

Solid-state contactor 1-phase 3RF2 AC 15 / 12 A / 40 °C 48-460 V /  
24 V DC Instantaneous switching



product brand name	SIRIUS
product designation	solid-state contactor
design of the product	single-phase
product type designation	3RF23
manufacturer's article number	
• _1 of the accessories that can be ordered	<a href="#">3RF2900-3PA88</a>
• _2 of the accessories that can be ordered	<a href="#">3RF2920-0HA16</a>
• _3 of the accessories that can be ordered	<a href="#">3RF2900-0EA18</a>
• _4 of the accessories that can be ordered	<a href="#">3RF2920-0GA16</a>
• _5 of the accessories that can be ordered	<a href="#">3RF2920-0FA08</a>
product designation	
• _1 of the accessories that can be ordered	terminal cover
• _2 of the accessories that can be ordered	power regulator
• _3 of the accessories that can be ordered	converter
• _4 of the accessories that can be ordered	load monitoring
• _5 of the accessories that can be ordered	load monitoring, basis
General technical data	
• product function	instantaneous switching

<b>power loss [W] for rated value of the current</b>	
• at AC in hot operating state	20 W
• at AC in hot operating state per pole	20 W
<b>power loss [W] for rated value of the current without load current share typical</b>	0.4 W
<b>insulation voltage</b>	
• rated value	600 V
<b>degree of pollution</b>	3
<b>type of voltage</b>	
• of the control supply voltage	DC
<b>protection class IP</b>	IP20
<b>shock resistance</b>	
• acc. to IEC 60068-2-27	15g / 11 ms
<b>vibration resistance</b>	
• acc. to IEC 60068-2-6	2g
<b>reference code acc. to IEC 81346-2</b>	Q

Main circuit	
<b>number of poles for main current circuit</b>	1
<b>number of NO contacts for main contacts</b>	1
<b>number of NC contacts for main contacts</b>	0
<b>operating voltage</b>	
• at AC	
— at 50 Hz rated value	48 ... 460 V
— at 60 Hz rated value	48 ... 460 V
<b>operating frequency rated value</b>	50 ... 60 Hz
<b>operating range relative to the operating voltage at AC</b>	
• at 50 Hz	40 ... 506 V
• at 60 Hz	40 ... 506 V
• operational current at AC-1 at 400 V	
— rated value	20 A
• operational current at AC-51 rated value	20 A
• operational current acc. to UL 508 rated value	12 A
<b>operational current minimum</b>	500 mA
<b>rate of voltage rise at the thyristor for main contacts maximum permissible</b>	1 000 V/μs
<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>	600 A
<b>I<sup>2</sup>t value maximum</b>	1 800 A <sup>2</sup> ·s

Control circuit/ Control	
<b>type of voltage of the control supply voltage</b>	DC
<b>control supply voltage 1</b>	
• at DC rated value	30 V
• at DC	15 ... 24 V
<b>control supply voltage</b>	
• at DC initial value for signal <1> detection	15 V
• at DC full-scale value for signal<0> recognition	5 V
<b>control current at minimum control supply voltage</b>	
• at DC	13 mA
<b>control current at DC</b>	
• rated value	15 mA
<b>switch ON delay time</b>	1 ms
<b>OFF delay time</b>	1 ms; additionally max. one half-wave

Auxiliary circuit	
<b>number of NC contacts for auxiliary contacts</b>	0
<b>number of NO contacts for auxiliary contacts</b>	0
<b>number of CO contacts</b>	
• for auxiliary contacts	0

Installation/ mounting/ dimensions	
<b>fastening method</b>	screw and snap-on mounting onto 35 mm standard mounting rail
• side-by-side mounting	Yes
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	123.5 mm; 140.5 mm up to product revision E05

Connections/ Terminals	
<b>type of electrical connection</b>	
• for main current circuit	screw-type terminals
• for auxiliary and control circuit	screw-type terminals
<b>type of connectable conductor cross-sections</b>	
• for main contacts	
— solid	2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup>
• at AWG cables for main contacts	2x (14 ... 10)
<b>connectable conductor cross-section for main contacts</b>	
• solid or stranded	1.5 ... 6 mm <sup>2</sup>
• finely stranded with core end processing	1 ... 10 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
• for auxiliary and control contacts	
— solid	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )

<ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</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> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )  1x (AWG 20 ... 12)
<b>AWG number as coded connectable conductor cross section</b> <ul style="list-style-type: none"> <li>• for main contacts</li> </ul>	10 ... 14
<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 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 4.5 ... 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 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 7 mm

<b>Ambient conditions</b>	
<ul style="list-style-type: none"> <li>• installation altitude at height above sea level maximum</li> </ul>	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 -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 2 kV behavior criterion 2  1 kV behavior criterion 2  140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
<b>field-based interference acc. to IEC 61000-4-3</b>	80 MHz ... 1 GHz 10 V/m, 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

field-bound HF interference emission acc. to  
CISPR11

Class B for the domestic, business and commercial environments

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

manufacturer's article number

- of gS fuse 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

[3NE1814-0](#)

[5SE1325](#)

[3NE8015-1](#)

[3NC1032](#)

[3NC1450](#)

[3NC2263](#)

manufacturer's article number of the gG fuse

- at NH design usable
- at cylindrical design 10 x 38 mm usable
- at cylindrical design 14 x 51 mm usable
- at cylindrical design 22 x 58 mm usable

[3NA6807](#)

[3NW6005-1; These fuses have a smaller rated current than the semiconductor relays](#)

[3NW6105-1; These fuses have a smaller rated current than the semiconductor relays](#)

[3NW6205-1; These fuses have a smaller rated current than the semiconductor relays](#)

manufacturer's article number

- of DIAZED fuse usable
- of NEOZED fuse usable

[5SB171](#)

[5SE2320](#)

### Certificates/ approvals

#### General Product Approval



CSA



UL



RCM



EG-Konf.

[Miscellaneous](#)

#### Test Certificates

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

[Confirmation](#)



VDE

#### Railway

[Vibration and Shock](#)

## 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=3RF2320-1BA04>

### Cax online generator

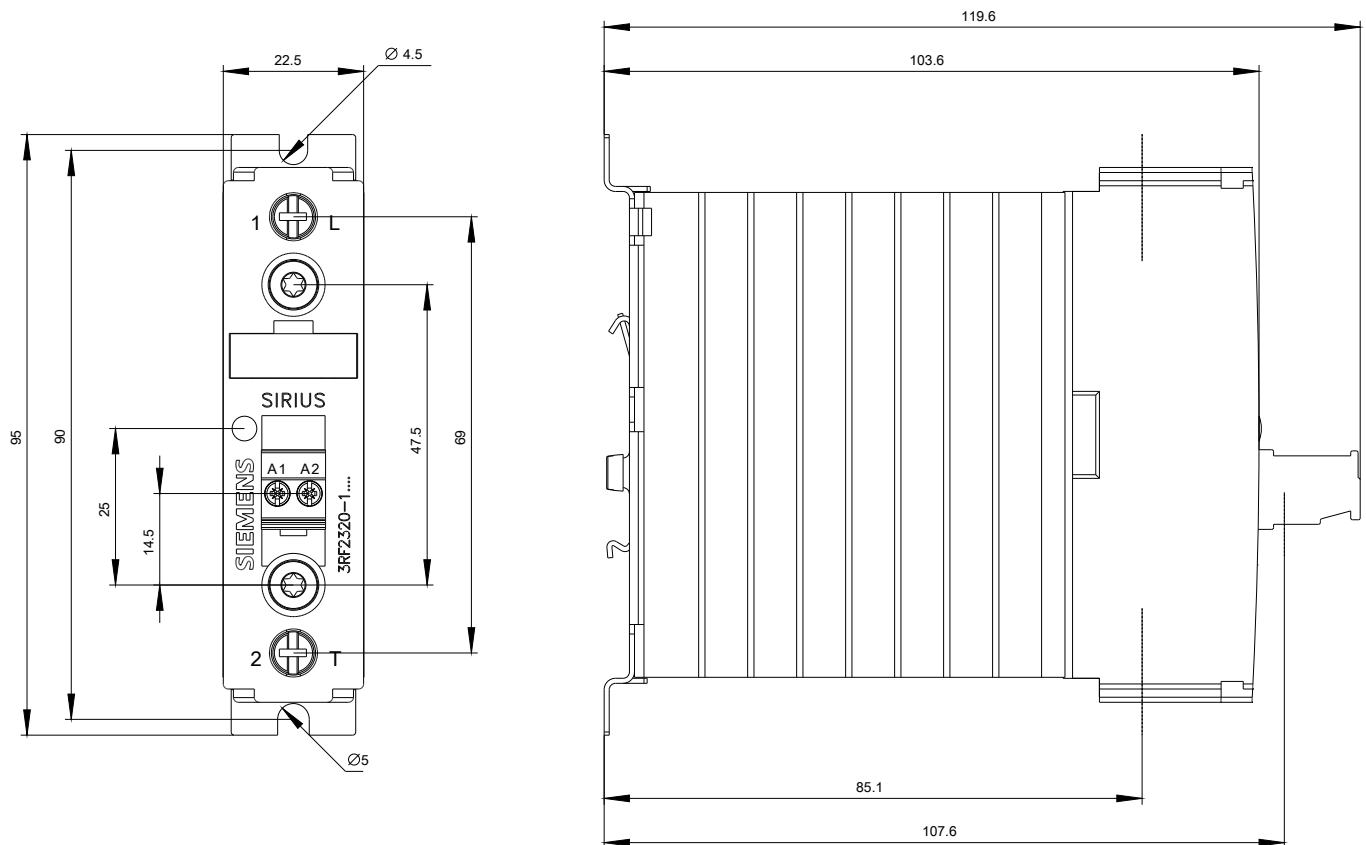
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2320-1BA04>

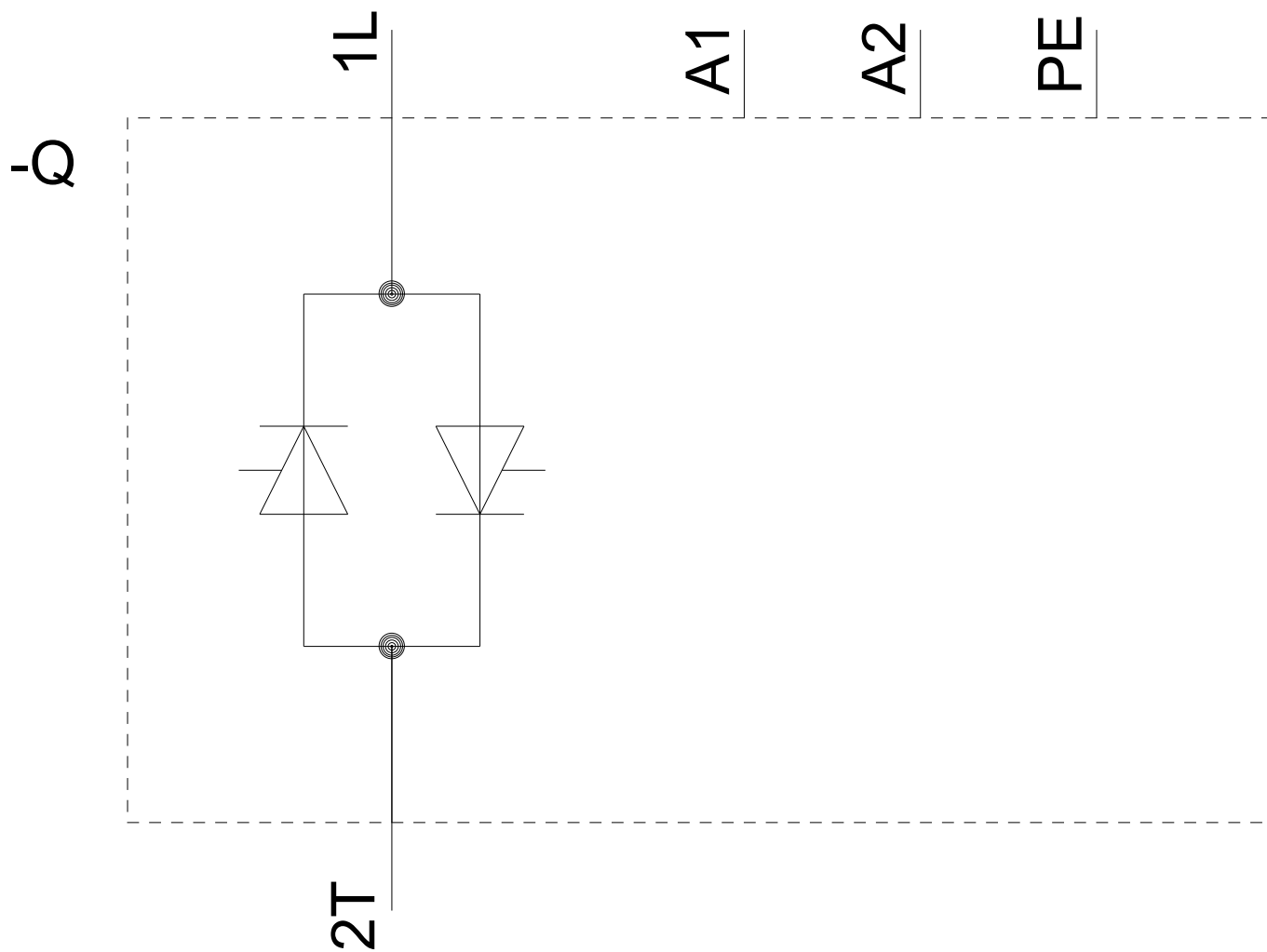
### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

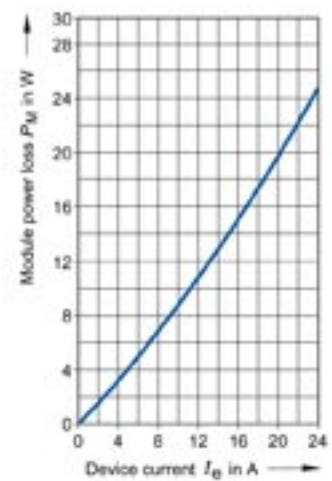
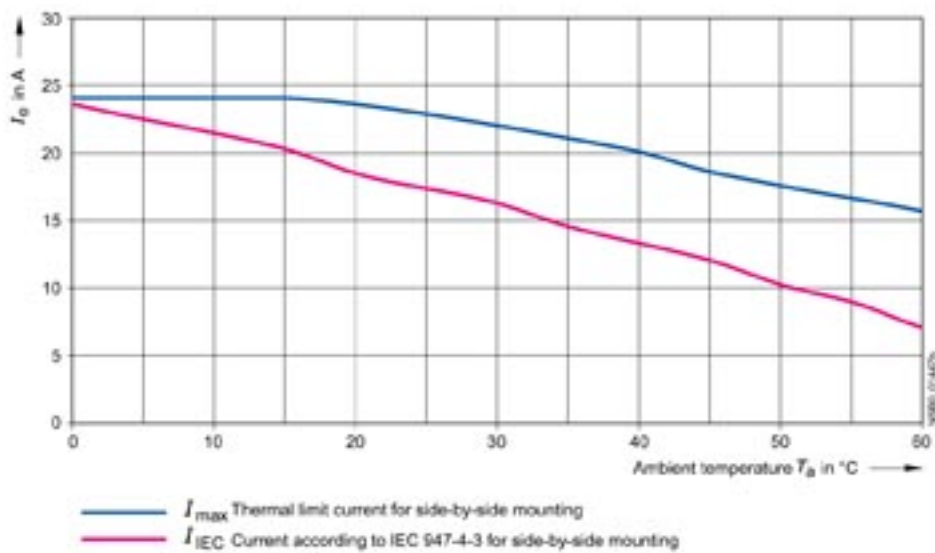
<https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1BA04>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2320-1BA04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1BA04&lang=en)







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