

Solid-state contactor 3-phase 3RF3 AC 53 / 12.5 A / 40 °C 48-480 V / 110-230 V AC 2-phase controlled Instantaneous switching Spring-type terminal



Product brand name	SIRIUS
Product designation	solid-state contactor
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
Insulation voltage	
• rated value	600 V
Protection class IP	IP20
Shock resistance / acc. to IEC 60068-2-27	15g / 11 ms
Vibration resistance / acc. to IEC 60068-2-6	2g
Reference code / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750	K
Reference code / acc. to DIN EN 81346-2	Q
Reference code / acc. to DIN EN 61346-2	Q

### Main circuit

Number of poles / for main current circuit	3
Number of NO contacts / for main contacts	2

<b>Number of NC contacts / for main contacts</b>	0
<b>Operating voltage / at AC</b>	
• 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>Operating 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>Operating 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 / maximum permissible</b>	1 000 V/ $\mu$ s
<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>	AC
<b>Control supply voltage / 1 / at AC</b>	
• at 50 Hz	110 ... 230 V
• at 60 Hz	110 ... 230 V
<b>Control supply voltage frequency</b>	
• 1 / rated value	50 Hz
• 2 / rated value	60 Hz
<b>Control supply voltage / at AC</b>	
• at 50 Hz / Full-scale value for signal<0> recognition	40 V
• at 60 Hz / Full-scale value for signal<0> recognition	40 V
<b>Control supply voltage</b>	
• at AC / initial value for signal <1> detection	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>	
• initial value	0.82
• Full-scale value	1.1
<b>Operating range factor control supply voltage rated value / at AC / at 60 Hz</b>	
• initial value	0.82
• Full-scale value	1.1
<b>Control current / at minimum control supply voltage</b>	
• at AC	2 mA
Control current / at AC / rated value	15 mA
<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

### Installation/ mounting/ dimensions

<b>Mounting position</b>	vertical
<b>Mounting type</b>	screw and snap-on mounting onto 35 mm standard mounting rail
• Side-by-side mounting	Yes
<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>	
• upwards	70 mm
• downwards	50 mm
<b>Installation altitude / at height above sea level / maximum</b>	1 000 m

### Connections/ Terminals

<b>Product function / removable terminal for auxiliary and control circuit</b>	Yes
<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 conductors / for main contacts	2x (18 ... 14)
<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>

<ul style="list-style-type: none"> <li>• at AWG conductors / for auxiliary and control contacts</li> </ul>	1x (AWG 20 ... 12)
<b>Wire stripping length / of the cable</b>	
<ul style="list-style-type: none"> <li>• for main contacts</li> </ul>	10 mm
<ul style="list-style-type: none"> <li>• for auxiliary and control contacts</li> </ul>	10 mm

#### UL/CSA ratings

<b>Full-load current (FLA) / for three-phase AC motor</b>	
<ul style="list-style-type: none"> <li>• at 480 V / rated value</li> </ul>	7.6 A
<b>Yielded mechanical performance [hp] / for three-phase AC motor</b>	
<ul style="list-style-type: none"> <li>• at 200/208 V / rated value</li> </ul>	2 hp
<ul style="list-style-type: none"> <li>• at 220/230 V / rated value</li> </ul>	2 hp
<ul style="list-style-type: none"> <li>• at 460/480 V / rated value</li> </ul>	5 hp

#### Safety related data

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

#### Ambient conditions

<b>Ambient temperature</b>	
<ul style="list-style-type: none"> <li>• during operation</li> </ul>	-25 ... +60 °C
<ul style="list-style-type: none"> <li>• during storage</li> </ul>	-55 ... +80 °C

#### Electromagnetic compatibility

<b>Conducted interference</b>	
<ul style="list-style-type: none"> <li>• due to burst / acc. to IEC 61000-4-4</li> </ul>	2 kV / 5 kHz behavior criterion 2
<ul style="list-style-type: none"> <li>• due to conductor-earth surge / acc. to IEC 61000-4-5</li> </ul>	2 kV behavior criterion 2
<ul style="list-style-type: none"> <li>• due to conductor-conductor surge / acc. to IEC 61000-4-5</li> </ul>	1 kV behavior criterion 2
<ul style="list-style-type: none"> <li>• due to high-frequency radiation / acc. to IEC 61000-4-6</li> </ul>	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

#### Short-circuit protection, design of the fuse link

Manufacturer's article number	
<ul style="list-style-type: none"> <li>• of full range R fuse link for semiconductor protection / at NH design</li> </ul>	<a href="#">3NE1818-0</a>

<ul style="list-style-type: none"> <li>• of full range R fuse link for semiconductor protection / at cylindrical design</li> </ul>	<a href="#">5SE1363</a>
<ul style="list-style-type: none"> <li>• of back-up R fuse link for semiconductor protection / at NH design</li> </ul>	<a href="#">3NE8021-1</a>
<ul style="list-style-type: none"> <li>• of back-up R fuse link for semiconductor protection / at cylindrical design 10 x 38 mm</li> </ul>	<a href="#">3NC1032</a>
<ul style="list-style-type: none"> <li>• of back-up R fuse link for semiconductor protection / at cylindrical design 14 x 51 mm</li> </ul>	<a href="#">3NC1450</a>
<ul style="list-style-type: none"> <li>• of back-up R fuse link for semiconductor protection / at cylindrical design 22 x 58 mm</li> </ul>	<a href="#">3NC2280</a>
Manufacturer's article number / of the gG fuse	
<ul style="list-style-type: none"> <li>• at NH design</li> </ul>	<a href="#">3NA3810-6</a>
<ul style="list-style-type: none"> <li>• at cylindrical design 10 x 38 mm</li> </ul>	<a href="#">3NW6010-1</a>
<ul style="list-style-type: none"> <li>• at cylindrical design 14 x 51 mm</li> </ul>	3NW6116-1
<ul style="list-style-type: none"> <li>• at cylindrical design 22 x 58 mm</li> </ul>	<a href="#">3NW6210-1</a>
Manufacturer's article number	
<ul style="list-style-type: none"> <li>• of DIAZED fuse</li> </ul>	<a href="#">5SB321</a>

#### 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=3RF3412-2BB24>

##### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3412-2BB24>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF3412-2BB24>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF3412-2BB24&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3412-2BB24&lang=en)





