



semiconductor relay, 1-phase 3RF2 width 22.5 mm, 50 A 48-460 V / 24 V DC screw terminal without control connector for mounting on available cooling surfaces

product brand name	SIRIUS
product designation	solid-state relay
design of the product	1-pole
product type designation	3RF21
manufacturer's article number	
<ul style="list-style-type: none"> • _1 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 	3RF2900-3PA88 3RF2900-0EA18 3RF2950-0GA16 3RF2920-0FA08
product designation	
<ul style="list-style-type: none"> • _1 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 	terminal cover converter load monitoring load monitoring, basis
General technical data	
product function	zero-point switching
power loss [W] for rated value of the current	
<ul style="list-style-type: none"> • at AC in hot operating state • at AC in hot operating state per pole • without load current share typical 	66 W 66 W 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 Prohibittance (Date)	05/28/2009
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	0.07 kg
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
type of voltage of the operating voltage	AC
operating voltage	
<ul style="list-style-type: none"> • at AC <ul style="list-style-type: none"> — at 50 Hz rated value — at 60 Hz rated value 	48 ... 460 V 48 ... 460 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 rated value maximum	50 A
operational current	
• at AC-51 rated value	50 A
• according to UL 508 rated value	50 A
operational current minimum	500 mA
rate of voltage rise at the thyristor for main contacts maximum permissible	1 000 V/ μ s
blocking voltage at the thyristor for main contacts maximum permissible	1 200 V
reverse current of the thyristor	10 mA
derating temperature	40 °C
surge current resistance rated value	600 A
I²t value maximum	1 800 A ² ·s
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage 1 at DC rated value maximum permissible	30 V
control supply voltage 1 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
Auxiliary circuit	
type of switching contact	normally open contact (NO)
number of NC contacts for auxiliary contacts	0
number of NO contacts for auxiliary contacts	0
number of CO contacts for auxiliary contacts	0
Installation/ mounting/ dimensions	
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
Connections/ Terminals	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection	
• for main current circuit	screw-type terminals
• for auxiliary and control circuit	screw-type terminals
type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (1.5 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²)
— finely stranded with core end processing	2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ²
• for AWG cables for main contacts	2x (14 ... 10)
connectable conductor cross-section for main contacts	
• solid or stranded	1.5 ... 6 mm ²
• finely stranded with core end processing	1 ... 10 mm ²
type of connectable conductor cross-sections	
• for auxiliary and control contacts	

— solid	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²)	
— finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²)	
— finely stranded without core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²)	
● for AWG cables for auxiliary and control contacts	1x (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	
● for auxiliary and control contacts with screw-type terminals	0.5 ... 0.6 N·m	
tightening torque [lbf·in]		
● for main contacts with screw-type terminals	7 ... 10.3 lbf·in	
● for auxiliary and control contacts with screw-type terminals	4.5 ... 5.3 lbf·in	
design of the thread of the connection screw		
● for main contacts	M4	
● of the auxiliary and control contacts	M3	
stripped length of the cable		
● for main contacts	10 mm	
● for auxiliary and control contacts	7 mm	
Electrical Safety		
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	
ambient temperature		
● during operation	-25 ... +60 °C	
● during storage	-55 ... +80 °C	
Electromagnetic compatibility		
conducted interference		
● 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	
field-based interference according to IEC 61000-4-3	80 MHz ... 1 GHz 10 V/m, behavior criterion 1	
electrostatic discharge according to IEC 61000-4-2	4 kV contact discharging / 8 kV air discharging, behavior criterion 2	
conducted HF interference emissions according to CISPR11	Class A for industrial environment	
field-bound HF interference emission according 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	3NE1802-0: These fuses have a smaller rated current than the semiconductor relays	
● of full range R fuse link for semiconductor protection at cylindrical design usable	5SE1335: These fuses have a smaller rated current than the semiconductor relays	
● of back-up R fuse link for semiconductor protection at NH design usable	3NE8017-1	
● of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable	3NC1450	
● of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable	3NC2250	
manufacturer's article number of the gG fuse		
● at NH design usable	3NA6807: These fuses have a smaller rated current than the semiconductor relays	
● at cylindrical design 22 x 58 mm usable	3NW6205-1: These fuses have a smaller rated current than the semiconductor relays	
manufacturer's article number		
● of DIAZED fuse usable	5SB2711: These fuses have a smaller rated current than the semiconductor relays	
● of NEOZED fuse usable	5SE2320: These fuses have a smaller rated current than the semiconductor relays	
Approvals Certificates		
General Product Approval	EMV	Test Certificates



[Special Test Certificate](#)

other

Railway

Environment



[Confirmation](#)



[Special Test Certificate](#)

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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=3RF2150-1AG04>

Cax online generator

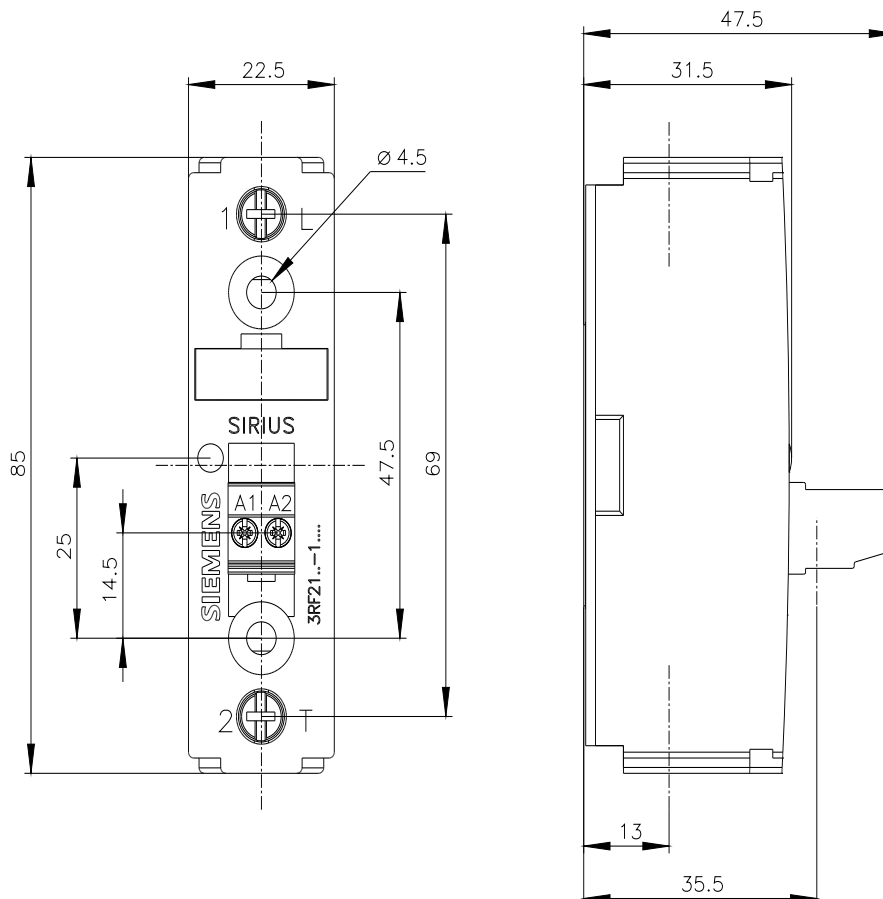
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2150-1AG04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2150-1AG04>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2150-1AG04&lang=en





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