

\*\*\*phase-out type\*\*\* solid-state contactor 1-phase 3RF2 AC 15 / 30 A / 40 °C 24-230 V / 110-230 V AC instantaneous switching phased-out product, no successor available!

|                                             |                               |
|---------------------------------------------|-------------------------------|
| <b>product brand name</b>                   | SIRIUS                        |
| <b>product designation</b>                  | solid-state contactor         |
| <b>product type designation</b>             | 3RF23                         |
| <b>manufacturer's article number</b>        |                               |
| • _1 of the accessories that can be ordered | <a href="#">3RF2900-3PA88</a> |
| • _2 of the accessories that can be ordered | <a href="#">3RF2990-0HA33</a> |
| • _4 of the accessories that can be ordered | <a href="#">3RF2990-0GA33</a> |
| <b>product designation</b>                  |                               |
| • _1 of the accessories that can be ordered | terminal cover                |
| • _2 of the accessories that can be ordered | power regulator               |
| • _4 of the accessories that can be ordered | load monitoring               |

### General technical data

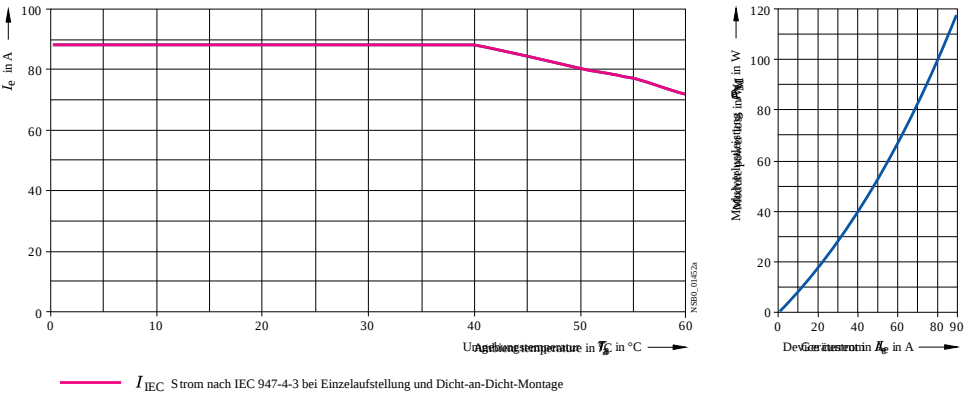
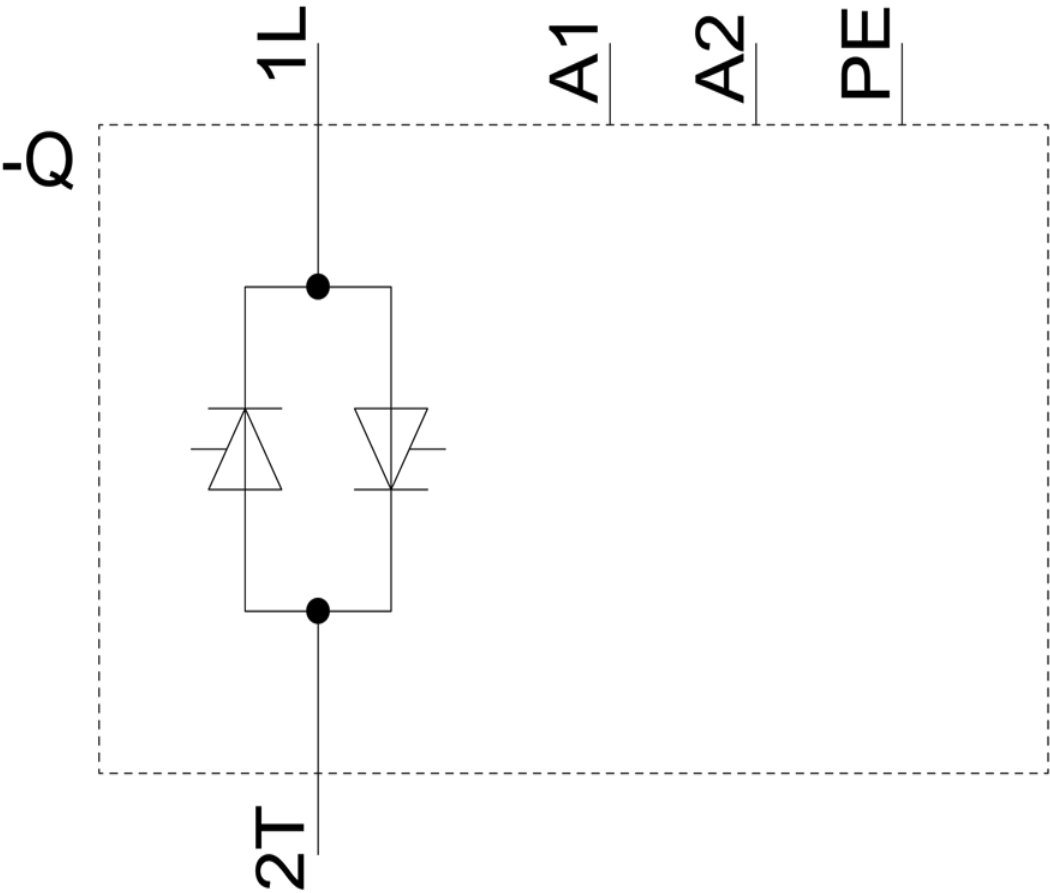
|                                                         |                                                                                                                                                                                    |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>product function</b>                                 | instantaneous switching                                                                                                                                                            |
| <b>power loss [W] for rated value of the current</b>    |                                                                                                                                                                                    |
| • at AC in hot operating state                          | 117 W                                                                                                                                                                              |
| • at AC in hot operating state per pole                 | 117 W                                                                                                                                                                              |
| • without load current share typical                    | 3.5 W                                                                                                                                                                              |
| <b>insulation voltage rated value</b>                   | 600 V                                                                                                                                                                              |
| <b>degree of pollution</b>                              | 3                                                                                                                                                                                  |
| surge voltage resistance of main circuit rated value    | 6 kV                                                                                                                                                                               |
| <b>protection class IP</b>                              | IP00                                                                                                                                                                               |
| protection class IP on the front according to IEC 60529 | IP00                                                                                                                                                                               |
| <b>shock resistance according to IEC 60068-2-27</b>     | 15 g / 11 ms                                                                                                                                                                       |
| <b>vibration resistance according to IEC 60068-2-6</b>  | 2 g                                                                                                                                                                                |
| <b>reference code according to IEC 81346-2</b>          | Q                                                                                                                                                                                  |
| <b>Substance Prohibitance (day/month/year)</b>          | 05/28/2009                                                                                                                                                                         |
| <b>SVHC substance name</b>                              | Lead CAS-No. 7439-92-1<br>Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5<br>Melamine CAS-No. 108-78-1 |
| <b>Net Weight</b>                                       | 3.175 kg                                                                                                                                                                           |

### Main circuit

|                                                                |              |
|----------------------------------------------------------------|--------------|
| <b>number of poles for main current circuit</b>                | 1            |
| <b>number of NO contacts for main contacts</b>                 | 1            |
| <b>number of NC contacts for main contacts</b>                 | 0            |
| <b>type of voltage of the operating voltage</b>                | AC           |
| <b>operating voltage</b>                                       |              |
| • at AC                                                        |              |
| — at 50 Hz rated value                                         | 24 ... 230 V |
| — at 60 Hz rated value                                         | 24 ... 230 V |
| <b>operating frequency rated value</b>                         | 50 ... 60 Hz |
| <b>operating range relative to the operating voltage at AC</b> |              |
| • at 50 Hz                                                     | 20 ... 253 V |
| • at 60 Hz                                                     | 20 ... 253 V |
| <b>operational current</b>                                     |              |
| • at AC-1 at 400 V rated value                                 | 88 A         |
| • at AC-51 rated value                                         | 88 A         |
| • at AC-51 according to IEC 60947-4-3                          | 88 A         |
| • according to UL 508 rated value                              | 30 A         |

|                                                                             |                                                                    |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------|
| operational current minimum                                                 | 500 mA                                                             |
| rate of voltage rise at the thyristor for main contacts maximum permissible | 1 000 V/μs                                                         |
| blocking voltage at the thyristor for main contacts maximum permissible     | 800 V                                                              |
| reverse current of the thyristor                                            | 10 mA                                                              |
| derating temperature                                                        | 40 °C                                                              |
| surge current resistance rated value                                        | 1 150 A                                                            |
| I <sup>2</sup> t value maximum                                              | 6 600 A <sup>2</sup> ·s                                            |
| <b>Control circuit/ Control</b>                                             |                                                                    |
| type of voltage of the control supply voltage                               | AC                                                                 |
| control supply voltage 1 at AC                                              |                                                                    |
| • at 50 Hz                                                                  | 110 ... 230 V                                                      |
| • at 60 Hz                                                                  | 110 ... 230 V                                                      |
| control supply voltage at AC                                                |                                                                    |
| • at 50 Hz full-scale value for signal<0> recognition                       | 40 V                                                               |
| • at 60 Hz full-scale value for signal<0> recognition                       | 40 V                                                               |
| • initial value for signal <1> detection                                    | 90 V                                                               |
| control supply voltage frequency                                            |                                                                    |
| • 1 rated value                                                             | 50 Hz                                                              |
| • 2 rated value                                                             | 60 Hz                                                              |
| symmetrical line frequency tolerance                                        | 5 Hz                                                               |
| control current at minimum control supply voltage                           |                                                                    |
| • at AC                                                                     | 2 mA                                                               |
| control current at AC rated value                                           | 15 mA                                                              |
| ON-delay time                                                               | 40 ms                                                              |
| OFF-delay time                                                              | 40 ms; additionally max. one half-wave                             |
| <b>Installation/ mounting/ dimensions</b>                                   |                                                                    |
| fastening method side-by-side mounting                                      | Yes                                                                |
| fastening method                                                            | screw fixing                                                       |
| design of the thread of the screw for securing the equipment                | M4                                                                 |
| height                                                                      | 200 mm                                                             |
| width                                                                       | 180 mm                                                             |
| depth                                                                       | 163 mm                                                             |
| <b>Connections/ Terminals</b>                                               |                                                                    |
| product component removable terminal for auxiliary and control circuit      | Yes                                                                |
| type of electrical connection                                               |                                                                    |
| • for main current circuit                                                  | Ring cable lug connection                                          |
| • for auxiliary and control circuit                                         | ring terminal lug connection                                       |
| type of connectable conductor cross-sections                                |                                                                    |
| • for main contacts for JIS cable lug                                       | JIS C 2805 R 2-5, 5,5-5, 8-5, 14-5                                 |
| • for DIN cable lug for main contacts                                       | DIN 46234-5-2,5, -5-6, -5-10, -5-16, -5-25                         |
| type of connectable conductor cross-sections                                |                                                                    |
| • for auxiliary and control contacts                                        |                                                                    |
| — solid                                                                     | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) |
| — finely stranded with core end processing                                  | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) |
| — finely stranded without core end processing                               | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) |
| • for AWG cables for auxiliary and control contacts                         | 1x (20 ... 12)                                                     |
| tightening torque                                                           |                                                                    |
| • for main contacts with screw-type terminals                               | 2 ... 2.5 N·m                                                      |
| • for auxiliary and control contacts with screw-type terminals              | 0.5 ... 0.6 N·m                                                    |
| tightening torque [lbf·in]                                                  |                                                                    |
| • for auxiliary and control contacts with screw-type terminals              | 4.5 ... 5.3 lbf·in                                                 |
| design of the thread of the connection screw                                |                                                                    |
| • for main contacts                                                         | M5                                                                 |
| • of the auxiliary and control contacts                                     | M3                                                                 |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                 |                              |                               |                              |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------|-------------------------------|------------------------------|---------------------------------------------------------------------------------------|
| <b>stripped length of the cable</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                 |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• for main contacts</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10 mm                                                                                           |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• for auxiliary and control contacts</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7 mm                                                                                            |                              |                               |                              |                                                                                       |
| <b>UL/CSA ratings</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>operational current according to UL 508 rated value</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30 A                                                                                            |                              |                               |                              |                                                                                       |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>touch protection on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | finger-safe, for vertical contact from the front with cover                                     |                              |                               |                              |                                                                                       |
| <b>Ambient conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                 |                              |                               |                              |                                                                                       |
| installation altitude at height above sea level maximum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1 000 m                                                                                         |                              |                               |                              |                                                                                       |
| <b>ambient temperature</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                 |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• during operation</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -25 ... +60 °C                                                                                  |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• during storage</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -55 ... +80 °C                                                                                  |                              |                               |                              |                                                                                       |
| <b>Electromagnetic compatibility</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>conducted interference</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• due to burst according to IEC 61000-4-4</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 kV / 5 kHz, behavior criterion 2                                                              |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• due to conductor-earth surge according to IEC 61000-4-5</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 kV, behavior criterion 2                                                                      |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• due to conductor-conductor surge according to IEC 61000-4-5</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1 kV, behavior criterion 2                                                                      |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• due to high-frequency radiation according to IEC 61000-4-6</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1                           |                              |                               |                              |                                                                                       |
| <b>field-based interference according to IEC 61000-4-3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 80 MHz ... 1 GHz 10 V/m, behavior criterion 1                                                   |                              |                               |                              |                                                                                       |
| <b>electrostatic discharge according to IEC 61000-4-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4 kV contact discharging / 8 kV air discharging, behavior criterion 2                           |                              |                               |                              |                                                                                       |
| <b>conducted HF interference emissions according to CISPR11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Class A for industrial environment                                                              |                              |                               |                              |                                                                                       |
| <b>field-bound HF interference emission according to CISPR11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Class B for the domestic, business and commercial environments                                  |                              |                               |                              |                                                                                       |
| <b>Short-circuit protection, design of the fuse link</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                 |                              |                               |                              |                                                                                       |
| manufacturer's article number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• of full range R fuse link for semiconductor protection at NH design usable</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                | <a href="#">3NE1021-2</a>                                                                       |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• of back-up R fuse link for semiconductor protection at NH design usable</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <a href="#">3NE8021-1</a>                                                                       |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                               | <a href="#">3NC2200</a>                                                                         |                              |                               |                              |                                                                                       |
| manufacturer's article number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |                              |                               |                              |                                                                                       |
| <ul style="list-style-type: none"><li>• of NEOZED fuse usable</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <a href="#">5SE2335: These fuses have a smaller rated current than the semiconductor relays</a> |                              |                               |                              |                                                                                       |
| <b>Approvals Certificates</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Environment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>General Product Approval</b>                                                                 |                              |                               |                              |                                                                                       |
| <div><div><a href="#">Environmental Conformations</a></div><div></div><div></div><div></div><div></div><div></div></div> |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>EMV</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Test Certificates</b>                                                                        | <b>other</b>                 |                               |                              |                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <a href="#">Type Test Certificates/Test Report</a>                                              | <a href="#">Confirmation</a> | <a href="#">Miscellaneous</a> | <a href="#">Confirmation</a> |  |
| <b>Further information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Information on the packaging</b><br><a href="https://support.industry.siemens.com/cs/ww/en/view/109813875">https://support.industry.siemens.com/cs/ww/en/view/109813875</a>                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Information for data generation and storage</b><br><a href="https://support.industry.siemens.com/cs/ww/en/view/109995012">https://support.industry.siemens.com/cs/ww/en/view/109995012</a>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Information- and Downloadcenter (Catalogs, Brochures,...)</b><br><a href="https://www.siemens.com/ic10">https://www.siemens.com/ic10</a>                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Industry Mall (Online ordering system)</b><br><a href="https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF2390-3BA22">https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF2390-3BA22</a>                                                                                                                                                                                                                                                                                                                              |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Cax online generator</b><br><a href="https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&amp;mlfb=3RF2390-3BA22">https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&amp;mlfb=3RF2390-3BA22</a>                                                                                                                                                                                                                                                                                                                  |                                                                                                 |                              |                               |                              |                                                                                       |
| <b>Service&amp;Support (Manuals, Certificates, Characteristics, FAQs,...)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |                              |                               |                              |                                                                                       |



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