



Solid-state contactor 3-phase 3RF3 AC 53 / 12.5 A / 40 °C 48-600 V / 24 V  
DC 2-phase controlled Instantaneous switching Spring-type terminal

|                          |                       |
|--------------------------|-----------------------|
| product brand name       | SIRIUS                |
| product designation      | solid-state contactor |
| design of the product    | two-phase controlled  |
| product type designation | 3RF34                 |

### General technical data

|  |                                    |
|--|------------------------------------|
| product function                                     | instantaneous switching            |
| power loss [W] for rated value of the current        |                                    |
| • at AC in hot operating state                       | 22 W                               |
| • at AC in hot operating state per pole              | 7.33 W                             |
| • without load current share typical                 | 0.4 W                              |
| insulation voltage rated value                       | 600 V                              |
| type of voltage of the control supply voltage        | DC                                 |
| surge voltage resistance of main circuit rated value | 6 kV                               |
| shock resistance according to IEC 60068-2-27         | 15g / 11 ms                        |
| vibration resistance according to IEC 60068-2-6      | 2g                                 |
| certificate of suitability                           | CE / UL / CSA / CCC / C-Tick (RCM) |
| reference code according to IEC 81346-2              | Q                                  |
| Substance Prohibitance (Date)                        | 05/28/2009                         |

### Main circuit

|   |              |
|---|--------------|
| number of poles for main current circuit                                    | 3            |
| number of NO contacts for main contacts                                     | 2            |
| number of NC contacts for main contacts                                     | 0            |
| operating voltage at AC   |              |
| • at 50 Hz rated value  | 48 ... 600 V |
| • at 60 Hz rated value  | 48 ... 600 V |
| operating frequency rated value   | 50 ... 60 Hz |
| relative symmetrical tolerance of the operating frequency                   | 10 %         |
| operating range relative to the operating voltage at AC                     |              |
| • at 50 Hz  | 40 ... 660 V |
| • at 60 Hz  | 40 ... 660 V |
| operational current   |              |
| • at AC-3 at 400 V rated value  | 12.5 A       |
| • at AC-53a at 400 V at ambient temperature 40 °C rated value               | 12.5 A       |
| operational current minimum   | 500 mA       |
| operating power   |              |
| • at AC-3 at 400 V rated value  | 5.5 kW       |
| 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     | 1 600 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 |

#### Control circuit/ Control

|  |                                       |
|--|---------------------------------------|
| <b>type of voltage of the control supply voltage</b>                   | DC                                    |
| <b>control supply voltage 1</b>  |                                       |
| • at DC rated value  | 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>symmetrical line frequency tolerance</b>                            | 5 Hz                                  |
| <b>operating range factor control supply voltage rated value at DC</b> |                                       |
| • initial value  | 0.63                                  |
| • full-scale value   | 1.25                                  |
| <b>control current at minimum control supply voltage</b>               |                                       |
| • at DC  | 2 mA                                  |
| control current at DC rated value                                      | 15 mA                                 |
| <b>ON-delay time</b>   | 1 ms                                  |
| <b>OFF-delay time</b>  | 1 ms; additionally max. one half-wave |

#### Auxiliary circuit

|   |   |
|---|---|
| <b>number of NC contacts for auxiliary contacts</b> | 0 |
| <b>number of NO contacts for auxiliary contacts</b> | 0 |
| number of CO contacts for auxiliary contacts        | 0 |

#### Installation/ mounting/ dimensions

|   |  |
|---|--|
| <b>mounting position</b>  | vertical                                       |
| <b>fastening method</b>   | screw and snap-on mounting onto 35 mm DIN rail |
| • side-by-side mounting   | Yes  |
| <b>design of the thread of the screw for securing the equipment</b> | M4   |
| <b>height</b>   | 95 mm  |
| <b>width</b>  | 90 mm  |
| <b>depth</b>  | 100.8 mm                                       |
| required spacing with side-by-side mounting                         |  |
| • upwards   | 70 mm  |
| • downwards   | 50 mm  |

#### Connections/ Terminals

|   |                                   |
|---|-----------------------------------|
| <b>product component removable terminal for auxiliary and control circuit</b> | Yes                               |
| <b>type of electrical connection</b>  |                                   |
| • for main current circuit  | spring-loaded terminals           |
| • for auxiliary and control circuit   | spring-loaded terminals           |
| <b>type of connectable conductor cross-sections</b>                           |                                   |
| • for main contacts   |                                   |
| — solid   | 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| — finely stranded with core end processing                                    | 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| — finely stranded without core end processing                                 | 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| • at AWG cables for main contacts   | 2x (18 ... 14)                    |
| <b>connectable conductor cross-section for main contacts</b>                  |                                   |
| • solid or stranded   | 0.5 ... 2.5 mm <sup>2</sup>       |
| • finely stranded with core end processing                                    | 0.5 ... 1.5 mm <sup>2</sup>       |
| • finely stranded without core end processing                                 | 0.5 ... 2.5 mm <sup>2</sup>       |
| <b>type of connectable conductor cross-sections</b>                           |                                   |
| • for auxiliary and control contacts  |                                   |
| — solid   | 0.5 ... 1.5 mm <sup>2</sup>       |
| — finely stranded with core end processing                                    | 0.5 ... 2.5 mm <sup>2</sup>       |
| — finely stranded without core end processing                                 | 0.5 ... 2.5 mm <sup>2</sup>       |
| • at AWG cables for auxiliary and control contacts                            | 1x (AWG 20 ... 12)                |
| AWG number as coded connectable conductor cross section for main contacts     | 14 ... 10                         |
| <b>stripped length of the cable</b>   |                                   |
| • for main contacts   | 10 mm                             |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>for auxiliary and control contacts</li> </ul>   | 10 mm  |
| <b>UL/CSA ratings</b>  |  |
| <b>full-load current (FLA) for 3-phase AC motor</b> <ul style="list-style-type: none"> <li>at 480 V rated value</li> <li>at 600 V rated value</li> </ul>   | 7.6 A<br>6.1 A   |
| <b>yielded mechanical performance [hp] for 3-phase AC motor</b> <ul style="list-style-type: none"> <li>at 200/208 V rated value</li> <li>at 220/230 V rated value</li> <li>at 460/480 V rated value</li> <li>at 575/600 V rated value</li> </ul>   | 2 hp<br>2 hp<br>5 hp<br>5 hp   |
| <b>Safety related data</b>   |  |
| proportion of dangerous failures with high demand rate according to SN 31920   | 50 %   |
| <b>MTTF with high demand rate</b>  | 76 a   |
| T1 value for proof test interval or service life according to IEC 61508  | 20 a   |
| <b>protection class IP on the front according to IEC 60529</b>   | IP20   |
| <b>touch protection on the front according to IEC 60529</b>  | finger-safe, for vertical contact from the front   |
| <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>140 dBuV in the frequency range 0.15 ... 80 MHz, 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 A for industrial environment   |
| <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> <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 10 x 38 mm 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="#">3NE1817-0</a><br><a href="#">3NE8021-1</a><br><a href="#">3NC1032</a><br><a href="#">3NC1450</a><br><a href="#">3NC2280</a>                              |
| manufacturer's article number of the gG fuse <ul style="list-style-type: none"> <li>at NH design usable</li> </ul>   | <a href="#">3NA3810-6</a>  |
| <b>Certificates/ approvals</b>   |  |
| <b>General Product Approval</b>  | EMC  |



[Confirmation](#)



Declaration of Conformity

Test Certificates

other

### Further information

**Information on the packaging**

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

**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=3RF3412-2BB06>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3412-2BB06>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF3412-2BB06>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF3412-2BB06&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3412-2BB06&lang=en)





