








Semiconductor relay, 1-phase 3RF2 Width 22.5 mm, 20 A 24-230 V / 110-230 V
AC 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
• _4 of the accessories that can be ordered	3RF2920-0GA33
product designation	
• _1 of the accessories that can be ordered	terminal cover
• _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	3.5 W
insulation voltage rated value	600 V
type of voltage of the control supply voltage	AC
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	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	
• 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
I ² t value maximum	200 A ² ·s
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage 1 at AC <ul style="list-style-type: none"> at 50 Hz at 60 Hz 	110 ... 230 V 110 ... 230 V
control supply voltage frequency <ul style="list-style-type: none"> 1 rated value 2 rated value 	50 Hz 60 Hz
control supply voltage at AC <ul style="list-style-type: none"> at 50 Hz full-scale value for signal<0> recognition at 60 Hz full-scale value for signal<0> recognition 	40 V 40 V
control supply voltage <ul style="list-style-type: none"> at AC initial value for signal <1> detection 	90 V
symmetrical line frequency tolerance	5 Hz
control current at minimum control supply voltage <ul style="list-style-type: none"> at AC 	2 mA
control current at AC rated value	15 mA
ON-delay time	40 ms; additionally max. one half-wave
OFF-delay time	40 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 	7 ... 10.3 lbf·in

<ul style="list-style-type: none">• for auxiliary and control contacts with screw-type terminals	4.5 ... 5.3 lbf-in			
design of the thread of the connection screw <ul style="list-style-type: none">• for main contacts• of the auxiliary and control contacts	M5 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	3NE1814-0 5SE1325 3NE8015-1 3NC1032 3NC1430 3NC2225			
manufacturer's article number of the gG fuse <ul style="list-style-type: none">• 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 <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></table>		General Product Approval	EMC	Declaration of Con- formity
General Product Approval	EMC	Declaration of Con- formity		
<div><div>Confirmation</div><div></div><div></div><div></div><div></div></div>				
<table><tr><td>Declaration of Con- formity</td><td>Test Certificates</td><td>other</td></tr></table>		Declaration of Con- formity	Test Certificates	other
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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=3RF2120-3AA22>

Cax online generator

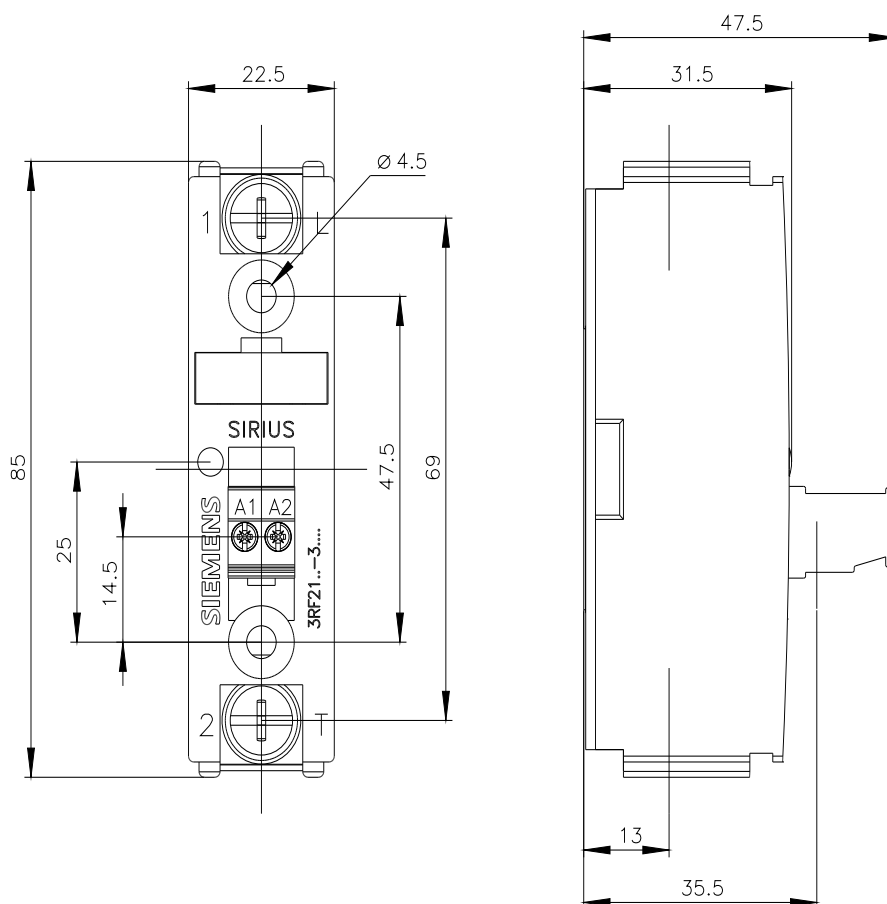
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2120-3AA22>

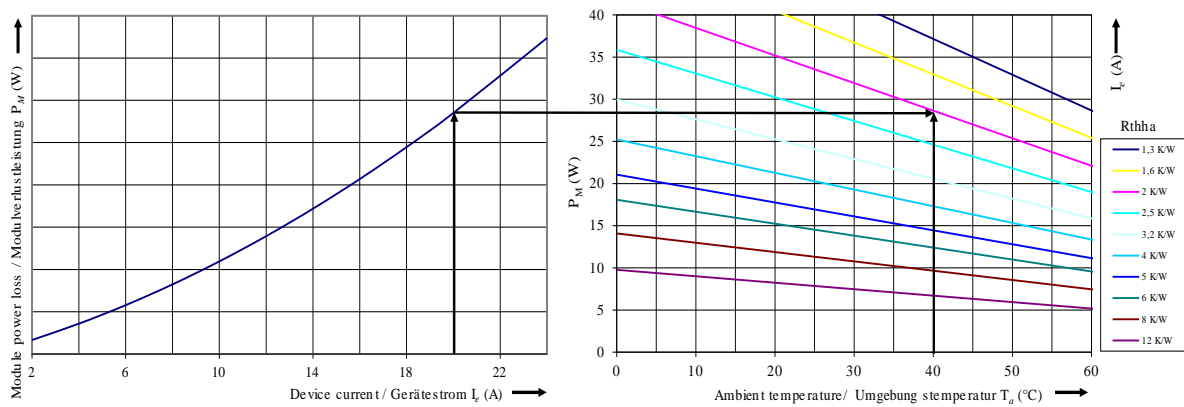
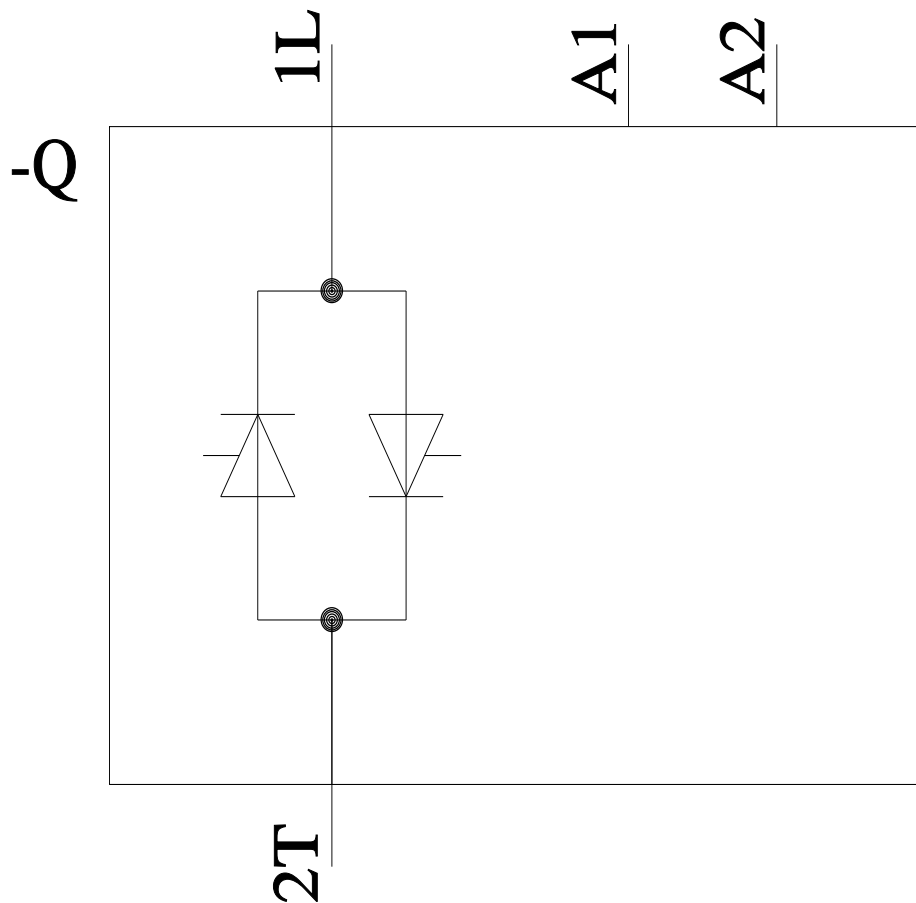
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2120-3AA22>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2120-3AA22&lang=en





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