



Semiconductor relay, 1-phase 3RF2 Overall width 22.5 mm, 30 A 24-230 V / 24 V DC 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
- \_3 of the accessories that can be ordered
- \_4 of the accessories that can be ordered
- \_5 of the accessories that can be ordered

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SIRIUS  
 solid-state relay  
 single-phase  
 3RF21

- [3RF2900-3PA88](#)
- [3RF2950-0HA13](#)
- [3RF2900-0EA18](#)
- [3RF2950-0GA13](#)
- [3RF2920-0FA08](#)

terminal cover  
 power regulator  
 converter  
 load monitoring  
 load monitoring, basis

### General technical data

**product function** zero-point switching  
**power loss [V·A] maximum** 44.2 VA  
**power loss [W] for rated value of the current**  
 • at AC in hot operating state 44.2 W  
 • at AC in hot operating state per pole 44.2 W  
 • without load current share typical 0.4 W  
**insulation voltage rated value** 600 V  
 type of voltage of the control supply voltage DC  
 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  
**reference code according to IEC 81346-2** Q  
**Substance Prohibitance (Date)** 05/28/2009

### Main circuit

**number of poles for main current circuit** 1  
**number of NO contacts for main contacts** 1  
**number of NC contacts for main contacts** 0  
**operating voltage at AC**  
 • at 50 Hz rated value 24 ... 230 V  
 • at 60 Hz rated value 24 ... 230 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 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> <li>• according to UL 508 rated value</li> </ul>	30 A 30 A
<b>ampacity maximum</b>	30 A
<b>operational current minimum</b>	500 mA
<b>rate of voltage rise at the thyristor for main contacts maximum permissible</b>	500 V/μs
<b>blocking voltage at the thyristor for main contacts maximum permissible</b>	800 V
<b>reverse current of the thyristor</b>	10 mA
<b>derating temperature</b>	40 °C
<b>surge current resistance rated value</b>	300 A
<b>I<sup>2</sup>t value maximum</b>	450 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>	
<ul style="list-style-type: none"> <li>• at DC rated value</li> <li>• at DC</li> </ul>	30 V 15 ... 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> <li>• at DC full-scale value for signal&lt;0&gt; recognition</li> </ul>	15 V 5 V
<b>control current at minimum control supply voltage</b>	
<ul style="list-style-type: none"> <li>• at DC</li> </ul>	13 mA
control current at DC rated value	15 mA
<b>ON-delay time</b>	1 ms; additionally max. one half-wave
<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
number of CO contacts for auxiliary contacts	0

#### Installation/ mounting/ dimensions

<b>fastening method</b>	screw fixing
<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>tightening torque of fixing screw maximum</b>	1.5 N·m
<b>tightening torque [lbf·in] of fixing screw maximum</b>	13 lbf·in
<b>height</b>	85 mm
<b>width</b>	22.5 mm
<b>depth</b>	48 mm

#### Connections/ Terminals

<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 screw-type terminals
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for main contacts</li> </ul>	2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ) 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup> 2x (14 ... 10)
<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> 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> ) 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)
AWG number as coded connectable conductor cross section for main contacts	14 ... 10
<b>tightening torque</b>	
<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	2 ... 2.5 N·m

<ul style="list-style-type: none"> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>	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> </ul>	7 ... 10.3 lbf·in
<ul style="list-style-type: none"> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>	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> </ul>	M4
<ul style="list-style-type: none"> <li>of the auxiliary and control contacts</li> </ul>	M3
<b>stripped length of the cable</b>	
<ul style="list-style-type: none"> <li>for main contacts</li> </ul>	7 mm
<ul style="list-style-type: none"> <li>for auxiliary and control contacts</li> </ul>	7 mm

### Safety related data

<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

### 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="#">3NE1815-0</a> ; These fuses have a smaller rated current than the semiconductor relays
<ul style="list-style-type: none"> <li>of full range R fuse link for semiconductor protection at cylindrical design usable</li> </ul>	<a href="#">5SE1335</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="#">3NE1815-0</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="#">3NC1440</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="#">3NC2240</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</a> ; These fuses have a smaller rated current than the semiconductor relays
<ul style="list-style-type: none"> <li>at cylindrical design 14 x 51 mm usable</li> </ul>	<a href="#">3NW6103-1</a> ; These fuses have a smaller rated current than the semiconductor relays
manufacturer's article number	
<ul style="list-style-type: none"> <li>of DIAZED fuse usable</li> </ul>	<a href="#">5SB251</a> ; These fuses have a smaller rated current than the semiconductor relays
<ul style="list-style-type: none"> <li>of NEOZED fuse usable</li> </ul>	<a href="#">5SE2313-2A</a> ; These fuses have a smaller rated current than the semiconductor relays

### Certificates/ approvals

<b>General Product Approval</b>	<b>EMC</b>	<b>Declaration of Conformity</b>
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[Confirmation](#)



Declaration of Conformity	Test Certificates	other	Railway
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EG-Konf.

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

[Confirmation](#)



VDE

[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=3RF2130-1AA02>

Cax online generator

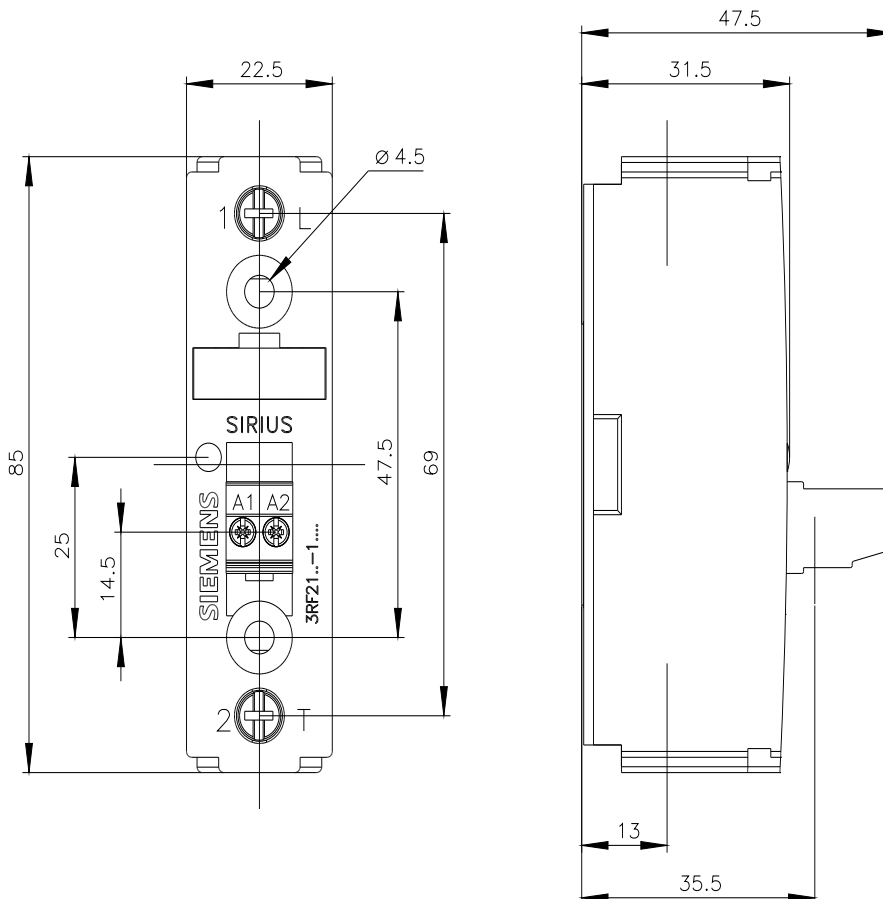
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2130-1AA02>

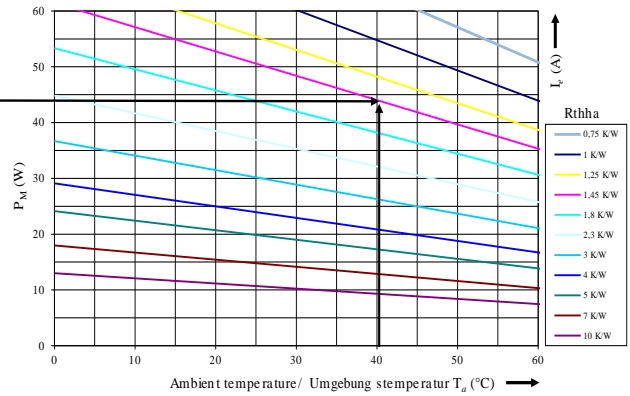
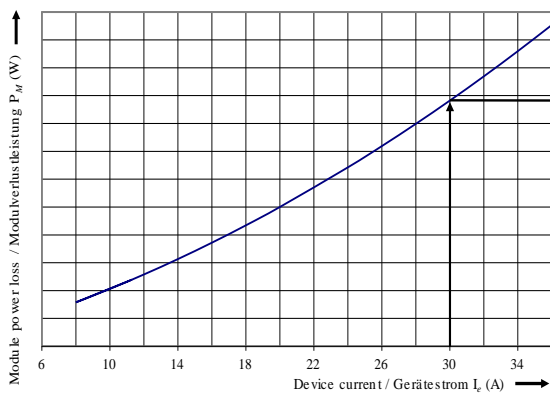
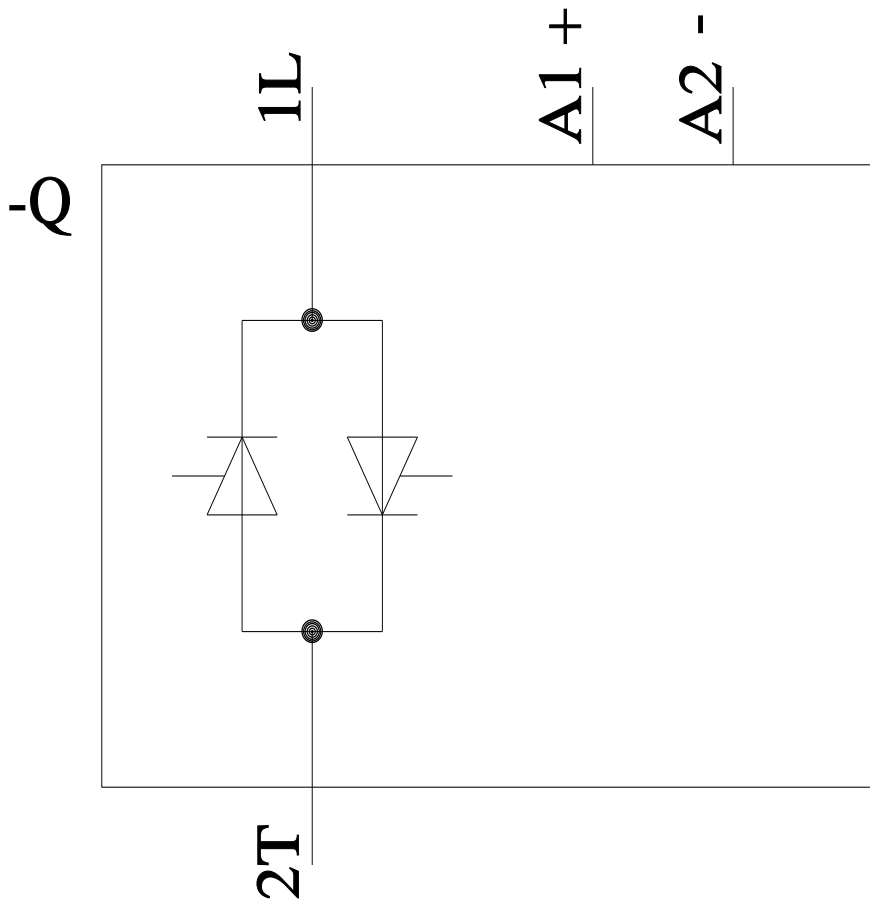
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2130-1AA02>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2130-1AA02&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2130-1AA02&lang=en)





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