








Semiconductor relay, 1-phase 3RF2 Overall width 22.5 mm, 70 A 48-600 V / 110-230 V AC 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	
<ul style="list-style-type: none">• _1 of the accessories that can be ordered• _2 of the accessories that can be ordered• _4 of the accessories that can be ordered	3RF2900-3PA88 3RF2950-0HA36 3RF2990-0GA36
product designation	
<ul style="list-style-type: none">• _1 of the accessories that can be ordered• _2 of the accessories that can be ordered• _4 of the accessories that can be ordered	terminal cover power regulator load monitoring
General technical data	
product function	zero-point switching
power loss [V·A] maximum	94 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	94 W 94 W 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 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 ... 600 V 48 ... 600 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 ... 660 V 40 ... 660 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	70 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	1 600 V
reverse current of the thyristor	10 mA
derating temperature	40 °C
surge current resistance rated value	1 150 A
I ² t value maximum	6 600 A ² ·s
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage 1 at AC	
• at 50 Hz	110 ... 230 V
• at 60 Hz	110 ... 230 V
control supply voltage frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
control supply voltage at AC	
• at 50 Hz full-scale value for signal<0> recognition	40 V
• at 60 Hz full-scale value for signal<0> recognition	40 V
control supply voltage	
• at AC initial value for signal <1> detection	90 V
symmetrical line frequency tolerance	5 Hz
control current at minimum control supply voltage	
• 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	screw fixing
• 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	
• 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		
<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 of the auxiliary and control contacts 	M4 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		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		
<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 full range R fuse link for semiconductor protection at NH 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 22 x 58 mm usable 	3NE1020-2 3NE8020-1 3NC2280	
manufacturer's article number of the gG fuse		
<ul style="list-style-type: none"> at NH design usable 	3NA6812-6 ; These fuses have a smaller rated current than the semiconductor relays	
Certificates/ approvals		
General Product Approval		EMC
		Declaration of Conformity
<div>  Confirmation     </div>		
Declaration of Conformity	Test Certificates	other

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?mlfb=3RF2170-1AA26>

Cax online generator

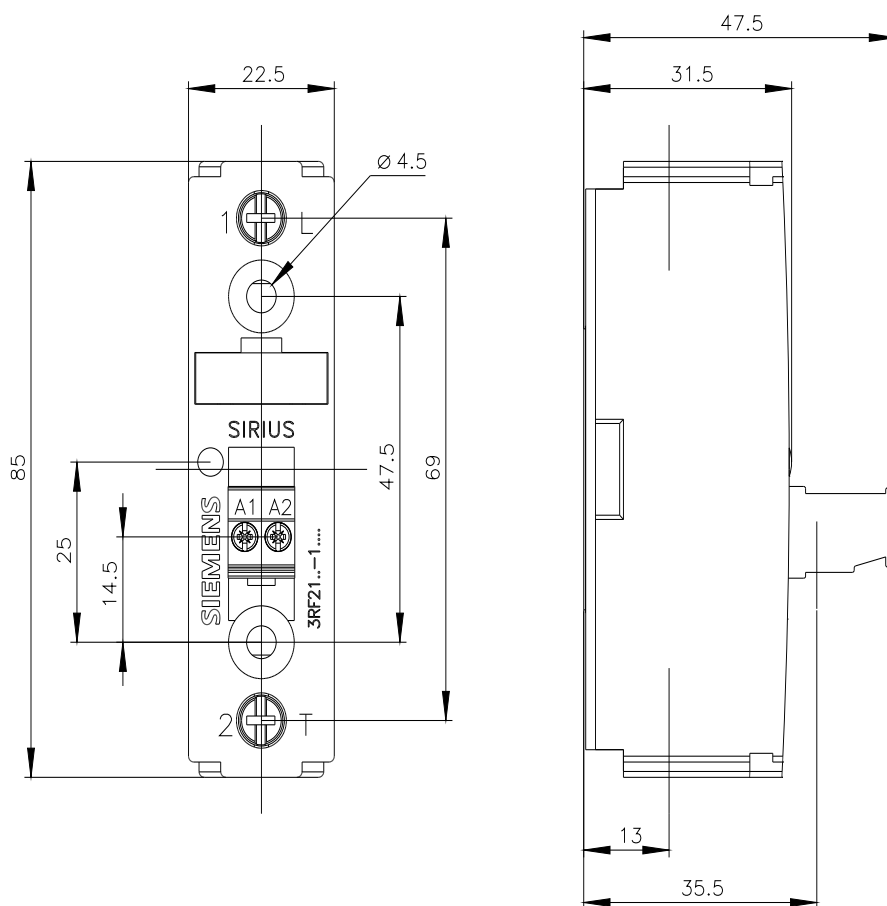
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2170-1AA26>

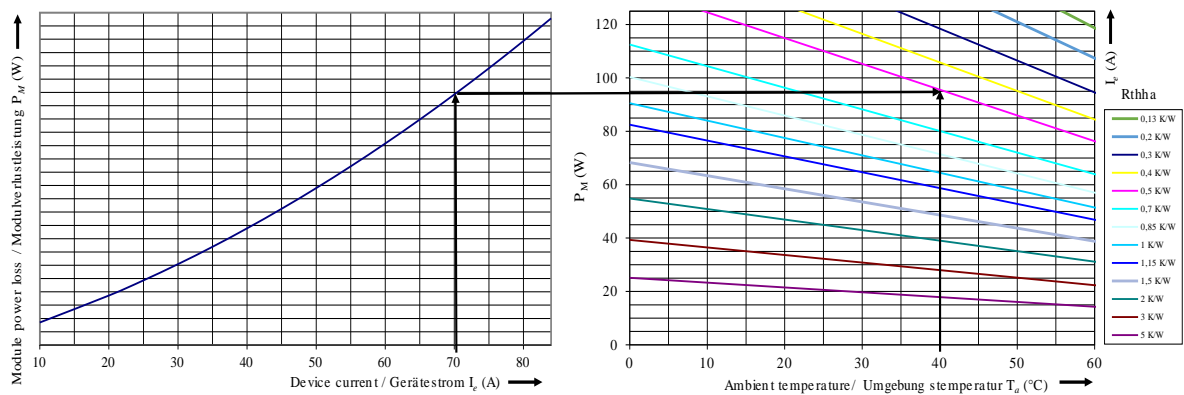
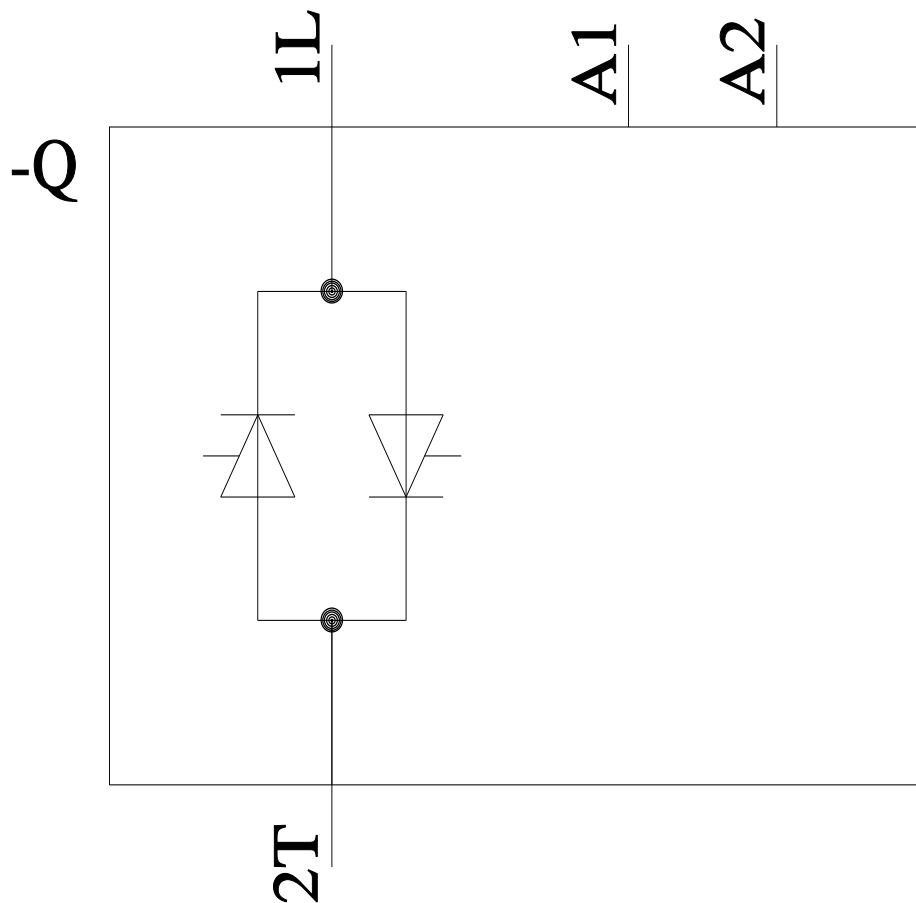
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2170-1AA26>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2170-1AA26&lang=en





last modified:

1/12/2022