



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

product brand name	SIRIUS
product designation	solid-state contactor
design of the product	2-pole controlled
product type designation	3RF34
<b>General technical data</b>	
certificate of suitability	CE / UL / CSA / CCC / C-Tick (RCM)
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
surge voltage resistance of main circuit rated value	6 kV
protection class IP	IP20
protection class IP on the front according to IEC 60529	IP20
shock resistance according to IEC 60068-2-27	15g / 11 ms
vibration resistance according to IEC 60068-2-6	2g
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	05/28/2009
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	0.491 kg
<b>Main circuit</b>	
number of poles for main current circuit	3
number of NO contacts for main contacts	2
number of NC contacts for main contacts	0
type of voltage of the operating voltage	AC
operating voltage	
• at AC	
— at 50 Hz rated value	48 ... 480 V
— at 60 Hz rated value	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	40 ... 506 V
• at 60 Hz	40 ... 506 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

<b>operating power</b>	
<ul style="list-style-type: none"> <li>at AC-3 at 400 V rated value</li> </ul>	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>	DC
<b>control supply voltage at DC rated value</b>	24 V
<b>control supply voltage</b>	
<ul style="list-style-type: none"> <li>at DC initial value for signal &lt;1&gt; detection</li> </ul>	15 V
<ul style="list-style-type: none"> <li>at DC full-scale value for signal&lt;0&gt; recognition</li> </ul>	5 V
<b>symmetrical line frequency tolerance</b>	5 Hz
<b>operating range factor control supply voltage rated value at DC</b>	
<ul style="list-style-type: none"> <li>initial value</li> </ul>	0.63
<ul style="list-style-type: none"> <li>full-scale value</li> </ul>	1.25
<b>control current at minimum control supply voltage</b>	
<ul style="list-style-type: none"> <li>at DC</li> </ul>	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>type of switching contact</b>	normally open contact (NO)
<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
fastening method side-by-side mounting	Yes
<b>fastening method</b>	screw and snap-on mounting onto 35 mm DIN rail
<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	
<ul style="list-style-type: none"> <li>upwards</li> </ul>	70 mm
<ul style="list-style-type: none"> <li>downwards</li> </ul>	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> </ul>	spring-loaded terminals
<ul style="list-style-type: none"> <li>for auxiliary and control circuit</li> </ul>	spring-loaded terminals
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>for main contacts</li> </ul>	
<ul style="list-style-type: none"> <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> </ul>	2x (0.5 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>— finely stranded without core end processing</li> </ul>	2x (0.5 ... 2.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>for AWG cables for main contacts</li> </ul>	2x (18 ... 14)
<b>connectable conductor cross-section for main contacts</b>	
<ul style="list-style-type: none"> <li>solid or stranded</li> </ul>	0.5 ... 2.5 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>finely stranded with core end processing</li> </ul>	0.5 ... 1.5 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>finely stranded without core end processing</li> </ul>	0.5 ... 2.5 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>for auxiliary and control contacts</li> </ul>	
<ul style="list-style-type: none"> <li>— solid</li> </ul>	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>
• for AWG cables for auxiliary and control contacts	1x (20 ... 12)
<b>AWG number as coded connectable conductor cross section for main contacts</b>	14 ... 10
<b>stripped length of the cable</b>	
• for main contacts	10 mm
• for auxiliary and control contacts	10 mm
<b>UL/CSA ratings</b>	
<b>full-load current (FLA) for 3-phase AC motor</b>	
• at 480 V rated value	7.6 A
yielded mechanical performance [hp] for 3-phase AC motor	
• at 200/208 V rated value	2 hp
• at 220/230 V rated value	2 hp
• at 460/480 V rated value	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
IEC 61508	
T1 value for proof test interval or service life according to IEC 61508	20 a
Electrical Safety	
<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>	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
<b>Electromagnetic compatibility</b>	
<b>conducted interference</b>	
• due to burst according to IEC 61000-4-4	2 kV / 5 kHz behavior criterion 2
• due to conductor-earth surge according to IEC 61000-4-5	2 kV behavior criterion 2
• due to conductor-conductor surge according to IEC 61000-4-5	1 kV behavior criterion 2
• due to high-frequency radiation according to IEC 61000-4-6	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	<a href="#">3NE1818-0</a>
• of full range R fuse link for semiconductor protection at cylindrical design usable	<a href="#">5SE1363</a>
• of back-up R fuse link for semiconductor protection at NH design usable	<a href="#">3NE8021-1</a>
• of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable	<a href="#">3NC1032</a>
• of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable	<a href="#">3NC1450</a>
• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable	<a href="#">3NC2280</a>
manufacturer's article number of the gG fuse	
• at NH design usable	<a href="#">3NA3810-6</a>
• at cylindrical design 10 x 38 mm usable	<a href="#">3NW6010-1</a>
• at cylindrical design 22 x 58 mm usable	<a href="#">3NW6210-1</a>
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	<b>EMV</b>



Test Certificates

other

Environment

[Type Test Certificates/Test Report](#)



[Confirmation](#)

[Environmental Confirmations](#)

### Further information

Information on the packaging

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

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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

<https://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, ...)

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





