



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

product brand name	SIRIUS
product designation	solid-state relay
design of the product	single-phase
product type designation	3RF21
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	3RF2900-3PA88 3RF2920-0HA13 3RF2900-0EA18 3RF2920-0GA13 3RF2920-0FA08
product designation	
_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	terminal cover power regulator converter load monitoring load monitoring, basis
General technical data	
product function	zero-point switching
power loss [V·A] maximum	28.6 VA
power loss [W] for rated value of the current 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 - at 60 Hz rated value	24 ... 230 V 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	
• at AC-51 rated value	20 A
• according to UL 508 rated value	20 A
ampacity maximum	20 A
operational current minimum	100 mA
rate of voltage rise at the thyristor for main contacts maximum permissible	500 V/μs
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
I²t value maximum	200 A ² ·s
Control circuit/ Control	
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
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
• side-by-side mounting	Yes
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	
• 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
• at 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 ... 1.0 mm ²)
— finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
— finely stranded without core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
• at 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 • for auxiliary and control contacts with screw-type terminals	2 ... 2.5 N·m 0.5 ... 0.6 N·m
tightening torque [lbf·in] • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals	7 ... 10.3 lbf·in 4.5 ... 5.3 lbf·in
design of the thread of the connection screw • for main contacts • of the auxiliary and control contacts	M4 M3
stripped length of the cable • for main contacts • for auxiliary and control contacts	7 mm 7 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
ambient temperature • during operation • during storage	-25 ... +60 °C -55 ... +80 °C
Electromagnetic compatibility	
conducted interference • due to burst according to IEC 61000-4-4 • due to conductor-earth surge according to IEC 61000-4-5 • due to conductor-conductor surge according to IEC 61000-4-5 • due to high-frequency radiation according to IEC 61000-4-6	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
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 • of full range R fuse link for semiconductor protection at cylindrical design usable • of back-up R fuse link for semiconductor protection at NH design usable • 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	3NE1814-0 5SE1325 3NE8015-1 3NC1032 3NC1430 3NC2225
manufacturer's article number of the gG fuse • at NH design usable • at cylindrical design 10 x 38 mm usable • at cylindrical design 14 x 51 mm usable	3NA6803: These fuses have a smaller rated current than the semiconductor relays 3NW6001-1: These fuses have a smaller rated current than the semiconductor relays 3NW6101-1: These fuses have a smaller rated current than the semiconductor relays
manufacturer's article number • of NEOZED fuse usable	5SE2306: 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	Railway
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[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

[Confirmation](#)



[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=3RF2120-1AA02>

Cax online generator

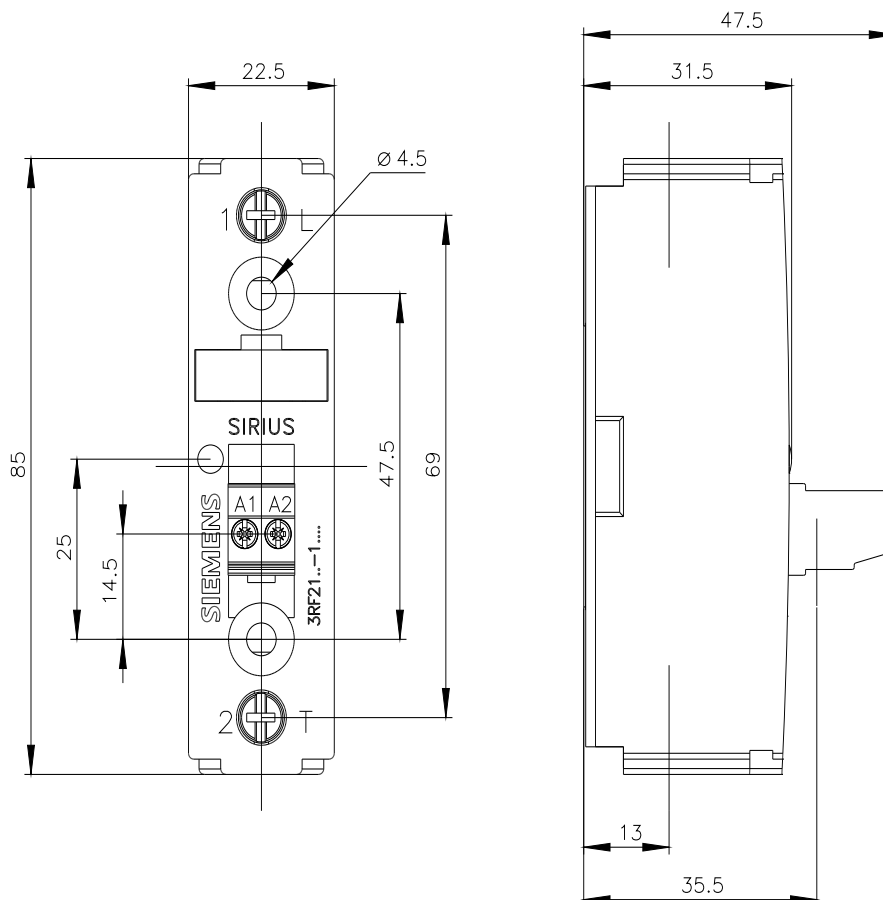
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2120-1AA02>

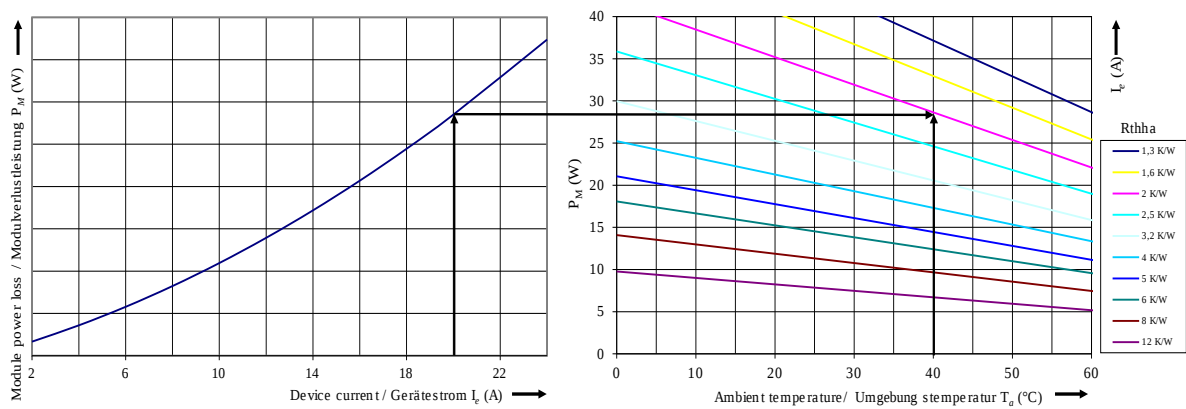
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2120-1AA02>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2120-1AA02&lang=en





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