



Solid-state contactor 3-phase 3RF3 AC 53 / 16 A / 40 °C 48-480 V / 110-230 V AC 2-phase controlled Instantaneous switching screw terminal

**product brand name**

**product designation**

**design of the product**

**product type designation**

**manufacturer's article number**

- \_1 of the accessories that can be ordered
- \_2 of the accessories that can be ordered

**product designation**

- \_1 of the accessories that can be ordered
- \_2 of the accessories that can be ordered

SIRIUS

solid-state contactor

two-phase controlled

3RF34

[3RA2921-1BA00](#)

[3RF3900-0QA88](#)

Link module

Connection adapter

### General technical data

**product function**

instantaneous switching

**power loss [W] for rated value of the current**

- at AC in hot operating state
- at AC in hot operating state per pole
- without load current share typical

28 W  
9.33 W  
3.5 W

**insulation voltage rated value**

600 V

**type of voltage of the control supply voltage**

AC

**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
- at 60 Hz rated value

48 ... 480 V  
48 ... 480 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
- at 60 Hz

40 ... 506 V  
40 ... 506 V

**operational current**

- at AC-3 at 400 V rated value
- at AC-53a at 400 V at ambient temperature 40 °C rated value

16 A  
16 A

**operational current minimum**

500 mA

|                                                                                                                                                                                |                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| <b>operating power</b>                                                                                                                                                         | 7.5 kW                                         |
| <ul style="list-style-type: none"> <li>at AC-3 at 400 V rated value</li> </ul>                                                                                                 | 1 000 V/μs                                     |
| <b>rate of voltage rise at the thyristor for main contacts 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>                                                                                                                                    | 1 150 A                                        |
| <b>I<sup>2</sup>t value maximum</b>                                                                                                                                            | 6 600 A <sup>2</sup> ·s                        |
| <b>Control circuit/ Control</b>                                                                                                                                                |                                                |
| <b>type of voltage of the control supply voltage</b>                                                                                                                           | AC                                             |
| <b>control supply voltage 1 at AC</b>                                                                                                                                          |                                                |
| <ul style="list-style-type: none"> <li>at 50 Hz</li> <li>at 60 Hz</li> </ul>                                                                                                   | 110 ... 230 V<br>110 ... 230 V                 |
| <b>control supply voltage frequency</b>                                                                                                                                        |                                                |
| <ul style="list-style-type: none"> <li>1 rated value</li> <li>2 rated value</li> </ul>                                                                                         | 50 Hz<br>60 Hz                                 |
| <b>relative symmetrical tolerance of the control supply voltage frequency</b>                                                                                                  | 10 %                                           |
| <b>control supply voltage at AC</b>                                                                                                                                            |                                                |
| <ul style="list-style-type: none"> <li>at 50 Hz full-scale value for signal&lt;0&gt; recognition</li> <li>at 60 Hz full-scale value for signal&lt;0&gt; recognition</li> </ul> | 40 V<br>40 V                                   |
| <b>control supply voltage</b>                                                                                                                                                  |                                                |
| <ul style="list-style-type: none"> <li>at AC initial value for signal &lt;1&gt; detection</li> </ul>                                                                           | 90 V                                           |
| <b>symmetrical line frequency tolerance</b>                                                                                                                                    | 5 Hz                                           |
| <b>operating range factor control supply voltage rated value at AC at 50 Hz</b>                                                                                                |                                                |
| <ul style="list-style-type: none"> <li>initial value</li> <li>full-scale value</li> </ul>                                                                                      | 0.82<br>1.1                                    |
| <b>operating range factor control supply voltage rated value at AC at 60 Hz</b>                                                                                                |                                                |
| <ul style="list-style-type: none"> <li>initial value</li> <li>full-scale value</li> </ul>                                                                                      | 0.82<br>1.1                                    |
| <b>control current at minimum control supply voltage</b>                                                                                                                       |                                                |
| <ul style="list-style-type: none"> <li>at AC</li> </ul>                                                                                                                        | 2 mA                                           |
| <b>control current at AC rated value</b>                                                                                                                                       | 15 mA                                          |
| <b>ON-delay time</b>                                                                                                                                                           | 5 ms                                           |
| <b>OFF-delay time</b>                                                                                                                                                          | 30 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                                              |
| <b>number of CO contacts for auxiliary contacts</b>                                                                                                                            | 0                                              |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                      |                                                |
| <b>mounting position</b>                                                                                                                                                       | vertical                                       |
| <b>fastening method</b>                                                                                                                                                        | screw and snap-on mounting onto 35 mm DIN rail |
| <ul style="list-style-type: none"> <li>side-by-side mounting</li> </ul>                                                                                                        | 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                                       |
| <b>required spacing with side-by-side mounting</b>                                                                                                                             |                                                |
| <ul style="list-style-type: none"> <li>upwards</li> <li>downwards</li> </ul>                                                                                                   | 70 mm<br>50 mm                                 |
| <b>Connections/ Terminals</b>                                                                                                                                                  |                                                |
| <b>product component removable terminal for auxiliary and control circuit</b>                                                                                                  | Yes                                            |
| <b>type of electrical connection</b>                                                                                                                                           |                                                |
| <ul style="list-style-type: none"> <li>for main current circuit</li> <li>for auxiliary and control circuit</li> </ul>                                                          | screw-type terminals<br>screw-type terminals   |
| <b>type of connectable conductor cross-sections</b>                                                                                                                            |                                                |
| <ul style="list-style-type: none"> <li>for main contacts</li> <li>— solid</li> </ul>                                                                                           | 2x (0.5 ... 2.5 mm <sup>2</sup> )              |

|                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> <li>• at AWG cables for main contacts</li> </ul>                                                                                                                                                                                                                                      | 2x (0.5 ... 1.5 mm <sup>2</sup> )<br>2x (18 ... 14)                                                                                                                                                                                                     |
| <b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>                                                                                                                                                                                       | 1.5 ... 6 mm <sup>2</sup><br>1 ... 10 mm <sup>2</sup>                                                                                                                                                                                                   |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for auxiliary and control contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• at AWG cables for auxiliary and control contacts</li> </ul> | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (AWG 20 ... 12)<br>14 ... 10 |
| AWG number as coded connectable conductor cross section for main contacts                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                         |
| <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 main contacts with screw-type terminals</li> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>                                                                                                                                                                    | 18 ... 22 lbf·in<br>7.5 ... 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>                                                                                                                                                                                                   | M4<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>                                                                                                                                                                                                                      | 7 mm<br>7 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 according to SN 31920                                                                                                                                                                                                                                                                                                 | 50 %                                                                                                                                                                                                                                                    |
| <b>MTTF with high demand rate</b>                                                                                                                                                                                                                                                                                                                                            | 76 y                                                                                                                                                                                                                                                    |
| T1 value for proof test interval or service life according to IEC 61508                                                                                                                                                                                                                                                                                                      | 20 y                                                                                                                                                                                                                                                    |
| <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

- of full range R fuse link for semiconductor protection at NH design usable
- of full range R fuse link for semiconductor protection at cylindrical design usable
- of back-up R fuse link for semiconductor protection at NH design usable
- of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable
- of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable
- of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable

[3NE1818-0](#)

[5SE1363](#)

[3NE8022-1](#)

[3NC1032](#)

[3NC1450](#)

[3NC2280](#)

manufacturer's article number of the gG fuse

- at NH design usable
- at cylindrical design 10 x 38 mm usable
- at cylindrical design 22 x 58 mm usable

[3NA3812-6](#)

[3NW6010-1](#)

[3NW6210-1](#)

#### Certificates/ approvals

##### General Product Approval

EMC



[Confirmation](#)



##### Declaration of Conformity

##### Test Certificates

##### other



EG-Konf.



[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=3RF3416-1BB24>

Cax online generator

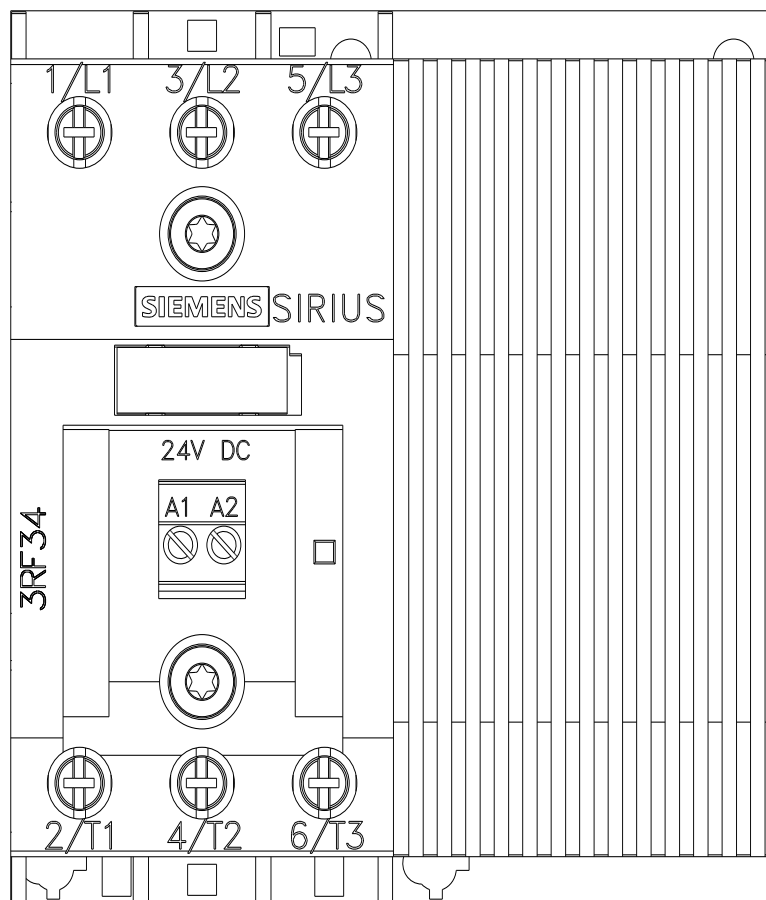
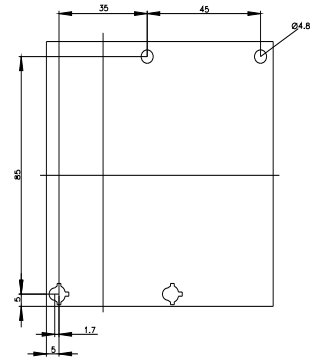
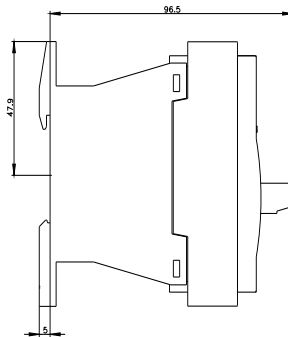
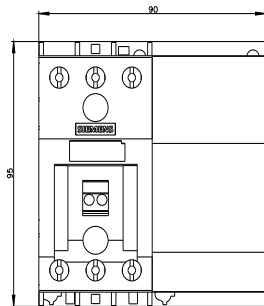
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3416-1BB24>

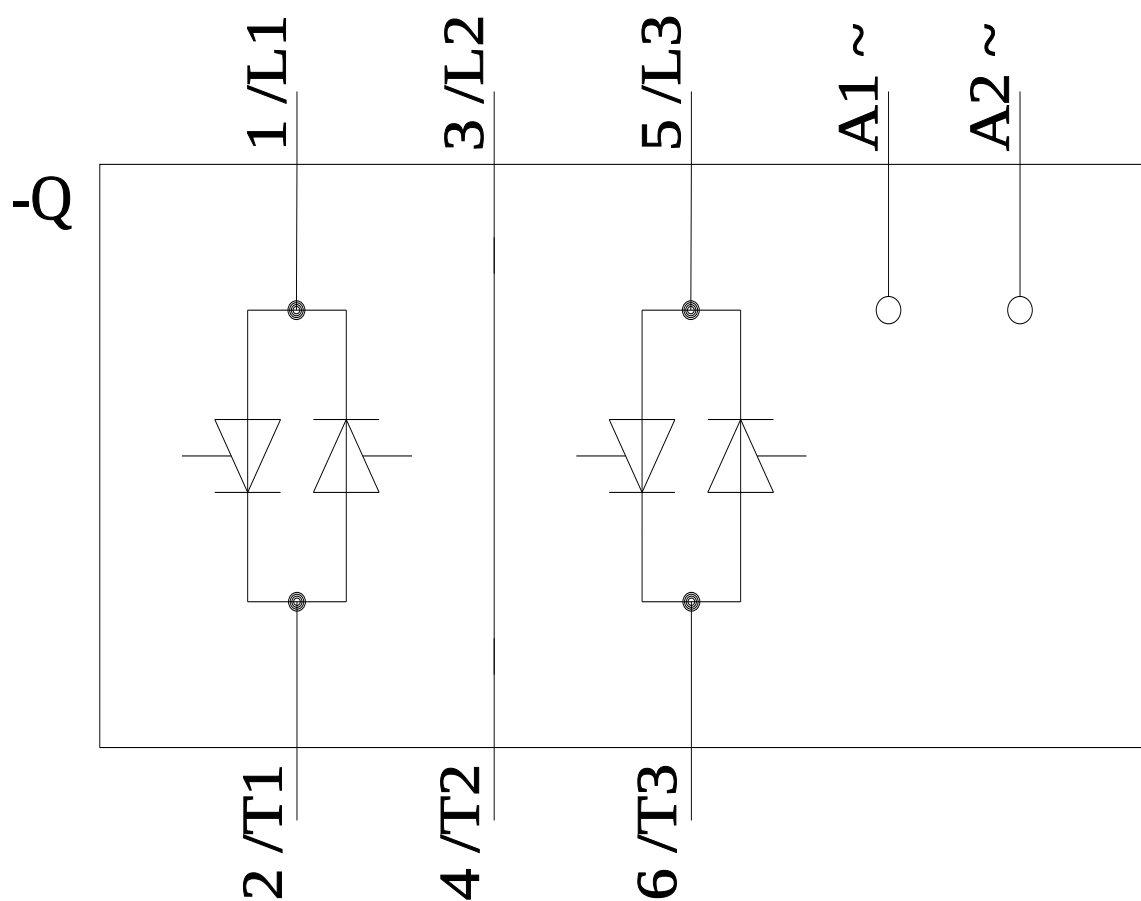
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF3416-1BB24>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF3416-1BB24&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3416-1BB24&lang=en)





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