



Semiconductor relay, 1-phase 3RF2 Width 22.5 mm, 20 A 24-230 V / 24 V DC  
Spring-type terminal

<b>product brand name</b>	SIRIUS
<b>product designation</b>	solid-state relay
<b>design of the product</b>	single-phase
<b>product type designation</b>	3RF21
<b>manufacturer's article number</b>	
<ul style="list-style-type: none"> <li>_3 of the accessories that can be ordered</li> </ul>	<a href="#">3RF2900-0EA18</a>
<b>product designation</b>	
<ul style="list-style-type: none"> <li>_3 of the accessories that can be ordered</li> </ul>	converter
<b>General technical data</b>	
<b>product function</b>	zero-point switching
<b>power loss [V·A] maximum</b>	28.6 VA
<b>power loss [W] for rated value of the current</b>	
<ul style="list-style-type: none"> <li>at AC in hot operating state</li> </ul>	28.6 W
<ul style="list-style-type: none"> <li>at AC in hot operating state per pole</li> </ul>	28.6 W
<ul style="list-style-type: none"> <li>without load current share typical</li> </ul>	0.4 W
<b>insulation voltage rated value</b>	600 V
type of voltage of the control supply voltage	DC
surge voltage resistance of main circuit rated value	6 kV
<b>shock resistance according to IEC 60068-2-27</b>	15g / 11 ms
<b>vibration resistance according to IEC 60068-2-6</b>	2g
<b>reference code according to EN 61346-2</b>	Q
<b>reference code according to IEC 81346-2</b>	Q
<b>Substance Prohibitance (Date)</b>	05/28/2009
<b>Main circuit</b>	
<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
operating voltage at AC	
<ul style="list-style-type: none"> <li>at 50 Hz rated value</li> </ul>	24 ... 230 V
<ul style="list-style-type: none"> <li>at 60 Hz rated value</li> </ul>	24 ... 230 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>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	20 ... 253 V
<ul style="list-style-type: none"> <li>at 60 Hz</li> </ul>	20 ... 253 V
<b>operational current</b>	
<ul style="list-style-type: none"> <li>at AC-51 rated value</li> </ul>	20 A
<ul style="list-style-type: none"> <li>according to UL 508 rated value</li> </ul>	20 A
<b>ampacity maximum</b>	20 A
<b>operational current minimum</b>	100 mA

rate of voltage rise at the thyristor for main contacts maximum permissible	500 V/ $\mu$ s
blocking voltage at the thyristor for main contacts maximum permissible	800 V
reverse current of the thyristor	10 mA
derating temperature	40 °C
surge current resistance rated value	200 A
I <sup>2</sup> t value maximum	200 A <sup>2</sup> ·s
<b>Control circuit/ Control</b>	
type of voltage of the control supply voltage	DC
control supply voltage 1	
• at DC rated value	30 V
• at DC	15 ... 24 V
control supply voltage	
• at DC initial value for signal <1> detection	15 V
• at DC full-scale value for signal<0> recognition	5 V
control current at minimum control supply voltage	
• at DC	13 mA
control current at DC rated value	15 mA
ON-delay time	1 ms; additionally max. one half-wave
OFF-delay time	1 ms; additionally max. one half-wave
<b>Auxiliary circuit</b>	
number of NC contacts for auxiliary contacts	0
number of NO contacts for auxiliary contacts	0
number of CO contacts for auxiliary contacts	0
<b>Installation/ mounting/ dimensions</b>	
fastening method	screw fixing
• side-by-side mounting	Yes
design of the thread of the screw for securing the equipment	M4
tightening torque of fixing screw maximum	1.5 N·m
tightening torque [lbf·in] of fixing screw maximum	13 lbf·in
height	85 mm
width	22.5 mm
depth	48 mm
<b>Connections/ Terminals</b>	
type of electrical connection	
• for main current circuit	spring-loaded terminals
• for auxiliary and control circuit	spring-loaded terminals
type of connectable conductor cross-sections	
• 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> )
• for AWG cables for main contacts	2x (18 ... 14)
connectable conductor cross-section for main contacts	
• solid or stranded	0.5 ... 2.5 mm <sup>2</sup>
• finely stranded with core end processing	0.5 ... 1.5 mm <sup>2</sup>
• finely stranded without core end processing	0.5 ... 2.5 mm <sup>2</sup>
type of connectable conductor cross-sections	
• 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>
• for AWG cables for auxiliary and control contacts	1x (AWG 20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	14 ... 10
tightening torque	
• for main contacts with screw-type terminals	2 ... 2.5 N·m
stripped length of the cable	
• for main contacts	10 mm
• for auxiliary and control contacts	10 mm

Safety related data	
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
Ambient conditions	
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> </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 according 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 according to IEC 61000-4-5</li> </ul>	2 kV behavior criterion 2
<ul style="list-style-type: none"> <li>due to conductor-conductor surge according to IEC 61000-4-5</li> </ul>	1 kV behavior criterion 2
<ul style="list-style-type: none"> <li>due to high-frequency radiation according to IEC 61000-4-6</li> </ul>	140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
<b>field-based interference according to IEC 61000-4-3</b>	80 MHz ... 1 GHz 10 V/m, 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 B for the domestic, business and commercial environments
Short-circuit protection, design of the fuse link	
manufacturer's article number	
<ul style="list-style-type: none"> <li>of gS fuse for semiconductor protection at NH design usable</li> </ul>	<a href="#">3NE1814-0</a>
<ul style="list-style-type: none"> <li>of full range R fuse link for semiconductor protection at cylindrical design usable</li> </ul>	<a href="#">5SE1325</a>
<ul style="list-style-type: none"> <li>of back-up R fuse link for semiconductor protection at NH design usable</li> </ul>	<a href="#">3NE8015-1</a>
<ul style="list-style-type: none"> <li>of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable</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 usable</li> </ul>	<a href="#">3NC1430</a>
<ul style="list-style-type: none"> <li>of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable</li> </ul>	<a href="#">3NC2225</a>
manufacturer's article number of the gG fuse	
<ul style="list-style-type: none"> <li>at NH design usable</li> </ul>	<a href="#">3NA6803: These fuses have a smaller rated current than the semiconductor relays</a>
<ul style="list-style-type: none"> <li>at cylindrical design 10 x 38 mm usable</li> </ul>	<a href="#">3NW6001-1: These fuses have a smaller rated current than the semiconductor relays</a>
<ul style="list-style-type: none"> <li>at cylindrical design 14 x 51 mm usable</li> </ul>	<a href="#">3NW6101-1: These fuses have a smaller rated current than the semiconductor relays</a>
manufacturer's article number	
<ul style="list-style-type: none"> <li>of NEOZED fuse usable</li> </ul>	<a href="#">5SE2306: These fuses have a smaller rated current than the semiconductor relays</a>

### Certificates/ approvals

General Product Approval	EMC	Declaration of Conformity
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[Confirmation](#)



Declaration of Conformity	Test Certificates	other	Railway
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[Type Test Certificates/Test Report](#)

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### Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

**Information on the packaging**

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

**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=3RF2120-2AA02>

**Cax online generator**

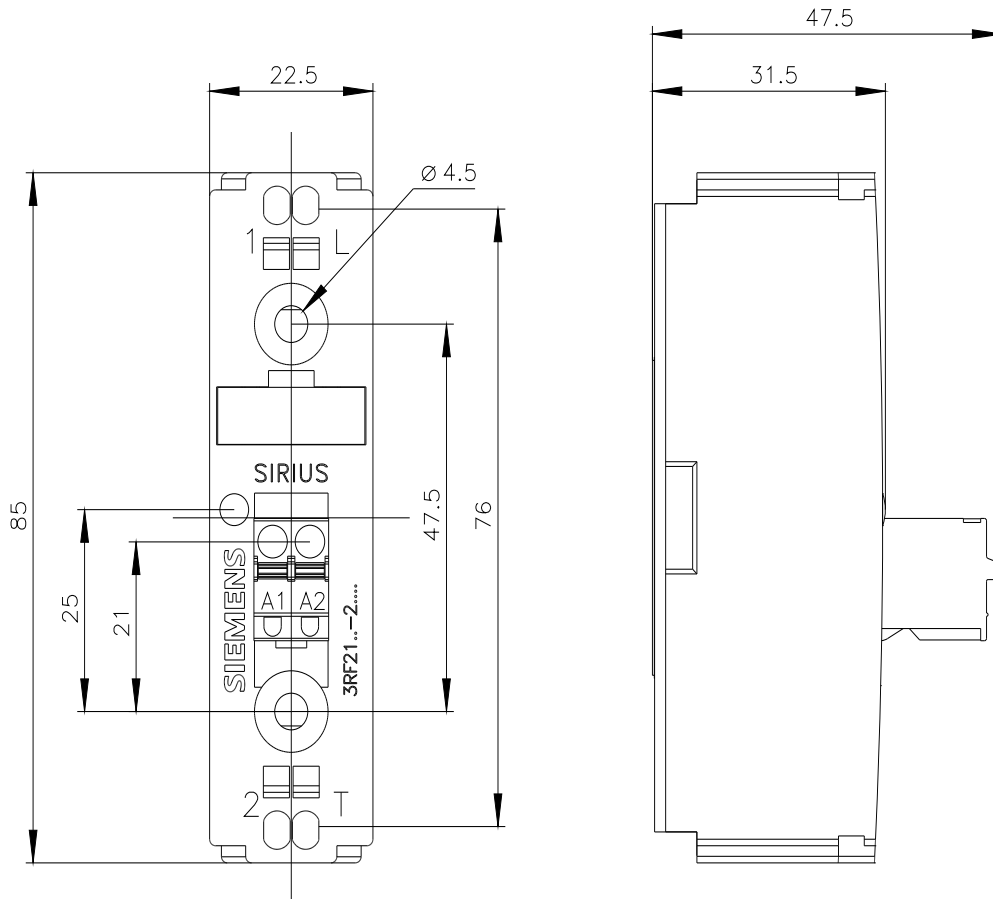
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2120-2AA02>

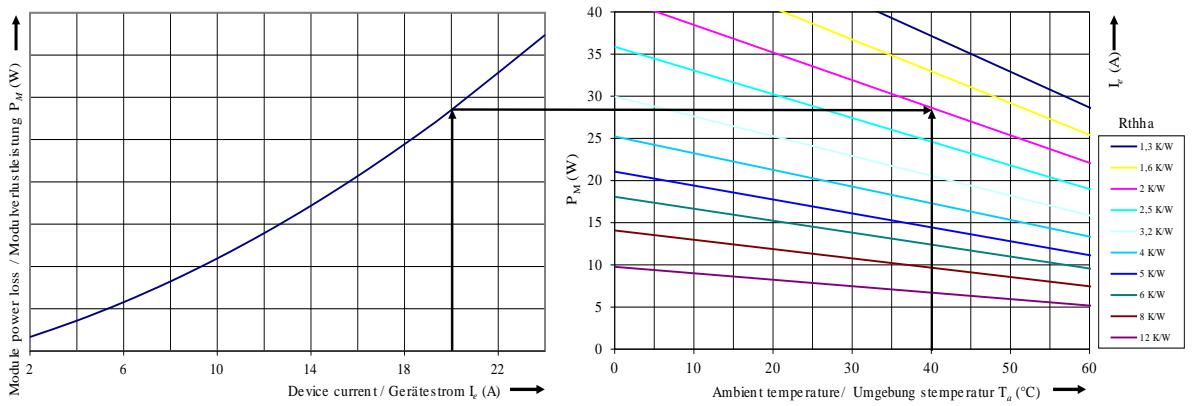
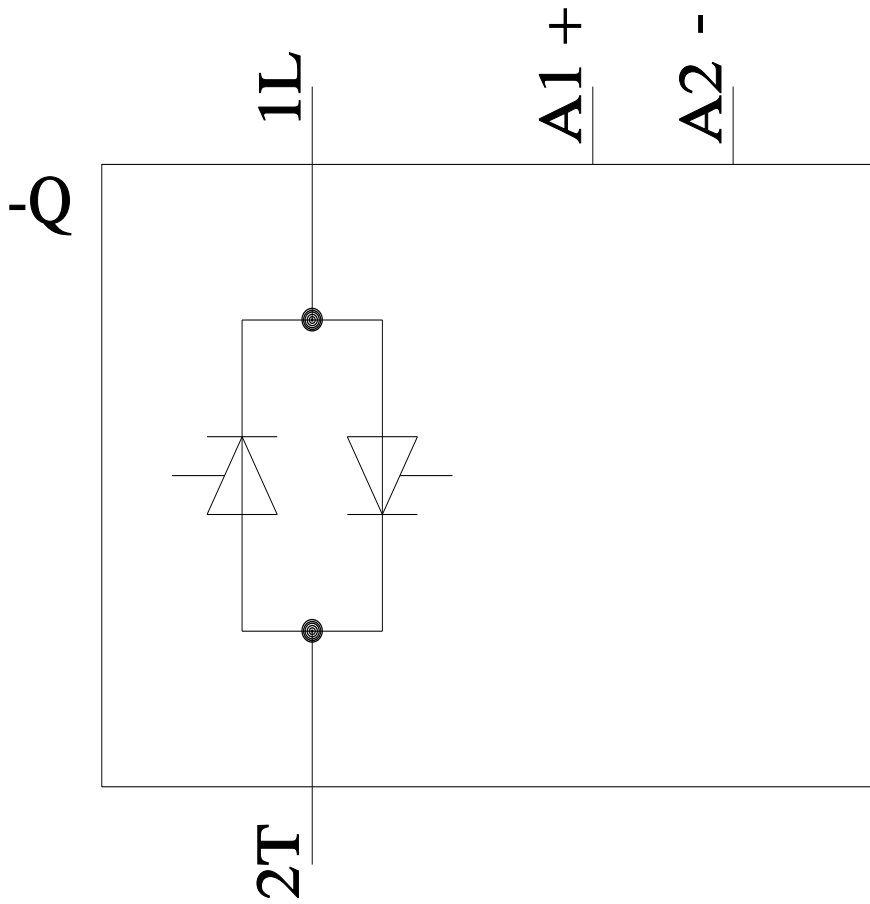
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2120-2AA02>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2120-2AA02&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2120-2AA02&lang=en)





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