



SEMICONDUCTOR RELAY 3RF2,
1-PH. WIDTH 22.5MM,
90 A 48-460 V / 110-230 V AC SCREW TERMINAL

General technical data:

Product brand name		SIRIUS
product designation		solid-state relays
Product function		zero-point switching
Number of poles / for main current circuit		1
Protection class IP		IP20
Product designation / _1 / of the accessories that can be ordered		terminal cover
Manufacturer article number / _1 / of the accessories that can be ordered		3RF2900-3PA88
Product designation / _4 / of the accessories that can be ordered		load monitoring
Manufacturer article number / _4 / of the accessories that can be ordered		3RF2990-0GA36
Ambient temperature		
• during operating	°C	-25 ... 60
• during storage	°C	-55 ... 80
Installation altitude / at a height over sea level / maximum	m	1,000
Resistance against vibration / according to IEC 60068-2-6		2g
Resistance against shock / according to IEC 60068-2-27		15g / 11 ms
Item designation		

<ul style="list-style-type: none"> • according to DIN 40719 extendable after IEC 204-2 / according to IEC 750 	K
<ul style="list-style-type: none"> • according to DIN EN 61346-2 	Q
Number of NC contacts / for auxiliary contacts	0
Number of NO contacts / for auxiliary contacts	0
Number of change-over switches / for auxiliary contacts	0

Main circuit:		
Number of NO contacts / for main contacts		1
Number of NC contacts / for main contacts		0
Operating current <ul style="list-style-type: none"> • at AC-1 / at 400 V / rated value • at AC-51 / rated value 	A A	90 88
Operating current / minimum	mA	500
Operating voltage <ul style="list-style-type: none"> • at 50 Hz / at AC / rated value • at 60 Hz / at AC / rated value 	V V	48 ... 460 48 ... 460
Working area related to the operating voltage <ul style="list-style-type: none"> • at 50 Hz / for AC • at 60 Hz / for AC 	V V	40 ... 506 40 ... 506
Operating frequency <ul style="list-style-type: none"> • rated value 	Hz	50 ... 60
Relative symmetrical tolerance / of the operation frequency	%	10
Insulation voltage / rated value	V	600
Voltage slew rate / at the thyristor / for main contacts / maximum permissible	V/μs	1,000
Block voltage / at the thyristor / for main contacts / maximum permissible	V	1,200
Reverse current / of the thyristor	mA	10
Derating temperature	°C	40
Active power loss / total / typical	W	118
Resistance against the impulse current / rated value	A	1,150
I²t-level / maximum	A ² ·s	6,600

Control circuit:		
Control supply voltage frequency <ul style="list-style-type: none"> • 1 / rated value • 2 / rated value 	Hz Hz	50 60
Type of voltage / of the controlled supply voltage		AC
Control supply voltage / 1 <ul style="list-style-type: none"> • at 50 Hz / for AC 		

• initial rated value	V	110
• final rated value	V	230
• at 60 Hz / for AC		
• initial rated value	V	110
• final rated value	V	230
Control supply voltage		
• at 50 Hz / for AC / final value for signal<0>-recognition	V	40
• at 60 Hz / for AC / final value for signal<0>-recognition	V	40
Tolerance of the line frequency	Hz	5
Relative symmetrical tolerance / of the supply voltage frequency	%	10
Control current		
• at minimum control supply voltage / for AC	mA	2
• for AC / rated value	mA	15
• at minimum control supply voltage / for DC	mA	2
• for DC / rated value	mA	6
Fuse assignments	https://www.automation.siemens.com/cd-static/material/info/3RF21_eng.pdf	

Installation/mounting/dimensions:		
Type of mounting		screw fixing
Type of fixing/fixation / series installation		Yes
Design of the thread / of the screw for fastening of the operating resource		M4
Tightening torque / of the screw for fastening of the operating resource	N·m	1.5
Width	mm	22.5
Height	mm	85
Depth	mm	48

Connections:		
Design of the electrical connection / for main current circuit		screw-type terminals
Design of the thread / of the connection screw / for main contacts		M4
Tightening torque / for main contacts		
• with screw-type terminals	N·m	2 ... 2.5
Tightening torque (lbf·in) / for main contacts		
• with screw-type terminals	lbf·in	7 ... 10.3
Type of the connectable conductor cross-section		
• for main contacts		
• solid		2x (1.5 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²)
• finely stranded		

<ul style="list-style-type: none"> • with conductor end processing 		2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ²
<ul style="list-style-type: none"> • for AWG conductors <ul style="list-style-type: none"> • for main contacts • for auxiliary and control contacts • for auxiliary and control contacts <ul style="list-style-type: none"> • solid • finely stranded <ul style="list-style-type: none"> • with conductor end processing • without conductor final cutting 		2x (14 ... 10) 1x (AWG 20 ... 12) 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)
Conductor cross section that can be connected		
<ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> • solid • stranded wire <ul style="list-style-type: none"> • with conductor end processing • for auxiliary and control contacts <ul style="list-style-type: none"> • solid • stranded wire <ul style="list-style-type: none"> • with conductor end processing / minimum • without conductor final cutting 	mm ²	1.5 ... 6
	mm ²	1 ... 10
	mm ²	0.5 ... 2.5
	mm ²	0.5 ... 2.5
	mm ²	0.5 ... 2.5
AWG number / as coded connectable conductor cross-section / for main contacts		14 ... 10
Design of the electrical connection / for auxiliary and control current circuit		screw-type terminals
Design of the thread / of the connection screw / of the auxiliary and control pins		M3
AWG number / as coded connectable conductor cross-section		
<ul style="list-style-type: none"> • for auxiliary and control contacts 		20 ... 12
Skinning length / of the cable / for main contacts	mm	7
Skinning length / of the cable / for auxiliary and control contacts	mm	7
Tightening torque / for auxiliary and control contacts		
<ul style="list-style-type: none"> • with screw-type terminals 	N·m	0.5 ... 0.6
Tightening torque (lbf·in) / for auxiliary and control contacts		
<ul style="list-style-type: none"> • with screw-type terminals 	lbf·in	4.5 ... 5.3

Certificates/approvals:

General Product Approval



[ROSTEST](#)



Test Certificates

[Manufacturer](#)

other

[Manufacturer](#)

Further information:

Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

Industry Mall (Online ordering system)

<http://www.siemens.com/industrial-controls/mall>

CAX-Online-Generator

<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WW/view/en/3RF2190-1AA24/all>

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

http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3RF2190-1AA24



