit | 250 V |
| shock resistance | 6g / 11 ms |
| vibration resistance | 1 ... 6 Hz, 15 mm; 20 m/s ² , 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 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 |
| Weight | 0.322 kg |
| product function | |
| <ul style="list-style-type: none"> direct start | Yes |
| <ul style="list-style-type: none"> reverse starting | No |
| product function short circuit protection | No |
| Electromagnetic compatibility | |
| EMC emitted interference according to IEC 60947-1 | class A |
| EMC immunity according to IEC 60947-1 | Class A |
| conducted interference | |
| <ul style="list-style-type: none"> due to burst according to IEC 61000-4-4 | 3 kV / 5 kHz |
| <ul style="list-style-type: none"> due to conductor-earth surge according to IEC 61000-4-5 | 2 kV |
| <ul style="list-style-type: none"> due to conductor-conductor surge according to IEC | 1 kV |

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| 61000-4-5 | |
| <ul style="list-style-type: none"> due to high-frequency radiation according to IEC 61000-4-6 | 10 V |
| field-based interference according to IEC 61000-4-3 | 10 V/m |
| electrostatic discharge according to IEC 61000-4-2 | 4 kV contact discharge / 8 kV air discharge |
| conducted HF interference emissions according to CISPR11 | Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC |
| field-bound HF interference emission according to CISPR11 | Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC |
| Electrical Safety | |
| protection class IP on the front according to IEC 60529 | IP20 |
| touch protection on the front according to IEC 60529 | finger-safe |
| Main circuit | |
| number of poles for main current circuit | 3 |
| design of the switching contact | Hybrid |
| design of the switching contact as NO contact for signaling function | OUT, electronic, 24 V DC, 15 mA |
| adjustable current response value current of the current-dependent overload release | 0.4 ... 2 A |
| minimum load [%] | 20 %; from set rated current |
| type of the motor protection | solid-state |
| operating voltage rated value | 48 ... 500 V |
| relative symmetrical tolerance of the operating voltage | 10 % |
| operating frequency 1 rated value | 50 Hz |
| operating frequency 2 rated value | 60 Hz |
| relative symmetrical tolerance of the operating frequency | 10 % |
| operational current | |
| <ul style="list-style-type: none"> at AC at 400 V rated value | 2 A |
| <ul style="list-style-type: none"> at AC-3 at 400 V rated value | 2 A |
| <ul style="list-style-type: none"> at AC-53a at 400 V at ambient temperature 40 °C rated value | 2 A |
| ampacity when starting maximum | 16 A |
| operating power for 3-phase motors at 400 V at 50 Hz | 0.09 ... 0.75 kW |
| Inputs/ Outputs | |
| input voltage at digital input at DC rated value | 110 V |
| input voltage at digital input at AC rated value | 110 V |
| input current at digital input | |
| <ul style="list-style-type: none"> for signal <1> at DC | 1.5 mA |
| <ul style="list-style-type: none"> with signal <0> at DC | 0.25 mA |
| input current at digital input with signal <0> at AC | |
| <ul style="list-style-type: none"> at 110 V | 0.2 mA |
| <ul style="list-style-type: none"> at 230 V | 0.4 mA |
| input current at digital input for signal <1> at AC | |
| <ul style="list-style-type: none"> at 110 V | 1.1 mA |
| <ul style="list-style-type: none"> at 230 V | 2.3 mA |
| number of CO contacts for auxiliary contacts | 1 |
| operational current of auxiliary contacts at AC-15 at 230 V maximum | 3 A |
| operational current of auxiliary contacts at DC-13 at 24 V maximum | 1 A |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | AC/DC |
| control supply voltage at AC | |
| <ul style="list-style-type: none"> at 50 Hz rated value | 110 ... 230 V |
| <ul style="list-style-type: none"> at 60 Hz rated value | 110 ... 230 V |
| relative negative tolerance of the control supply voltage at AC at 60 Hz | 15 % |
| relative positive tolerance of the control supply voltage at AC at 60 Hz | 10 % |
| control supply voltage 1 at AC | |
| <ul style="list-style-type: none"> at 50 Hz | 110 ... 230 V |
| <ul style="list-style-type: none"> at 60 Hz | 110 ... 230 V |
| control supply voltage frequency | |
| <ul style="list-style-type: none"> 1 rated value | 50 Hz |

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| • 2 rated value | 60 Hz |
| relative negative tolerance of the control supply voltage at DC | 15 % |
| relative positive tolerance of the control supply voltage at DC | 10 % |
| control supply voltage 1 at DC rated value | 110 V |
| operating range factor control supply voltage rated value at DC | |
| • initial value | 0.85 |
| • full-scale value | 1.1 |
| operating range factor control supply voltage rated value at AC at 50 Hz | |
| • initial value | 0.85 |
| • full-scale value | 1.1 |
| operating range factor control supply voltage rated value at AC at 60 Hz | |
| • initial value | 0.85 |
| • full-scale value | 1.1 |
| control current at AC | |
| • at 110 V in standby mode of operation | 16 mA |
| • at 230 V in standby mode of operation | 9 mA |
| • at 110 V when switching on | 55 mA |
| • at 230 V when switching on | 33 mA |
| • at 110 V during operation | 36 mA |
| • at 230 V during operation | 22 mA |
| control current at DC | |
| • in standby mode of operation | 6 mA |
| • during operation | 30 mA |
| inrush current peak | |
| • at AC at 110 V | 1 200 mA |
| • at AC at 230 V | 2 900 mA |
| • at AC at 110 V at switching on of motor | 1 200 mA |
| • at AC at 230 V at switching on of motor | 2 900 mA |
| duration of inrush current peak | |
| • at AC at 110 V | 1 ms |
| • at AC at 230 V | 1 ms |
| • at AC at 110 V at switching on of motor | 1 ms |
| • at AC at 230 V at switching on of motor | 1 ms |
| power loss [W] in auxiliary and control circuit | |
| • in switching state OFF | |
| — with bypass circuit | 2.1 W |
| • in switching state ON | |
| — with bypass circuit | 5.06 W |
| Response times | |
| ON-delay time | 60 ... 90 ms |
| OFF-delay time | 60 ... 90 ms |
| Power Electronics | |
| operational current | |
| • at 40 °C rated value | 2 A |
| • at 50 °C rated value | 2 A |
| • at 55 °C rated value | 2 A |
| • at 60 °C rated value | 2 A |
| Installation/ mounting/ dimensions | |
| mounting position | vertical, horizontal, standing (observe derating) |
| fastening method | screw and snap-on mounting onto 35 mm DIN rail |
| height | 100 mm |
| width | 22.5 mm |
| depth | 141.6 mm |
| required spacing | |
| • with side-by-side mounting | |
| — forwards | 0 mm |
| — backwards | 0 mm |

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| — upwards | 50 mm |
| — downwards | 50 mm |
| — at the side | 0 mm |
| ● for grounded parts | |
| — forwards | 0 mm |
| — backwards | 0 mm |
| — upwards | 50 mm |
| — at the side | 3.5 mm |
| — downwards | 50 mm |
| Ambient conditions | |
| installation altitude at height above sea level maximum | 4 000 m; For derating see manual |
| ambient temperature | |
| ● during operation | -25 ... +60 °C |
| ● during storage | -40 ... +70 °C |
| ● during transport | -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 |
| Communication/ Protocol | |
| protocol is supported | |
| ● PROFINET IO protocol | No |
| ● PROFI-safe protocol | No |
| product function bus communication | No |
| protocol is supported AS-Interface protocol | No |
| Connections/ Terminals | |
| type of electrical connection | screw-type terminals for main circuit, screw-type terminals for control circuit |
| ● for main current circuit | screw-type terminals |
| ● for auxiliary and control circuit | screw-type terminals |
| wire length for motor unshielded maximum | 100 m |
| type of connectable conductor cross-sections for main contacts | |
| ● solid | 1x (0,5 ... 4 mm ²), 2x (0,5 ... 2,5 mm ²) |
| ● finely stranded with core end processing | 1x (0,5 ... 4 mm ²), 2x (0,5 ... 1,5 mm ²) |
| connectable conductor cross-section for main contacts | |
| ● solid or stranded | 0.5 ... 4 mm ² |
| ● finely stranded with core end processing | 0.5 ... 4 mm ² |
| connectable conductor cross-section for auxiliary contacts | |
| ● solid or stranded | 0.5 ... 2.5 mm ² |
| ● finely stranded with core end processing | 0.5 ... 2.5 mm ² |
| type of connectable conductor cross-sections | |
| ● for auxiliary contacts | |
| — solid | 1x (0,5 ... 2,5 mm ²), 2x (1,0 ... 1,5 mm ²) |
| — finely stranded with core end processing | 1x (0,5 ... 2,5 mm ²), 2x (0,5 ... 1 mm ²) |
| ● for AWG cables for auxiliary contacts | 1x (20 ... 14), 2x (18 ... 16) |
| AWG number as coded connectable conductor cross section | |
| ● for main contacts | 20 ... 12 |
| ● for auxiliary contacts | 20 ... 14 |
| UL/CSA ratings | |
| yielded mechanical performance [hp] | |
| ● for single-phase AC motor | |
| — at 230 V rated value | 0.125 hp |
| ● for 3-phase AC motor | |
| — at 200/208 V rated value | 0.333 hp |
| — at 220/230 V rated value | 0.333 hp |
| — at 460/480 V rated value | 0.75 hp |
| operational current at AC at 480 V according to UL 508 | 2 A |
| Approvals Certificates | |
| General Product Approval | EMV |



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| Test Certificates | other | Railway | Environment |
|-------------------|-------|---------|-------------|

[Type Test Certificates/Test Report](#)



[Confirmation](#)

[Special Test Certificate](#)

[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=3RM1002-1AA14>

Cax online generator

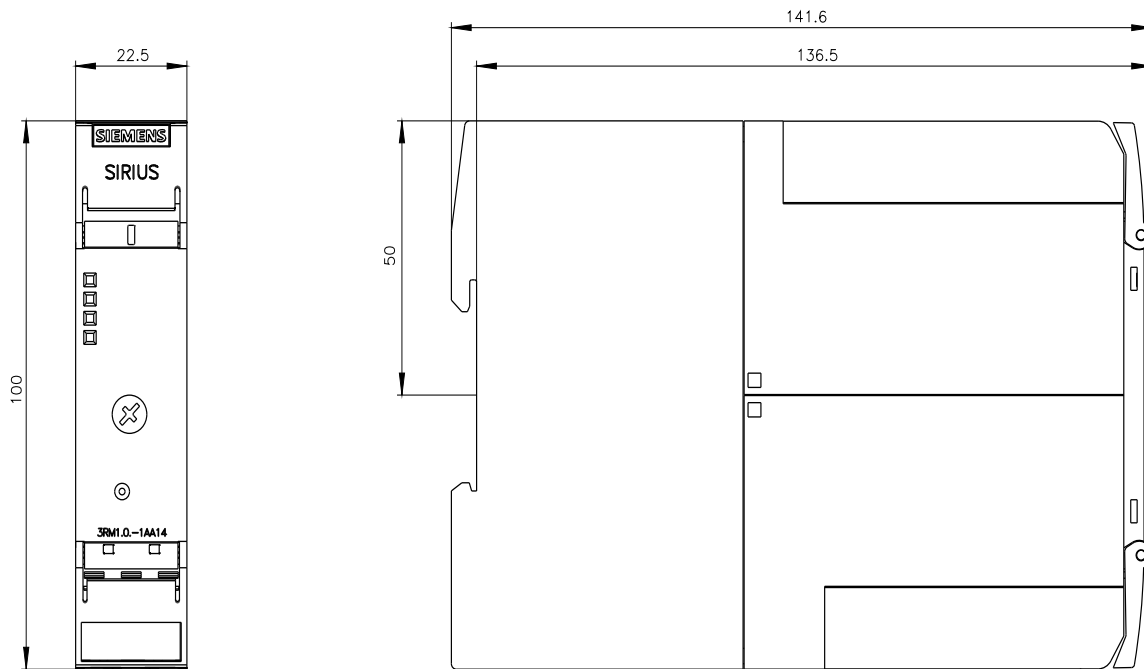
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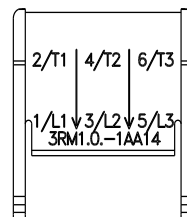
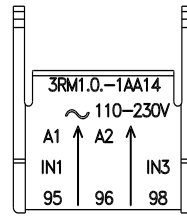
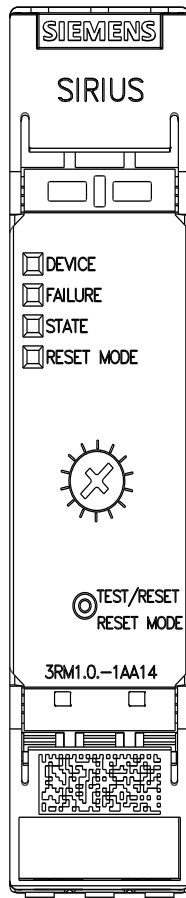
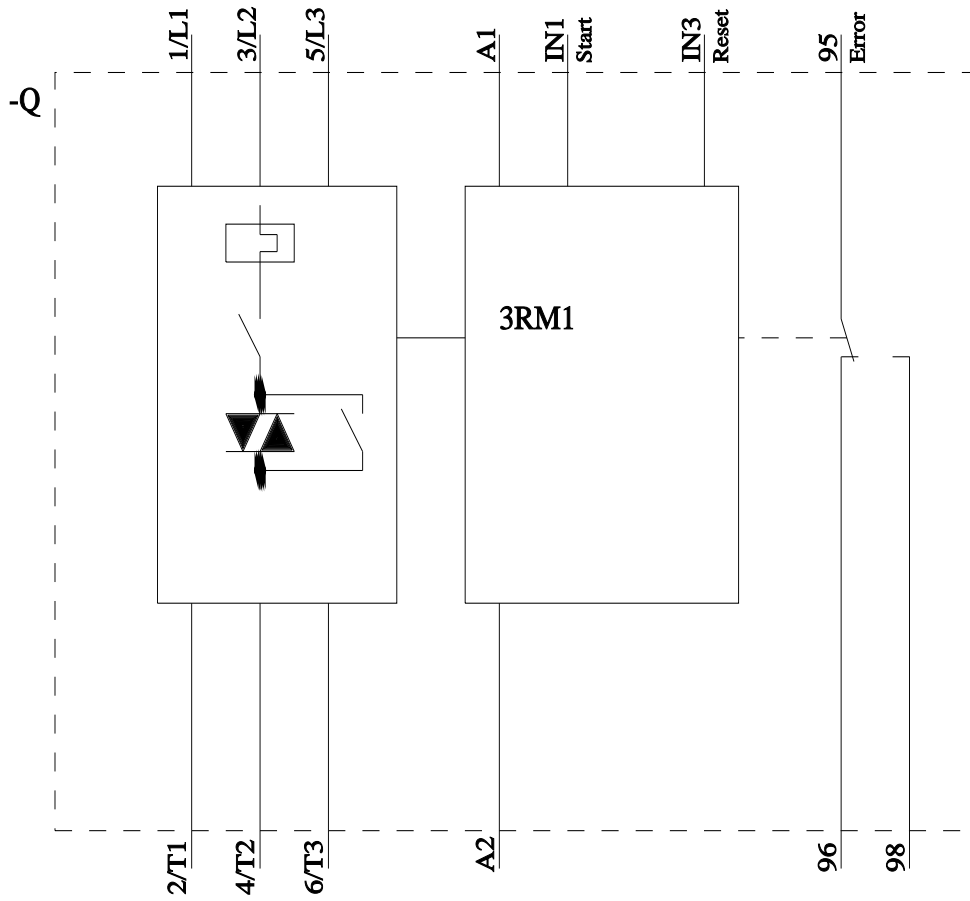
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RM1002-1AA14>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1002-1AA14&lang=en





last modified:

5/1/2025