SIEMENS

Product data sheet 3RF2190-2AA22



SEMICOND. RELAY 3RF2, 1-PHASE WIDTH 22.5 MM, 90 A 24-230 V / 110-230 V AC SPRING-LOADED TERMINAL

General technical data:		
product brand name		SIRIUS
product designation		solid-state relay
Product function		zero-point switching
Number of poles / for main current circuit		1
Protection class IP		IP20
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		
 according to DIN 40719 extendable after IEC 204-2 / according to IEC 750 		К
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 NC contacts / for main contacts 0	Number of NO contacts / for main contacts		1
Operating current	Number of NC contacts / for main contacts		0
• at AC-1 / at 400 V / rated value • at AC-51 / rated value A 88 Operating current / minimum MA 500 Operating voltage • at 50 Hz / at AC / rated value • at 60 Hz / at AC / rated value • at 60 Hz / at AC / rated value V 24 230 Working area related to the operating voltage • at 50 Hz / for AC • by 20 253 Operating frequency • rated value Hz 50 60 Relative symmetrical tolerance / of the operation frequency • louisulation voltage / rated value Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor MA 10 Derating temperature Crive power loss / total / typical Active power loss / total / typical Apparent loss power / maximum Resistance against the impulse current / rated value A 1,150 Izt-level / maximum Para 6,600 Control circuit Control supply voltage frequency • 1/ rated value • 2 / rated value Hz 50 • 2 / rated value • 3 / 50 Control supply voltage / of the controlled supply voltage Control supply voltage / of the controlled supply voltage	Operating current		
Operating current / minimum	• at AC-1 / at 400 V / rated value	Α	90
Operating voltage	• at AC-51 / rated value	Α	88
• at 50 Hz / at AC / rated value • at 60 Hz / at AC / rated value V 24 230 Working area related to the operating voltage • at 50 Hz / for AC • at 60 Hz / for AC V 20 253 Operating frequency • rated value Hz 50 60 Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature Active power loss / total / typical Apparent loss power / maximum V 4 118 Resistance against the impulse current / rated value A 1,150 L2t-level / maximum A²-s 6,600 Control circuit: Control supply voltage frequency • 1 / rated value • 2 / rated value Type of voltage / 1 • at 50 Hz / for AC	Operating current / minimum	mA	500
*at 60 Hz / at AC / rated value Working area related to the operating voltage *at 50 Hz / for AC v 20 253 Operating frequency *rated value Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value V 600 Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature C 40 Active power loss / total / typical Apparent loss power / maximum V 118 Resistance against the impulse current / rated value A 1,150 Control circuit: Control circuit: Control supply voltage frequency *1 / rated value *2 / rated value *4 / 2 / rated value *4 / 60 Type of voltage / of the controlled supply voltage Control supply voltage / 1 *at 50 Hz / for AC	Operating voltage		
Working area related to the operating voltage • at 50 Hz / for AC • at 60 Hz / for AC • at 60 Hz / for AC • at 60 Hz / for AC V 20 253 Operating frequency • rated value Hz 50 60 Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value V 600 Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor mA 10 Derating temperature °C 40 Active power loss / total / typical Apparent loss power / maximum V-A 118 Resistance against the impulse current / rated value A 1,150 12-level / maximum A²-s 6,600 Control circuit: Control supply voltage frequency • 1 / rated value • 2 / rated value • 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	• at 50 Hz / at AC / rated value	V	24 230
• at 50 Hz / for AC • at 60 Hz / for AC • at 60 Hz / for AC Operating frequency • rated value Relative symmetrical tolerance / of the operation frequency // 50 60 Relative symmetrical tolerance / of the operation frequency // 600 Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature // 60 Active power loss / total / typical Apparent loss power / maximum V-A 118 Resistance against the impulse current / rated value A 1,150 Izt-level / maximum A²-s 6,600 Control circuit: Control supply voltage frequency - 1 / rated value - 2 / rated value ACC Control supply voltage / of the controlled supply voltage Control supply voltage / 1 - at 50 Hz / for AC	• at 60 Hz / at AC / rated value	V	24 230
• at 60 Hz / for AC Operating frequency • rated value Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Perating temperature Cotive power loss / total / typical Apparent loss power / maximum Value Val	Working area related to the operating voltage		
Operating frequency • rated value Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature Active power loss / total / typical Apparent loss power / maximum V-A I18 Resistance against the impulse current / rated value Active I maximum Control supply voltage frequency • 1 / rated value • 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	• at 50 Hz / for AC	V	20 253
* rated value Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature Active power loss / total / typical Apparent loss power / maximum Resistance against the impulse current / rated value Activel / maximum Acti	• at 60 Hz / for AC	V	20 253
Relative symmetrical tolerance / of the operation frequency Insulation voltage / rated value Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature C 40 Active power loss / total / typical Apparent loss power / maximum Resistance against the impulse current / rated value A 1,150 Izt-level / maximum A²-s 6,600 Control circuit: Control supply voltage frequency - 1 / rated value - 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 - at 50 Hz / for AC	Operating frequency	_	
Insulation voltage / rated value V 600 Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature C 40 Active power loss / total / typical Apparent loss power / maximum Resistance against the impulse current / rated value A 1,150 I2t-level / maximum Control circuit: Control supply voltage frequency 1 / rated value 2 / rated value 4 / C Type of voltage / of the controlled supply voltage Control supply voltage / 1 at 50 Hz / for AC	• rated value	Hz	50 60
Voltage slew rate / at the thyristor / for main contacts / maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature Active power loss / total / typical Apparent loss power / maximum V-A Resistance against the impulse current / rated value A²-s A²-s A²-s A600 Control circuit: Control supply voltage frequency -1 / rated value -2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 - at 50 Hz / for AC	Relative symmetrical tolerance / of the operation frequency	%	10
maximum permissible Block voltage / at the thyristor / for main contacts / maximum permissible Reverse current / of the thyristor Derating temperature Active power loss / total / typical Apparent loss power / maximum V-A Apparent loss power / maximum Resistance against the impulse current / rated value A A 1,150 I2t-level / maximum A²-s 6,600 Control circuit: Control supply voltage frequency - 1 / rated value A - 2 / rated value Hz 60 Type of voltage / of the controlled supply voltage Control supply voltage / 1 - at 50 Hz / for AC	Insulation voltage / rated value	V	600
Reverse current / of the thyristor Reverse current / of the thyristor Derating temperature °C 40 Active power loss / total / typical Apparent loss power / maximum V-A 118 Resistance against the impulse current / rated value A 1,150 I2t-level / maximum Control circuit: Control supply voltage frequency • 1 / rated value • 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC		V/µs	1,000
Derating temperature C 40 Active power loss / total / typical W 118 Apparent loss power / maximum Resistance against the impulse current / rated value A 1,150 I2t-level / maximum A ² -s 6,600 Control circuit: Control supply voltage frequency 1 / rated value 2 / rated value Hz 50 -2 / rated value Hz 60 Type of voltage / of the controlled supply voltage Control supply voltage / 1 - at 50 Hz / for AC		V	800
Active power loss / total / typical Apparent loss power / maximum V-A 118 Resistance against the impulse current / rated value A 1,150 I2t-level / maximum A²-s 6,600 Control circuit: Control supply voltage frequency • 1 / rated value Hz 50 • 2 / rated value Hz 60 Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	Reverse current / of the thyristor	mA	10
Apparent loss power / maximum Resistance against the impulse current / rated value A 1,150 I2t-level / maximum A ² ·s 6,600 Control circuit: Control supply voltage frequency • 1 / rated value + 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	Derating temperature	°C	40
Resistance against the impulse current / rated value A 1,150 I2t-level / maximum A ² ·s 6,600 Control circuit: Control supply voltage frequency • 1 / rated value + 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	Active power loss / total / typical	W	118
I2t-level / maximum A2-s 6,600 Control circuit: Control supply voltage frequency • 1 / rated value • 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	Apparent loss power / maximum	V-A	118
Control circuit: Control supply voltage frequency • 1 / rated value • 2 / rated value Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	Resistance against the impulse current / rated value	А	1,150
Control supply voltage frequency • 1 / rated value • 2 / rated value Hz 50 Hz 60 Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC	l2t-level / maximum	A²-s	6,600
• 1 / rated value	Control circuit:		
• 2 / rated value Hz 60 Type of voltage / of the controlled supply voltage AC Control supply voltage / 1 • at 50 Hz / for AC	Control supply voltage frequency		
Type of voltage / of the controlled supply voltage Control supply voltage / 1 • at 50 Hz / for AC AC	• 1 / rated value	Hz	50
Control supply voltage / 1 • at 50 Hz / for AC	• 2 / rated value	Hz	60
• at 50 Hz / for AC	Type of voltage / of the controlled supply voltage		AC
	Control supply voltage / 1		
• initial rated value V 110	• at 50 Hz / for AC		
	• initial rated value	V	110
• final rated value V 230	• final rated value	V	230
• at 60 Hz / for AC	• at 60 Hz / for AC		
• initial rated value V 110	• initial rated value	V	110
• final rated value V 230	• final rated value	V	230
Control supply voltage	Control supply voltage		
• at 50 Hz / for AC / final value for signal<0>-recognition V 40	• 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
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		spring-loaded terminals
Tightening torque / for main contacts		
with screw-type terminals	N⋅m	2 2.5
Type of the connectable conductor cross-section		
for main contacts		
• solid		2x (0.5 2.5 mm²)
finely stranded		
 with conductor end processing 		2x (0.5 1.5 mm²)
 without conductor final cutting 		2x (0.5 2.5 mm²)
for AWG conductors		
for main contacts		2x (18 14)
 for auxiliary and control contacts 		1x (AWG 20 12)
for auxiliary and control contacts		
• solid		0.5 1.5 mm ²
• finely stranded		
 with conductor end processing 		0.5 2.5 mm²
without conductor final cutting		0.5 2.5 mm ²
Conductor cross section that can be connected		
for main contacts		
• solid	mm²	0.5 2.5

• stranded wire		
 with conductor end processing 	mm²	0.5 1.5
without conductor final cutting	mm²	0.5 2.5
for auxiliary and control contacts		
• solid	mm²	0.5 1.5
• stranded wire		
• with conductor end processing /	mm²	0.5 2.5
without conductor final cutting	mm²	0.5 2.5
AWG number / as coded connectable conductor cross-section / for main contacts		18 14
Design of the electrical connection / for auxiliary and control current circuit		spring-loaded terminals
AWG number / as coded connectable conductor cross-section		
• for auxiliary and control contacts		20 12
Skinning length / of the cable / for main contacts	mm	10
Skinning length / of the cable / for auxiliary and control contacts	mm	10

Certificates/approvals:

General Product Approval

EMC

Declaration of Conformity











Test Certificates

other

Special Test Certificate Type Test
Certificates/Test
Report

Environmental Confirmations

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

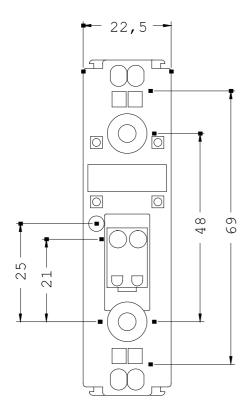
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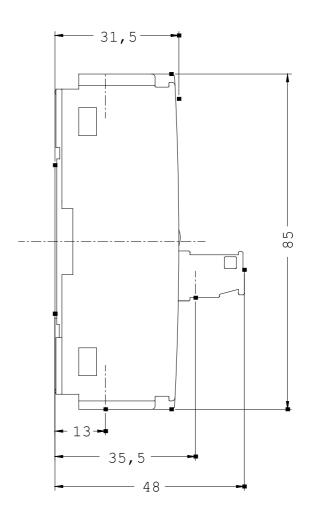
 $Service \& Support \ (Manuals, \ Certificates, \ Characteristics, \ FAQs, ...)$

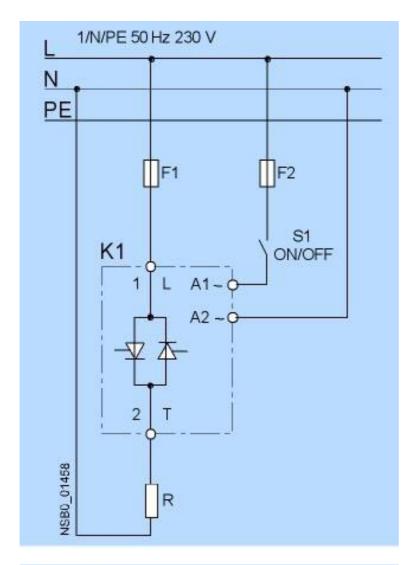
http://support.automation.siemens.com/WW/view/en/3RF2190-2AA22/all

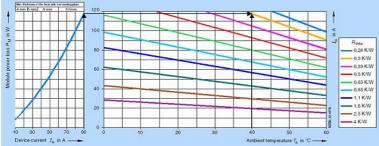
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)

http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3RF2190-2AA22









last change: Feb 4, 2013