



Solid-state contactor 3-phase 3RF3 AC 53 / 12.5 A / 40 °C 48-480 V / 24 V  
DC 2-phase controlled Instantaneous switching Spring-type terminal

|                                                                                         |                                    |
|-----------------------------------------------------------------------------------------|------------------------------------|
| <b>product brand name</b>                                                               | SIRIUS                             |
| <b>product designation</b>                                                              | solid-state contactor              |
| <b>design of the product</b>                                                            | two-phase controlled               |
| <b>product type designation</b>                                                         | 3RF34                              |
| <b>General technical data</b>                                                           |                                    |
| <b>product function</b>                                                                 | instantaneous switching            |
| power loss [W] for rated value of the current at AC in hot operating state              | 22 W                               |
| • per pole                                                                              | 7.33 W                             |
| <b>power loss [W] for rated value of the current without load current share typical</b> | 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 acc. to IEC 60068-2-27                                                 | 15g / 11 ms                        |
| vibration resistance acc. to IEC 60068-2-6                                              | 2g                                 |
| <b>certificate of suitability</b>                                                       | CE / UL / CSA / CCC / C-Tick (RCM) |
| <b>reference code acc. to IEC 81346-2</b>                                               | Q                                  |
| Substance Prohibition (Date)                                                            | 28.05.2009 00:00:00                |
| <b>Main circuit</b>                                                                     |                                    |
| <b>number of poles for main current circuit</b>                                         | 3                                  |
| <b>number of NO contacts for main contacts</b>                                          | 2                                  |
| <b>number of NC contacts for main contacts</b>                                          | 0                                  |
| operating voltage at AC                                                                 |                                    |
| • at 50 Hz rated value                                                                  | 48 ... 480 V                       |
| • at 60 Hz rated value                                                                  | 48 ... 480 V                       |
| <b>operating frequency rated value</b>                                                  | 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                                                                              | 40 ... 506 V                       |
| • at 60 Hz                                                                              | 40 ... 506 V                       |
| <b>operational current</b>                                                              |                                    |
| • 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                             |
| <b>operational current minimum</b>                                                      | 500 mA                             |
| <b>operating power</b>                                                                  |                                    |
| • at AC-3 at 400 V rated value                                                          | 5.5 kW                             |
| <b>rate of voltage rise at the thyristor for main contacts</b>                          | 1 000 V/μs                         |

|                                                                                                                                                                                                                           |                                                                                                                               |
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| <b>maximum permissible</b>                                                                                                                                                                                                |                                                                                                                               |
| <b>blocking voltage at the thyristor for main contacts maximum permissible</b>                                                                                                                                            | 1 200 V                                                                                                                       |
| <b>reverse current of the thyristor</b>                                                                                                                                                                                   | 10 mA                                                                                                                         |
| <b>derating temperature</b>                                                                                                                                                                                               | 40 °C                                                                                                                         |
| <b>surge current resistance rated value</b>                                                                                                                                                                               | 1 200 A                                                                                                                       |
| <b>I<sup>2</sup>t value maximum</b>                                                                                                                                                                                       | 7 200 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 1</b><br>• at DC rated value                                                                                                                                                                    | 24 V                                                                                                                          |
| <b>control supply voltage</b><br>• at DC initial value for signal <1> detection<br>• at DC full-scale value for signal <0> recognition                                                                                    | 15 V<br>5 V                                                                                                                   |
| <b>symmetrical line frequency tolerance</b>                                                                                                                                                                               | 5 Hz                                                                                                                          |
| <b>operating range factor control supply voltage rated value at DC</b><br>• initial value<br>• full-scale value                                                                                                           | 0.63<br>1.25                                                                                                                  |
| <b>control current at minimum control supply voltage</b><br>• 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                                                                                         |
| <b>Auxiliary circuit</b>                                                                                                                                                                                                  |                                                                                                                               |
| <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                                                                                                                             |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                 |                                                                                                                               |
| <b>mounting position</b>                                                                                                                                                                                                  | vertical                                                                                                                      |
| <b>fastening method</b><br>• side-by-side mounting                                                                                                                                                                        | screw and snap-on mounting onto 35 mm standard mounting rail<br>Yes                                                           |
| <b>height</b>                                                                                                                                                                                                             | 95 mm                                                                                                                         |
| <b>width</b>                                                                                                                                                                                                              | 90 mm                                                                                                                         |
| <b>depth</b>                                                                                                                                                                                                              | 100.8 mm                                                                                                                      |
| required spacing with side-by-side mounting<br>• upwards<br>• downwards                                                                                                                                                   | 70 mm<br>50 mm                                                                                                                |
| <b>Connections/ Terminals</b>                                                                                                                                                                                             |                                                                                                                               |
| product component removable terminal for auxiliary and control circuit                                                                                                                                                    | Yes                                                                                                                           |
| <b>type of electrical connection</b><br>• for main current circuit<br>• for auxiliary and control circuit                                                                                                                 | spring-loaded terminals<br>spring-loaded terminals                                                                            |
| <b>type of connectable conductor cross-sections</b><br>• for main contacts<br>— solid<br>— finely stranded with core end processing<br>— finely stranded without core end processing<br>• at AWG cables for main contacts | 2x (0.5 ... 2.5 mm <sup>2</sup> )<br>2x (0.5 ... 1.5 mm <sup>2</sup> )<br>2x (0.5 ... 2.5 mm <sup>2</sup> )<br>2x (18 ... 14) |
| <b>connectable conductor cross-section for main contacts</b><br>• solid or stranded<br>• finely stranded with core end processing<br>• finely stranded without core end processing                                        | 0.5 ... 2.5 mm <sup>2</sup><br>0.5 ... 1.5 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup>                                     |
| <b>type of connectable conductor cross-sections</b><br>• for auxiliary and control contacts<br>— solid<br>— finely stranded with core end processing<br>— finely stranded without core end processing                     | 0.5 ... 1.5 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup>                                     |

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| <ul style="list-style-type: none"> <li>at AWG cables for auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1x (AWG 20 ... 12)                                                                                                                                                   |                                  |
| AWG number as coded connectable conductor cross section for main contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 14 ... 10                                                                                                                                                            |                                  |
| <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>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> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.6 A                                                                                                                                                                |                                  |
| yielded mechanical performance [hp] for 3-phase AC motor <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> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2 hp<br>2 hp<br>5 hp                                                                                                                                                 |                                  |
| <b>Safety related data</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                      |                                  |
| proportion of dangerous failures with high demand rate acc. to SN 31920                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 50 %                                                                                                                                                                 |                                  |
| <b>MTTF with high demand rate</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 76 y                                                                                                                                                                 |                                  |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20 y                                                                                                                                                                 |                                  |
| <b>protection class IP on the front acc. to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | IP20                                                                                                                                                                 |                                  |
| <b>touch protection on the front acc. 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 acc. to IEC 61000-4-4</li> <li>due to conductor-earth surge acc. to IEC 61000-4-5</li> <li>due to conductor-conductor surge acc. to IEC 61000-4-5</li> <li>due to high-frequency radiation acc. 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 acc. to IEC 61000-4-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4 kV contact discharging / 8 kV air discharging, behavior criterion 2                                                                                                |                                  |
| <b>conducted HF interference emissions acc. to CISPR11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Class A for industrial environment                                                                                                                                   |                                  |
| <b>field-bound HF interference emission acc. 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 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 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="#">3NE1818-0</a><br><a href="#">5SE1363</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> <li>at cylindrical design 10 x 38 mm 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="#">3NA3810-6</a><br><a href="#">3NW6010-1</a><br><a href="#">3NW6116-1</a><br><a href="#">3NW6210-1</a>                                                     |                                  |
| manufacturer's article number <ul style="list-style-type: none"> <li>of DIAZED fuse usable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <a href="#">5SB321</a>                                                                                                                                               |                                  |
| <b>Certificates/ approvals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                      |                                  |
| <b>General Product Approval</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>EMC</b>                                                                                                                                                           | <b>Declaration of Conformity</b> |



Test Certificates

other

[Type Test Certificates/Test Report](#)

[Confirmation](#)

### Further information

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=3RF3412-2BB04>

Cax online generator

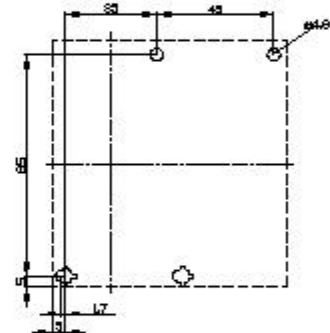
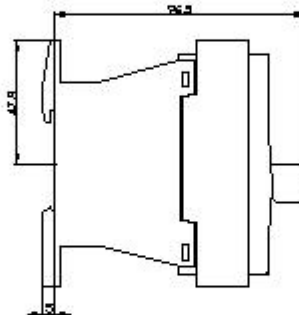
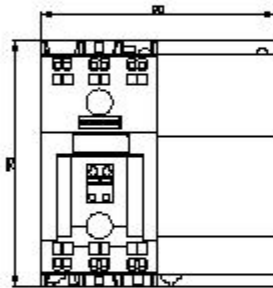
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3412-2BB04>

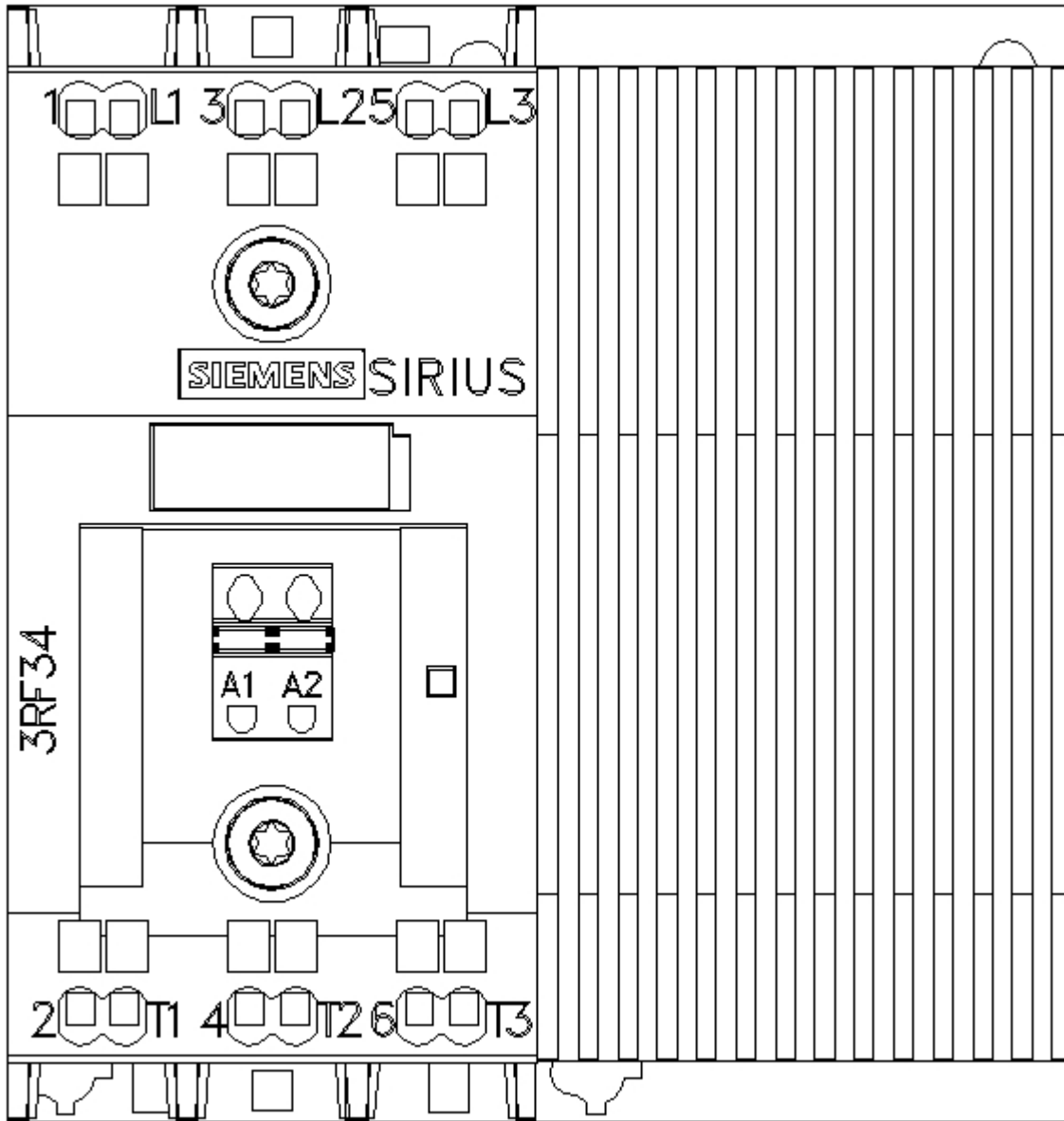
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

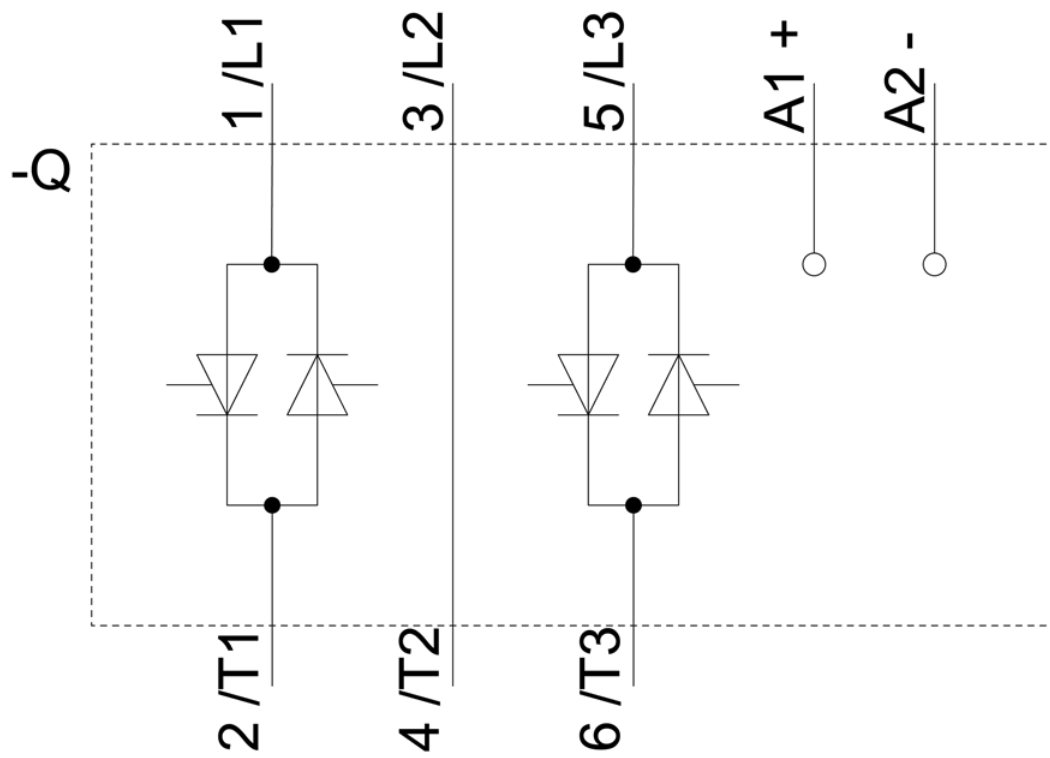
<https://support.industry.siemens.com/cs/ww/en/ps/3RF3412-2BB04>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF3412-2BB04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3412-2BB04&lang=en)







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