



solid-state contactor 1-pole 3RF3 AC-1 / 40 A / 40 °C 24-230 V / 24 V DC ring cable lug connection

|                                                         |                                                            |
|---------------------------------------------------------|------------------------------------------------------------|
| product brand name                                      | SIRIUS                                                     |
| product designation                                     | solid-state contactor                                      |
| product type designation                                | 3RF33                                                      |
| manufacturer's article number                           |                                                            |
| • _1 of the accessories that can be ordered             | <a href="#">3RF2900-3PA88</a>                              |
| • _3 of the accessories that can be ordered             | <a href="#">3RF3900-0EA18</a>                              |
| • _4 of the accessories that can be ordered             | <a href="#">3RF3950-0GA13</a>                              |
| product designation                                     |                                                            |
| • _1 of the accessories that can be ordered             | terminal cover                                             |
| • _3 of the accessories that can be ordered             | converter                                                  |
| • _4 of the accessories that can be ordered             | load monitoring                                            |
| General technical data                                  |                                                            |
| product function                                        | zero-point switching                                       |
| power loss [W] for rated value of the current           |                                                            |
| • at AC in hot operating state                          | 37 W                                                       |
| • at AC in hot operating state per pole                 | 37 W                                                       |
| • without load current share typical                    | 0.4 W                                                      |
| insulation voltage rated value                          | 600 V                                                      |
| degree of pollution                                     | 3                                                          |
| surge voltage resistance of main circuit rated value    | 6 kV                                                       |
| protection class IP                                     | IP00                                                       |
| protection class IP on the front according to IEC 60529 | IP00                                                       |
| shock resistance according to IEC 60068-2-27            | 15g / 11 ms                                                |
| vibration resistance according to IEC 60068-2-6         | 2g                                                         |
| reference code according to IEC 81346-2                 | Q                                                          |
| Substance Prohibitance (Date)                           | 01/15/2024                                                 |
| SVHC substance name                                     | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8 |
| Net Weight                                              | 0.2 kg                                                     |
| Main circuit                                            |                                                            |
| number of poles for main current circuit                | 1                                                          |
| number of NO contacts for main contacts                 | 1                                                          |
| number of NC contacts for main contacts                 | 0                                                          |
| type of voltage of the operating voltage                | AC                                                         |
| operating voltage                                       |                                                            |
| • at AC                                                 |                                                            |
| — at 50 Hz rated value                                  | 24 ... 230 V                                               |
| — at 60 Hz rated value                                  | 24 ... 230 V                                               |
| operating frequency rated value                         | 50 ... 60 Hz                                               |

|                                                                                    |                                                                                          |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>relative symmetrical tolerance of the operating frequency</b>                   | 10 %                                                                                     |
| <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 rated value maximum</b>                                     | 40 A                                                                                     |
| <b>operational current</b>                                                         |                                                                                          |
| • at AC-1 at 400 V rated value                                                     | 40 A                                                                                     |
| • at AC-51 rated value                                                             | 40 A                                                                                     |
| • at AC-51 according to IEC 60947-4-3                                              | 40 A                                                                                     |
| • according to UL 508 rated value                                                  | 34 A                                                                                     |
| <b>rate of voltage rise at the thyristor for main contacts maximum permissible</b> | 1 000 V/μs                                                                               |
| <b>blocking voltage at the thyristor for main contacts maximum permissible</b>     | 800 V                                                                                    |
| <b>reverse current of the thyristor</b>                                            | 10 mA                                                                                    |
| <b>derating temperature</b>                                                        | 40 °C                                                                                    |
| <b>surge current resistance rated value</b>                                        | 1 300 A                                                                                  |
| <b>I<sup>2</sup>t value maximum</b>                                                | 8 000 A <sup>2</sup> ·s                                                                  |
| <b>Control circuit/ Control</b>                                                    |                                                                                          |
| <b>type of voltage of the control supply voltage</b>                               | DC                                                                                       |
| <b>control supply voltage at DC</b>                                                | 15 ... 24 V                                                                              |
| <b>control supply voltage 1 at DC rated value</b>                                  | 24 V                                                                                     |
| <b>control supply voltage</b>                                                      |                                                                                          |
| • at DC initial value for signal <1> detection                                     | 15 V                                                                                     |
| • at DC full-scale value for signal<0> recognition                                 | 5 V                                                                                      |
| <b>operating range factor control supply voltage rated value at DC</b>             |                                                                                          |
| • initial value                                                                    | 0.63                                                                                     |
| • full-scale value                                                                 | 1                                                                                        |
| <b>control current at minimum control supply voltage</b>                           |                                                                                          |
| • at DC                                                                            | 13 mA                                                                                    |
| control current at DC rated value                                                  | 15 mA                                                                                    |
| <b>ON-delay time</b>                                                               | 1 ms; additionally max. one half-wave                                                    |
| <b>OFF-delay time</b>                                                              | 1 ms; additionally max. one half-wave                                                    |
| <b>Auxiliary circuit</b>                                                           |                                                                                          |
| number of CO contacts for auxiliary contacts                                       | 0                                                                                        |
| <b>Installation/ mounting/ dimensions</b>                                          |                                                                                          |
| fastening method side-by-side mounting                                             | Yes                                                                                      |
| <b>fastening method</b>                                                            | screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715 |
| <b>design of the thread of the screw for securing the equipment</b>                | M4                                                                                       |
| <b>height</b>                                                                      | 95 mm                                                                                    |
| <b>width</b>                                                                       | 45 mm                                                                                    |
| <b>depth</b>                                                                       | 114 mm                                                                                   |
| <b>Connections/ Terminals</b>                                                      |                                                                                          |
| <b>product component removable terminal for auxiliary and control circuit</b>      | Yes                                                                                      |
| <b>type of electrical connection</b>                                               |                                                                                          |
| • for main current circuit                                                         | Ring cable lug connection                                                                |
| • for auxiliary and control circuit                                                | screw-type terminals                                                                     |
| <b>type of connectable conductor cross-sections</b>                                |                                                                                          |
| • for main contacts for JIS cable lug                                              | JIS C 2805 R 2-5, 5,5-5, 8-5, 14-5                                                       |
| • for AWG cables for main contacts                                                 | 1x (12 ... 4)                                                                            |
| • for DIN cable lug for main contacts                                              | DIN 46234 -5-2,5, -5-6, -5-10, -5-16, -5-25                                              |
| <b>type of connectable conductor cross-sections</b>                                |                                                                                          |
| • 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> )                       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• for AWG cables for auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1x (20 ... 12)                                                                                                                                                                                     |
| <b>AWG number as coded connectable conductor cross section for main contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 12 ... 4                                                                                                                                                                                           |
| <b>tightening torque</b> <ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>                                                                                                                                                                                                                                                                                                                                              | 2 ... 2.5 N·m<br>0.5 ... 0.6 N·m                                                                                                                                                                   |
| <b>tightening torque [lbf·in]</b> <ul style="list-style-type: none"> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            | 4.5 ... 5.3 lbf·in                                                                                                                                                                                 |
| <b>design of the thread of the connection screw</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• of the auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                    | M5<br>M3                                                                                                                                                                                           |
| <b>stripped length of the cable</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• for auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       | 10 mm<br>7 mm                                                                                                                                                                                      |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                    |
| <b>protection class IP on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | IP00; IP20 with cover                                                                                                                                                                              |
| <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> <li>• during storage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                     | -25 ... +60 °C<br>-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> <li>• due to conductor-earth surge according to IEC 61000-4-5</li> <li>• due to conductor-conductor surge according to IEC 61000-4-5</li> <li>• due to high-frequency radiation according to IEC 61000-4-6</li> </ul>                                                                                                                                                                                                     | 2 kV / 5 kHz behavior criterion 2<br>2 kV behavior criterion 2<br>1 kV behavior criterion 2<br><br>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 gS fuse for semiconductor protection at NH design usable</li> <li>• of full range R fuse link for semiconductor protection at cylindrical design usable</li> <li>• of back-up R fuse link for semiconductor protection at NH design usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable</li> </ul> | <a href="#">3NE1802-0</a><br><a href="#">5SE1350</a><br><a href="#">3NE8017-1</a><br><a href="#">3NC1450</a><br><a href="#">3NC2200</a>                                                            |
| manufacturer's article number of the gG fuse <ul style="list-style-type: none"> <li>• at NH design usable</li> <li>• at cylindrical design 14 x 51 mm usable</li> <li>• at cylindrical design 22 x 58 mm usable</li> </ul>                                                                                                                                                                                                                                                                                                                    | <a href="#">3NA6817</a><br><a href="#">3NW6117-1</a><br><a href="#">3NW6217-1</a>                                                                                                                  |
| manufacturer's article number <ul style="list-style-type: none"> <li>• of DIAZED fuse usable</li> <li>• of NEOZED fuse usable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                      | <a href="#">5SB4111: These fuses have a smaller rated current than the semiconductor relays</a><br><a href="#">5SE2335: These fuses have a smaller rated current than the semiconductor relays</a> |

last modified:

11/25/2025 