



semiconductor relay, 1-pole 3RF3 for use with heat sinks width 22.5 mm, 25 A 24-230 V / 4-30 V DC screw terminal

<b>product brand name</b>	SIRIUS
<b>product designation</b>	solid-state relay
<b>product type designation</b>	3RF31
<b>manufacturer's article number</b>	
<ul style="list-style-type: none"> <li>• _1 of the accessories that can be ordered</li> <li>• _2 of the accessories that can be ordered</li> <li>• _3 of the accessories that can be ordered</li> <li>• _4 of the accessories that can be ordered</li> <li>• _5 of the accessories that can be ordered</li> <li>• _6 of the accessories that can be ordered</li> </ul>	<a href="#">3RF2900-3PA88</a> <a href="#">3RF3900-0WA88</a> <a href="#">3RF3920-0HA13</a> <a href="#">3RF3900-0EA18</a> <a href="#">3RF3920-0GA13</a> <a href="#">3RF3920-0FA08</a>
<b>product designation</b>	
<ul style="list-style-type: none"> <li>• _1 of the accessories that can be ordered</li> <li>• _2 of the accessories that can be ordered</li> <li>• _3 of the accessories that can be ordered</li> <li>• _4 of the accessories that can be ordered</li> <li>• _5 of the accessories that can be ordered</li> <li>• _6 of the accessories that can be ordered</li> </ul>	terminal cover heat conducting foil power regulator converter load monitoring basic load monitoring
<b>General technical data</b>	
<b>product function</b>	zero-point switching
<b>power loss [V·A] maximum</b>	30 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> <li>• at AC in hot operating state per pole</li> <li>• without load current share typical</li> </ul>	30 W 30 W 0.5 W
<b>type of calculation of power loss current-dependent</b>	linear
<b>insulation voltage rated value</b>	600 V
surge voltage resistance of main circuit rated value	6 kV
<b>protection class IP</b>	IP20
protection class IP on the front according to IEC 60529	IP20
<b>shock resistance according to IEC 60068-2-27</b>	15 g / 11 ms
<b>vibration resistance according to IEC 60068-2-6</b>	2 g
<b>reference code according to IEC 81346-2</b>	Q
<b>Substance Prohibitance (day/month/year)</b>	01/15/2024
<b>SVHC substance name</b>	Lead CAS-No. 7439-92-1 Lead monoxide (lead oxide) CAS-No. 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1
<b>Net Weight</b>	0.066 kg
<b>Main circuit</b>	

number of poles for main current circuit	1
number of NO contacts for main contacts	1
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	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
• at 60 Hz	20 ... 253 V
operational current rated value maximum	25 A
operational current	
• at AC-1 at 400 V rated value	25 A
• at AC-51 rated value	25 A
• at AC-51 according to IEC 60947-4-3	25 A
• according to UL 508 rated value	25 A
ampacity maximum	25 A
operational current minimum	100 mA
rate of voltage rise at the thyristor for main contacts maximum permissible	1 000 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	260 A
I <sup>2</sup> t value maximum	360 A <sup>2</sup> ·s
<b>Control circuit/ Control</b>	
type of voltage of the control supply voltage	DC
control supply voltage at DC	4 ... 30 V
control supply voltage 1 at DC	4 ... 30 V
control supply voltage at DC	
• initial value for signal <1> detection	4 V
• full-scale value for signal<0> recognition	1 V
operating range factor control supply voltage rated value at DC	
• initial value	0.17
• full-scale value	1.25
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>Installation/ mounting/ dimensions</b>	
fastening method side-by-side mounting	Yes
fastening method	screw fixing
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>	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection	
• for main current circuit	screw-type terminals

<ul style="list-style-type: none"> <li>• for auxiliary and control circuit</li> </ul>	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>• for AWG cables for main contacts</li> </ul>	2x (1 ... 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), 1x 8
<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>• for AWG cables for auxiliary and control contacts</li> </ul>	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (20 ... 12)
<b>AWG number as coded connectable conductor cross section for main contacts</b>	14 ... 8
<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>	10 mm 7 mm
<b>UL/CSA ratings</b>	
<b>operational current according to UL 508 rated value</b>	25 A
Electrical Safety	
<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> <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 according to IEC 61000-4-4</li> <li>• due to conductor-earth surge according to IEC 61000-4-5</li> <li>• due to conductor-conductor surge according to IEC 61000-4-5</li> <li>• due to high-frequency radiation according 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 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
<b>Short-circuit protection, design of the fuse link</b>	
manufacturer's article number <ul style="list-style-type: none"> <li>• of gS fuse for semiconductor protection at NH design usable</li> <li>• of full range R fuse link for semiconductor protection at cylindrical design usable</li> <li>• of back-up R fuse link for semiconductor protection at NH design usable</li> </ul>	<a href="#">3NE1815-0</a> <a href="#">5SE1325</a> <a href="#">3NE8015-1</a>

- 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

[3NC1020: These fuses have a smaller rated current than the semiconductor relays](#)

[3NC1430](#)

[3NC2225](#)

manufacturer's article number of the gG fuse

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

[3NA6803: These fuses have a smaller rated current than the semiconductor relays](#)

These fuses have a smaller rated current than the semiconductor relays

[3NW6001-1: These fuses have a smaller rated current than the semiconductor relays](#)

These fuses have a smaller rated current than the semiconductor relays

[3NW6101-1: These fuses have a smaller rated current than the semiconductor relays](#)

These fuses have a smaller rated current than the semiconductor relays

[3NW6208-1: These fuses have a smaller rated current than the semiconductor relays](#)

These fuses have a smaller rated current than the semiconductor relays

manufacturer's article number

- of DIAZED fuse usable
- of DIAZED fuse usable note
- of NEOZED fuse usable

[5SB251: These fuses have a smaller rated current than the semiconductor relays](#)

These fuses have a smaller rated current than the semiconductor relays

[5SE2310: These fuses have a smaller rated current than the semiconductor relays](#)

#### Approvals Certificates

Environment	General Product Approval	EMV
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[Environmental Confirmations](#)



Test Certificates

other

[Type Test Certificates/Test Report](#)

[Confirmation](#)



[Confirmation](#)

#### 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=3RF3125-1AA42>

Cax online generator

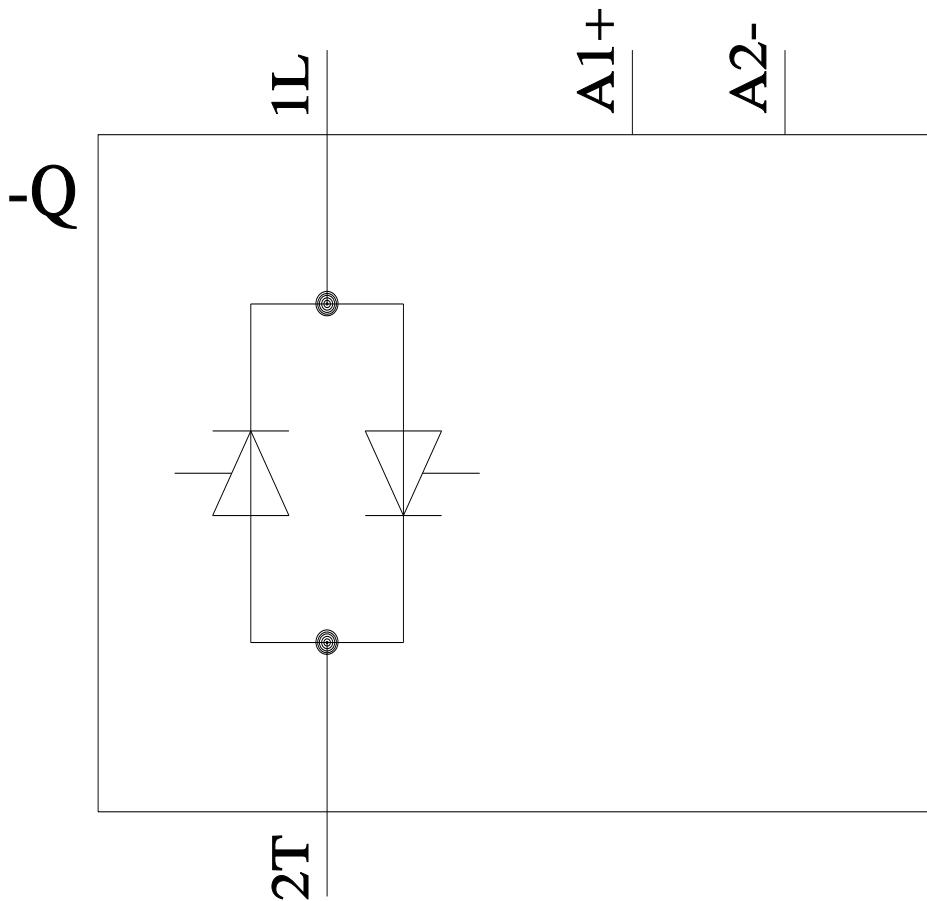
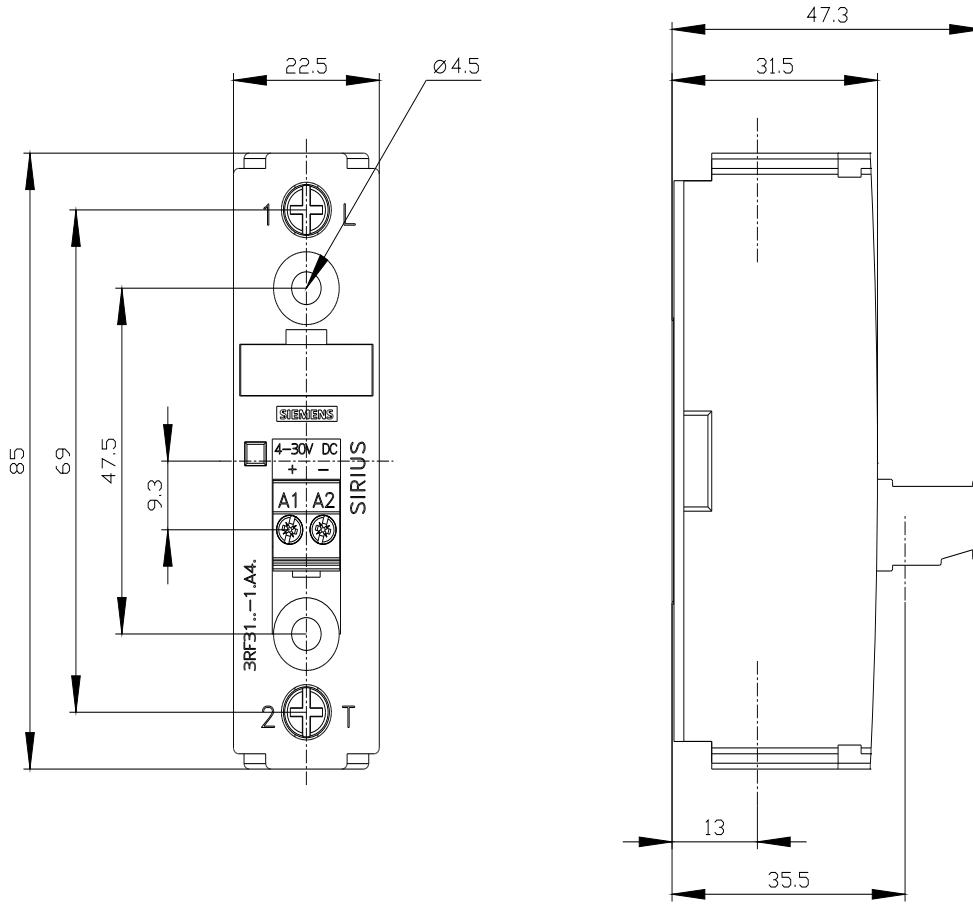
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3125-1AA42>

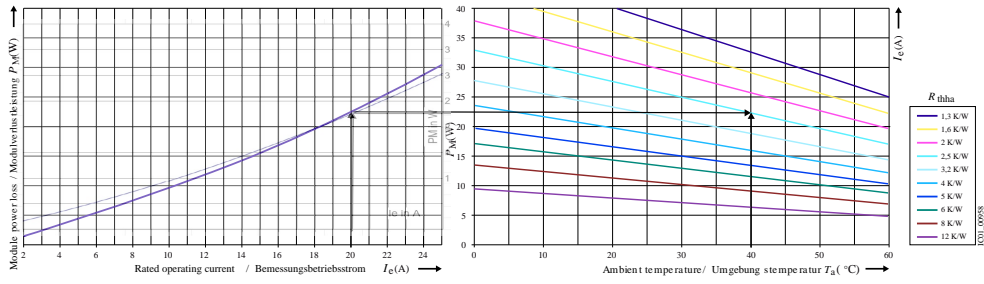
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF3125-1AA42>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF3125-1AA42&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3125-1AA42&lang=en)





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