



Semiconductor relay, 1-phase 3RF2 Overall width 22.5 mm, 50 A 48-460 V / 24 V DC Ring cable connection

product brand name	SIRIUS
product designation	solid-state relay
design of the product	single-phase
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 	3RF2900-3PA88 3RF2900-0EA18 3RF2950-0GA16
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 	terminal cover converter load monitoring

General technical data

product function	zero-point switching
power loss [V·A] maximum	66 VA
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
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	
<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	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	40 ... 506 V 40 ... 506 V
operational current	
<ul style="list-style-type: none"> • at AC-51 rated value • according to UL 508 rated value 	50 A 50 A

ampacity maximum	50 A
operational current minimum	500 mA
rate of voltage rise at the thyristor for main contacts maximum permissible	1 000 V/μs
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
I ² t value maximum	1 800 A ² ·s

Control circuit/ Control

type of voltage of the control supply voltage	DC
control supply voltage 1	30 V
<ul style="list-style-type: none"> at DC rated value at DC 	15 ... 24 V
control supply voltage	15 V
<ul style="list-style-type: none"> at DC initial value for signal <1> detection at DC full-scale value for signal<0> recognition 	5 V
control current at minimum control supply voltage	13 mA
<ul style="list-style-type: none"> at DC 	15 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

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	screw fixing
<ul style="list-style-type: none"> 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

Connections/ Terminals

type of electrical connection	Ring cable lug connection ring terminal lug connection
<ul style="list-style-type: none"> for main current circuit for auxiliary and control circuit 	
type of connectable conductor cross-sections	JIS C 2805 R 2-5, 5,5-5, 8-5, 14-5 DIN 46234 -5-2,5, -5-6, -5-10, -5-16, -5-25
<ul style="list-style-type: none"> for main contacts for JIS cable lug for DIN cable lug for main contacts 	
type of connectable conductor cross-sections	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
<ul style="list-style-type: none"> for auxiliary and control contacts — solid — finely stranded with core end processing — finely stranded without core end processing 	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
<ul style="list-style-type: none"> at AWG cables for auxiliary and control contacts 	1x (AWG 20 ... 12)
tightening torque	2 ... 2.5 N·m
<ul style="list-style-type: none"> for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals 	0.5 ... 0.6 N·m
tightening torque [lbf·in]	7 ... 10.3 lbf·in
<ul style="list-style-type: none"> for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals 	4.5 ... 5.3 lbf·in
design of the thread of the connection screw	M5
<ul style="list-style-type: none"> for main contacts of the auxiliary and control contacts 	M3
stripped length of the cable	7 mm
<ul style="list-style-type: none"> for main contacts for auxiliary and control contacts 	7 mm

Safety related data

protection class IP on the front according to IEC 60529	IP00; IP20 with cover
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front with cover

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

Certificates/ approvals

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



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

[Confirmation](#)



Further information

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?mfb=3RF2150-3AA04>

Cax online generator

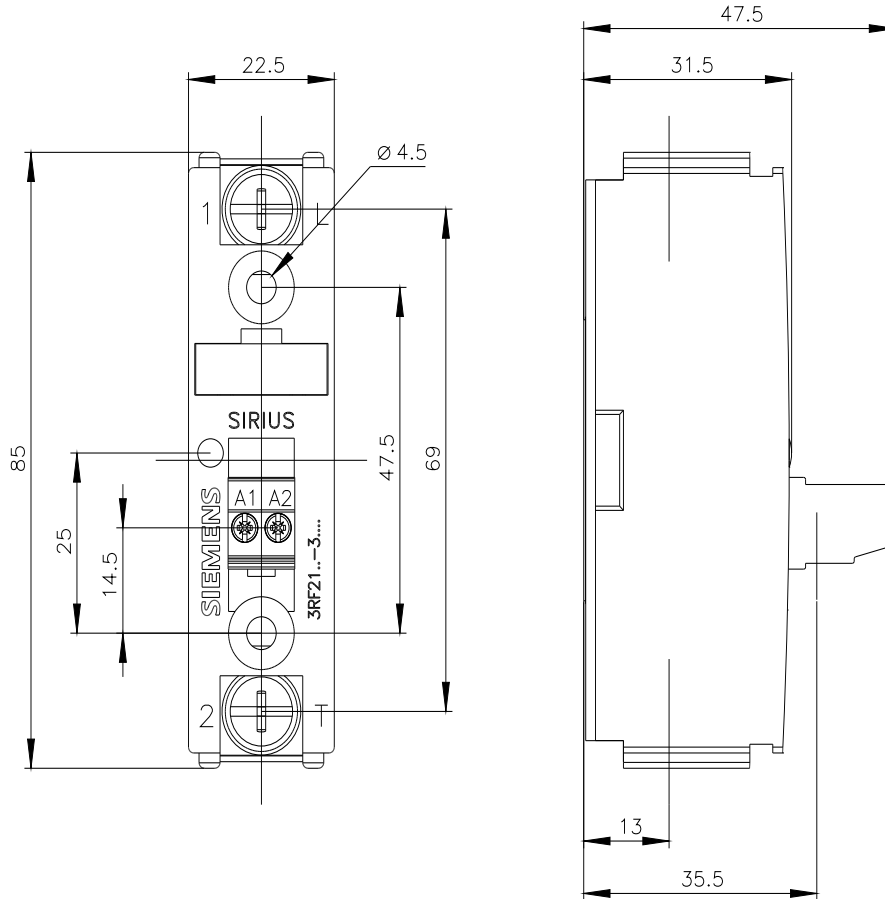
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RF2150-3AA04>

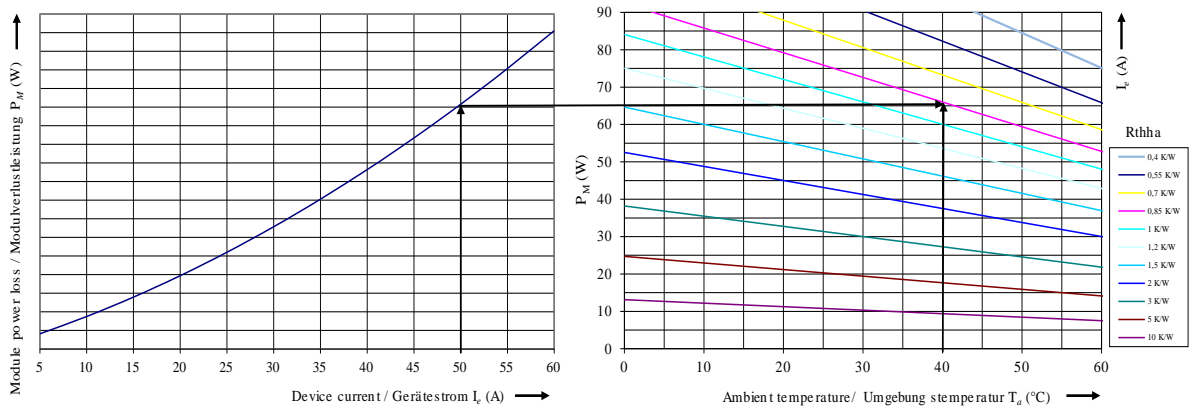
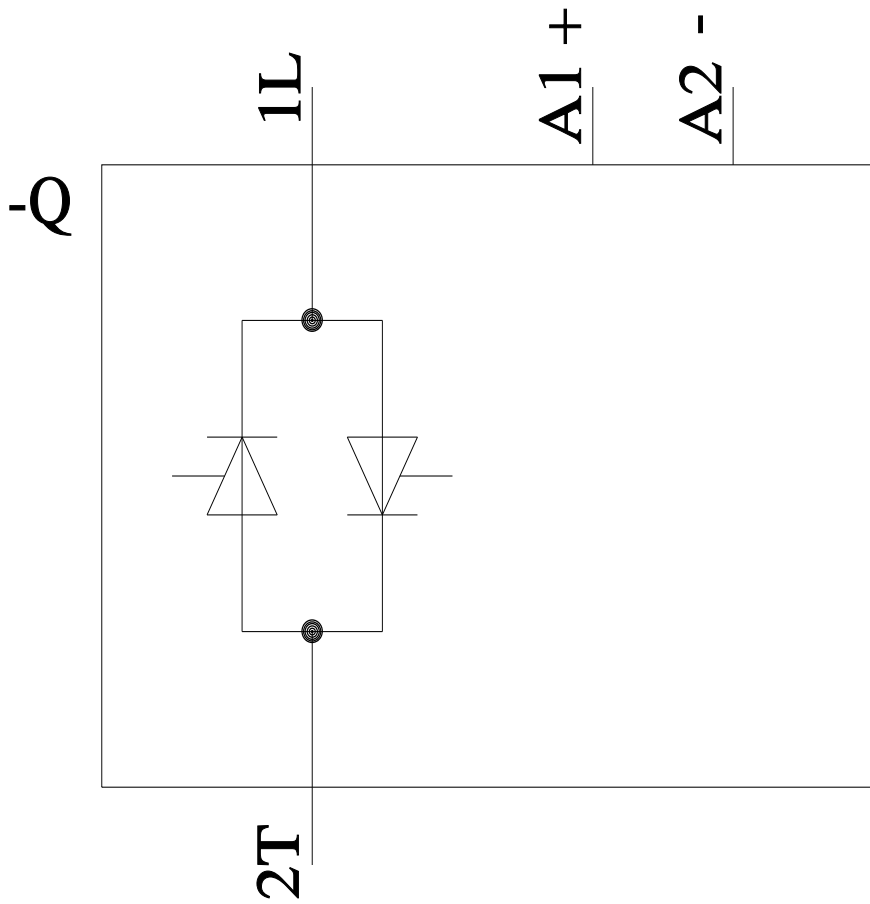
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2150-3AA04>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mfb=3RF2150-3AA04&lang=en





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