










Semiconductor relay, 1-phase 3RF2 Width 22.5 mm, 20 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	
• _1 of the accessories that can be ordered	3RF2900-3PA88
• _3 of the accessories that can be ordered	3RF2900-0EA18
• _4 of the accessories that can be ordered	3RF2920-0GA16
product designation	
• _1 of the accessories that can be ordered	terminal cover
• _3 of the accessories that can be ordered	converter
• _4 of the accessories that can be ordered	load monitoring
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	
• at AC in hot operating state	28.6 W
• at AC in hot operating state per pole	28.6 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 EN 61346-2	Q
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	48 ... 460 V
• at 60 Hz rated value	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	

<ul style="list-style-type: none"> • at AC-51 rated value 	20 A
<ul style="list-style-type: none"> • 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	1 200 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 <ul style="list-style-type: none"> • at DC rated value • at DC 	30 V 15 ... 24 V
control supply voltage <ul style="list-style-type: none"> • at DC initial value for signal <1> detection • at DC full-scale value for signal<0> recognition 	15 V 5 V
control current at minimum control supply voltage <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • side-by-side mounting 	screw fixing 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 <ul style="list-style-type: none"> • for main current circuit • for auxiliary and control circuit 	Ring cable lug connection ring terminal lug connection
type of connectable conductor cross-sections <ul style="list-style-type: none"> • for main contacts for JIS cable lug • for DIN cable lug for main contacts 	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
type of connectable conductor cross-sections <ul style="list-style-type: none"> • for auxiliary and control contacts <ul style="list-style-type: none"> — solid — finely stranded with core end processing — finely stranded without core end processing • for AWG cables for auxiliary and control contacts 	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) 1x (AWG 20 ... 12)
tightening torque <ul style="list-style-type: none"> • 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] <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • for main contacts 	M5

<ul style="list-style-type: none">• of the auxiliary and control contacts	M3					
stripped length of the cable <ul style="list-style-type: none">• 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	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 <ul style="list-style-type: none">• during operation• during storage	-25 ... +60 °C -55 ... +80 °C					
Electromagnetic compatibility						
conducted interference <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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	3NE1813-0: These fuses have a smaller rated current than the semiconductor relays 5SE1320 3NE8015-1 3NC1016: These fuses have a smaller rated current than the semiconductor relays 3NC1425 3NC2220					
manufacturer's article number of the gG fuse <ul style="list-style-type: none">• at NH design usable• at cylindrical design 14 x 51 mm usable	3NA6801: 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 <ul style="list-style-type: none">• of NEOZED fuse usable	5SE2313-2A: These fuses have a smaller rated current than the semiconductor relays					
Certificates/ approvals						
<table><tr><td>General Product Approval</td><td>EMC</td><td>Declaration of Con- formity</td></tr><tr><td><div> CSA</div><div>Confirmation</div><div> UL</div><div></div><div> RCM</div><div> EG-Konf.</div></td><td></td></tr></table>		General Product Approval	EMC	Declaration of Con- formity	<div> CSA</div> <div>Confirmation</div> <div> UL</div> <div></div> <div> RCM</div> <div> EG-Konf.</div>	
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Declaration of Con- formity	Test Certificates	other				
<div></div>	<div>Type Test Certi- ficates/Test Report</div>	<div>Confirmation</div> <div> VDE</div>				

Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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?mlfb=3RF2120-3AA04>

Cax online generator

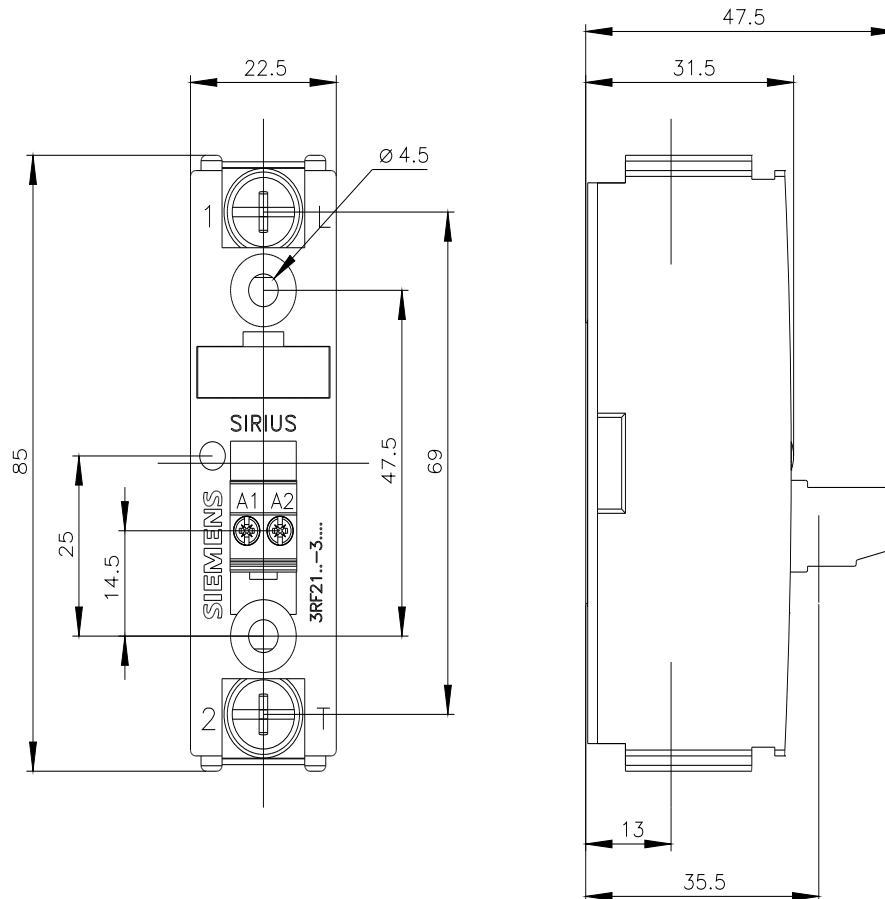
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2120-3AA04>

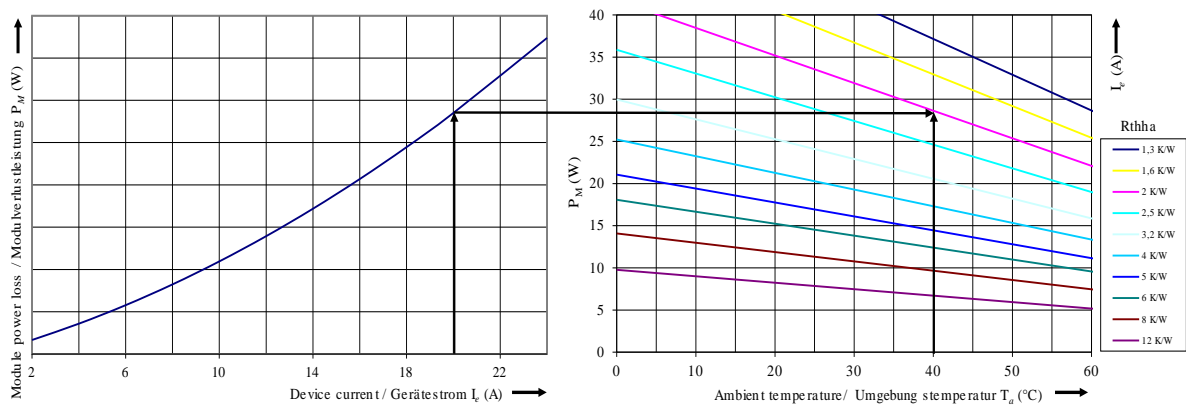
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2120-3AA04>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2120-3AA04&lang=en





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