



overload relay 80...100 A thermal for motor protection frame size S3, Class 10 for mounting on contactors main circuit: screw auxiliary circuit: spring-loaded terminal manual-automatic RESET

|   |                        |
|---|------------------------|
| product brand name  | SIRIUS                 |
| product designation   | thermal overload relay |
| product type designation  | 3RU2                   |
| <b>General technical data</b>   |                        |
| size of overload relay  | S3                     |
| size of contactor can be combined company-specific                                  | S3                     |
| power loss [W] for rated value of the current at AC in hot operating state          | 21 W                   |
| • per pole  | 7 W                    |
| insulation voltage with degree of pollution 3 at AC rated value                     | 1 000 V                |
| surge voltage resistance rated value  | 8 kV                   |
| maximum permissible voltage for protective separation                               |                        |
| • in networks with ungrounded star point between auxiliary and auxiliary circuit    | 440 V                  |
| • in networks with grounded star point between auxiliary and auxiliary circuit      | 440 V                  |
| • in networks with ungrounded star point between main and auxiliary circuit         | 440 V                  |
| • in networks with grounded star point between main and auxiliary circuit           | 440 V                  |
| shock resistance according to IEC 60068-2-27  | 8g / 11 ms             |
| recovery time after overload trip   |                        |
| • with automatic reset typical  | 10 min                 |
| • with remote-reset   | 10 min                 |
| • with manual reset   | 10 min                 |
| reference code according to IEC 81346-2   | F                      |
| Substance Prohibitance (Date)   | 03/01/2017             |
| SVHC substance name   | Lead - 7439-92-1       |
| Net Weight  | 0.585 kg               |
| <b>Ambient conditions</b>   |                        |
| installation altitude at height above sea level maximum                             | 2 000 m                |
| ambient temperature   |                        |
| • during operation  | -40 ... +70 °C         |
| • during storage  | -55 ... +80 °C         |
| • during transport  | -55 ... +80 °C         |
| temperature compensation  | -40 ... +60 °C         |
| relative humidity during operation  | 10 ... 95 %            |
| <b>Main circuit</b>   |                        |
| number of poles for main current circuit  | 3                      |
| adjustable current response value current of the current-dependent overload release | 80 ... 100 A           |

|   |  |
|---|--|
| <b>operating voltage</b>  |  |
| • rated value   | 1 000 V  |
| • at AC-3e rated value maximum  | 1 000 V  |
| <b>operating frequency rated value</b>  | 50 ... 60 Hz   |
| <b>operational current rated value</b>  | 100 A  |
| operational current at AC-3e at 400 V rated value   | 100 A  |
| <b>operating power</b>  |  |
| • at AC-3   |  |
| — at 400 V rated value  | 45 kW  |
| — at 500 V rated value  | 55 kW  |
| — at 690 V rated value  | 90 kW  |
| • at AC-3e  |  |
| — at 400 V rated value  | 45 kW  |
| — at 500 V rated value  | 55 kW  |
| — at 690 V rated value  | 90 kW  |
| <b>Auxiliary circuit</b>  |  |
| <b>design of the auxiliary switch</b>   | integrated   |
| <b>number of NC contacts for auxiliary contacts</b>   | 1  |
| • note  | for contactor disconnection  |
| <b>number of NO contacts for auxiliary contacts</b>   | 1  |
| • note  | for message "Tripped"  |
| number of CO contacts for auxiliary contacts  | 0  |
| <b>operational current of auxiliary contacts at AC-15</b>   |  |
| • at 24 V   | 3 A  |
| • at 110 V  | 3 A  |
| • at 120 V  | 3 A  |
| • at 125 V  | 3 A  |
| • at 230 V  | 2 A  |
| • at 400 V  | 1 A  |
| • at 690 V  | 0.75 A   |
| <b>operational current of auxiliary contacts at DC-13</b>   |  |
| • at 24 V   | 2 A  |
| • at 60 V   | 0.3 A  |
| • at 110 V  | 0.22 A   |
| • at 125 V  | 0.22 A   |
| • at 220 V  | 0.11 A   |
| design of the miniature circuit breaker for short-circuit protection of the auxiliary switch required | 6A (SCC less than equal to 0.5 kA; U less than equal to 260V)  |
| <b>contact rating of auxiliary contacts according to UL</b>   | B600 / R300  |
| <b>Protective and monitoring functions</b>  |  |
| <b>trip class</b>   | CLASS 10   |
| <b>design of the overload release</b>   | thermal  |
| <b>UL/CSA ratings</b>   |  |
| <b>full-load current (FLA) for 3-phase AC motor</b>   |  |
| • at 480 V rated value  | 96 A   |
| • at 600 V rated value  | 99 A   |
| <b>Short-circuit protection</b>   |  |
| <b>design of the fuse link</b>  |  |
| • for short-circuit protection of the main circuit  |  |
| — with type of coordination 1 required  | 690 V: gG: 250 A; 1000 V: a.M. / g.B.: 200 A   |
| — with type of coordination 2 required  | 690 V: gG: 200 A; 1000 V: a.M. / g.B.: 200 A   |
| • for short-circuit protection of the auxiliary switch required                                       | fuse gG: 6 A, quick: 10 A  |
| <b>Installation/ mounting/ dimensions</b>   |  |
| <b>mounting position</b>  | for mounting on contactors: with a vertical mounting plane +/-135° rotatable & +/- 22.5° tiltable, stand-alone installation: with a vertical mounting plane +/-135° rotatable and +/-45° tiltable; for more details see manual |
| <b>fastening method</b>   | Contactor mounting   |
| <b>height</b>   | 105 mm   |
| <b>width</b>  | 70 mm  |

|  |  |
|--|--|
| depth  | 125 mm   |
| <b>Connections/ Terminals</b>  |  |
| product component removable terminal for auxiliary and control circuit | No   |
| type of electrical connection  |  |
| • for main current circuit   | screw-type terminals   |
| • for auxiliary and control circuit                                    | spring-loaded terminals  |
| arrangement of electrical connectors for main current circuit          | Top and bottom   |
| type of connectable conductor cross-sections                           |  |
| • for main contacts  |  |
| — solid  | 2x (2.5 ... 16 mm <sup>2</sup> )   |
| — stranded   | 2x (6 ... 16 mm <sup>2</sup> ), 2x (10 ... 50 mm <sup>2</sup> ), 1x (10 ... 70 mm <sup>2</sup> ) |
| — solid or stranded  | 2x (2.5 ... 50 mm <sup>2</sup> ), 1x (10 ... 70 mm <sup>2</sup> )                                |
| — finely stranded with core end processing                             | 2x (2.5 ... 35 mm <sup>2</sup> ), 1x (2.5 ... 50 mm <sup>2</sup> )                               |
| • for AWG cables for main contacts                                     | 2x (10 ... 1/0), 1x (10 ... 2/0)   |
| type of connectable conductor cross-sections                           |  |
| • for auxiliary contacts   |  |
| — solid or stranded  | 2x (0.5 ... 2.5 mm <sup>2</sup> )  |
| — finely stranded with core end processing                             | 2x (0.5 ... 1.5 mm <sup>2</sup> )  |
| — finely stranded without core end processing                          | 2x (0.5 ... 2.5 mm <sup>2</sup> )  |
| • for AWG cables for auxiliary contacts                                | 2x (20 ... 14)   |
| tightening torque  |  |
| • for main contacts for ring cable lug                                 | 4.5 ... 6 N·m  |
| outer diameter of the usable ring cable lug maximum                    | 19 mm  |
| tightening torque  |  |
| • for main contacts with screw-type terminals                          | 4.5 ... 6 N·m  |
| design of screwdriver shaft  | Hexagonal socket   |
| size of the screwdriver tip  | 4 mm hexagon socket  |
| design of the thread of the connection screw                           |  |
| • for main contacts  | M8   |
| IEC 61508  |  |
| T1 value   |  |
| • for proof test interval or service life according to IEC 61508       | 20 a   |
| Electrical Safety  |  |
| protection class IP on the front according to IEC 60529                | IP20   |
| touch protection on the front according to IEC 60529                   | finger-safe, for vertical contact from the front   |
| Display  |  |
| display version for switching status                                   | Slide switch   |
| <b>Approvals Certificates</b>  |  |
| Environmental Product Declaration                                      |  |
| • global warming potential [CO <sub>2</sub> eq] / during manufacturing | 3.11 kg  |
| • global warming potential [CO <sub>2</sub> eq] / during sales         | 0.123 kg   |
| • global warming potential [CO <sub>2</sub> eq] / during operation     | 164 kg   |
| • global warming potential [CO <sub>2</sub> eq] / after end of life    | -0.256 kg  |
| • global warming potential [CO <sub>2</sub> eq] / total                | 167 kg   |
| Environment  | General Product Approval   |



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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=3RU2146-4MD0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RU2146-4MD0>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RU2146-4MD0&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RU2146-4MD0&lang=en)

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RU2146-4MD0>

Characteristic curves

[https://curves.samaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="Haupt"></mmp\\_prod\\_no>](https://curves.samaris.siemens.com/curves/<mmp_prod_noCOMP=)



