



Overload relay 70...90 A Thermal For motor protection Size S3, Class 10 Contactor mounting Main circuit: Screw Auxiliary circuit: Screw 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 | 70 ... 90 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>                                                                | 90 A                                                                                                                                                                                                                           |
| operational current at AC-3e at 400 V rated value                                                     | 90 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                                                                                | 75 kW                                                                                                                                                                                                                          |
| • at AC-3e                                                                                            |                                                                                                                                                                                                                                |
| — at 400 V rated value                                                                                | 45 kW                                                                                                                                                                                                                          |
| — at 500 V rated value                                                                                | 55 kW                                                                                                                                                                                                                          |
| — at 690 V rated value                                                                                | 75 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                                                                                | 77 A                                                                                                                                                                                                                           |
| • at 600 V rated value                                                                                | 77 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.: 160 A                                                                                                                                                                                   |
| — with type of coordination 2 required                                                                | 690 V: gG: 160 A; 1000 V: a.M. / g.B.: 160 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                                                                                                                                                                                                                          |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------|----------------------|
| depth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 125 mm                                                    |                   |                      |
| Connections/ Terminals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           |                   |                      |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | screw-type 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 mm²)                                       |                   |                      |
| — stranded                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2x (6 ... 16 mm²), 2x (10 ... 50 mm²), 1x (10 ... 70 mm²) |                   |                      |
| — solid or stranded                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2x (2,5 ... 50 mm²), 1x (10 ... 70 mm²)                   |                   |                      |
| — finely stranded with core end processing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²)                  |                   |                      |
| • 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 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)               |                   |                      |
| — finely stranded with core end processing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)               |                   |                      |
| • for AWG cables for auxiliary contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2x (20 ... 16), 2x (18 ... 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                                             |                   |                      |
| • for auxiliary contacts with screw-type terminals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.8 ... 1.2 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                                                        |                   |                      |
| • of the auxiliary and control contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | M3                                                        |                   |                      |
| 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                                              |                   |                      |
| Approvals Certificates                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           |                   |                      |
| Environmental Product Declaration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                   |                      |
| • global warming potential [CO2 eq] / during manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3.09 kg                                                   |                   |                      |
| • global warming potential [CO2 eq] / during sales                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.146 kg                                                  |                   |                      |
| • global warming potential [CO2 eq] / during operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 118 kg                                                    |                   |                      |
| • global warming potential [CO2 eq] / after end of life                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -0.187 kg                                                 |                   |                      |
| • global warming potential [CO2 eq] / total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 120 kg                                                    |                   |                      |
| Environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | General Product Approval                                  |                   |                      |
| <div><div></div><div><a href="#">Environmental Confirmations</a></div><div></div><div></div><div></div><div></div></div> |                                                           |                   |                      |
| General Product Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | For use in hazardous locations                            | Test Certificates | Maritime application |



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



#### Maritime application



#### other

#### Railway



[Confirmation](#)

[Special Test Certificate](#)

#### 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=3RU2146-4LB0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RU2146-4LB0>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RU2146-4LB0&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RU2146-4LB0&lang=en)

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RU2146-4LB0>

Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP='HAUPT'></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP='HAUPT'></mmp_prod_no>)



