

Semiconductor relay, 1-phase 3RF2 Width 22.5 mm, 20 A 24-230 V / 110-230 V AC screw terminal



Product brand name	SIRIUS
Product designation	solid-state relay
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 3RF2920-0HA33 3RF2920-0GA33
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 [W] / total / typical	28.6 W
Power loss [V•A] / maximum	28.6 V•A
Power loss [W] / for rated value of the current / at AC / in hot operating state	28.6 W
Insulation voltage	
<ul style="list-style-type: none"> • rated value 	600 V

Protection class IP	IP20
Shock resistance / acc. to IEC 60068-2-27	15g / 11 ms
Vibration resistance / acc. to IEC 60068-2-6	2g
Reference code / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750	K
Reference code / acc. to DIN EN 81346-2	Q
Reference code / acc. to DIN EN 61346-2	Q

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 	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 <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	20 ... 253 V 20 ... 253 V
Operating current / minimum	100 mA
Operating current <ul style="list-style-type: none"> • at AC-1 / at 400 V / rated value • at AC-51 / rated value 	20 A 20 A
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	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 	40 V
<ul style="list-style-type: none"> • at 60 Hz / Full-scale value for signal<0> recognition 	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
Switch-on delay time	40 ms; additionally max. one half-wave
Off-delay time	40 ms; additionally max. one half-wave
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	
Mounting type	screw fixing
<ul style="list-style-type: none"> • Side-by-side mounting 	Yes
Height	85 mm
Width	22.5 mm
Depth	48 mm
Installation altitude / at height above sea level / maximum	1 000 m

Connections/ Terminals	
Type of electrical connection	
<ul style="list-style-type: none"> • for main current circuit 	screw-type terminals
<ul style="list-style-type: none"> • for auxiliary and control current circuit 	screw-type terminals
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — solid — finely stranded / with core end processing • at AWG conductors / for main contacts 	2x (1.5 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²) 2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ² 2x (14 ... 10)
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 • at AWG conductors / 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 / for main contacts / with screw-type terminals	2 ... 2.5 N·m

Tightening torque / for auxiliary and control contacts / with screw-type terminals	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 	M4
<ul style="list-style-type: none"> • of the auxiliary and control contacts 	M3
Wire stripping length / of the cable	
<ul style="list-style-type: none"> • for main contacts 	7 mm
<ul style="list-style-type: none"> • for auxiliary and control contacts 	7 mm

Ambient conditions

Ambient temperature	
<ul style="list-style-type: none"> • during operation 	-25 ... +60 °C
<ul style="list-style-type: none"> • during storage 	-55 ... +80 °C

Electromagnetic compatibility

Conducted interference	
<ul style="list-style-type: none"> • due to burst / acc. to IEC 61000-4-4 	2 kV / 5 kHz behavior criterion 2
<ul style="list-style-type: none"> • due to conductor-earth surge / acc. to IEC 61000-4-5 	2 kV behavior criterion 2
<ul style="list-style-type: none"> • due to conductor-conductor surge / acc. to IEC 61000-4-5 	1 kV behavior criterion 2
<ul style="list-style-type: none"> • due to high-frequency radiation / acc. to IEC 61000-4-6 	140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
Electrostatic discharge / acc. to IEC 61000-4-2	4 kV contact discharging / 8 kV air discharging, behavior criterion 2
Conducted HF-interference emissions / acc. to CISPR11	Class A for industrial environment
Field-bound HF-interference emission / acc. to CISPR11	Class B for the domestic, business and commercial environments

Further information

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

www.siemens.com/sirius/catalogs

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF2120-1AA22>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2120-1AA22>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2120-1AA22>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2120-1AA22&lang=en

Short-circuit protection, design of the fuse link

https://www.automation.siemens.com/cd-static/material/info/3RF20_eng.pdf

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