General data

Technical specifications

More information	
System Manual and Manual, see https://support.industry.siemens.com/cs/ww/en/view/60311318 https://support.industry.siemens.com/cs/ww/en/view/60298187	FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16231/faq

Type		3RF29..-0EA..	3RF29..-0FA..	3RF29..-0GA..	3RF29..-0HA..	3RF29..-0JA..	3RF29..-0KA..
Dimensions (W x H x D)	mm	22.5 x 84 x 38	22.5 x 102 x 39	45 x 112 x 44	45 x 112 x 44	45 x 112 x 44	45 x 112 x 44
General data							
Ambient temperature							
• During operation, derating from 40 °C	°C	-25 ... +60					
• During storage	°C	-55 ... +80					
Installation altitude	m	0 ... 1 000; derating from 1 000					
Shock resistance acc. to IEC 60068-2-27	*g*/ms	15/11					
Vibration resistance acc. to IEC 60068-2-6	*g*	2					
Degree of protection		IP20					
Electromagnetic compatibility (EMC)							
• Emitted interference							
- Conducted interference voltage Acc. to IEC 60947-4-3		Class A for industrial applications[1]					
- Emitted, high-frequency interference voltage according to IEC 60947-4-3		Class B for residential, business and commercial applications					
• Interference immunity							
- Electrostatic discharge acc. to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	Contact discharge 4; air discharge 8; behavior criterion 2					
- Induced RF fields acc. to IEC 61000-4-6	MHz	0.15 ... 80; 140 dBµV; behavior criterion 1					
- Burst acc. to IEC 61000-4-4		2 kV/5.0 kHz; behavior criterion 2					
- Surge acc. to IEC 61000-4-5	kV	Conductor - ground 2; conductor - conductor 1; behavior criterion 2					
Connection type Auxiliary/control contacts		**Screw terminals**					
• Conductor cross-section	mm^2	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0), 1 x (AWG 20 ... 12)					
• Stripped length	mm	7					
• Terminal screw		M3					
• Tightening torque	Nm lb.in	0.5 ... 0.6 4.5 ... 5.3					
Connection type Converters		**Straight-through transformers**					
• Diameter	mm	--	7	17			

[1] Note limitations for power controller function modules. These modules were built as Class A devices. The use of these devices in residential areas could result in lead in radio interference. In this case these may be required to introduce additional interference suppression measures.

Type		3RF29..-0EA18	3RF29..-0FA08	3RF29..-0GA.3	3RF29..-0GA.6
Main circuit					
Rated operational voltage U_e	V AC	--[1]		110 ... 230	400 ... 600
• Operating range	V AC	--		93.5 ... 253	340 ... 660
• Rated frequency	Hz	--		50/60	
Rated insulation voltage U_i	V	--		600	
Voltage measuring					
• Measuring range	V	--		93.5 ... 253	340 ... 660
Mains voltage, fluctuation compensation	%	--		20	

[1] Versions are independent of the main circuit.

Type		3RF29..-0HA.3 3RF29..-0KA.3	3RF29..-0HA.6 3RF29..-0KA.6	3RF29..-0JA.3	3RF29..-0JA.6
Main circuit					
Rated operational voltage U_e	V AC	110 ... 230	400 ... 600	110 ... 230	400 ... 600
• Operating range	V AC	93.5 ... 253	340 ... 660	93.5 ... 253	340 ... 660
• Rated frequency	Hz	50/60			
Rated insulation voltage U_i	V	600			
Voltage measuring					
• Measuring range	V	93.5 ... 253	340 ... 660	93.5 ... 253	340 ... 660
Mains voltage, fluctuation compensation	%	20			

Type		3RF29..-...0.	3RF29..-...1.	3RF29..-...3.
Control circuit				
Method of operation		DC operation	AC/DC operation	AC operation
Rated control supply voltage U_s Rated control current	V mA	24 15		110
Rated frequency of the control supply voltage	Hz	--	50/60	
Actuating voltage, max.	V	30		121
Rated control current at maximum voltage	mA	15		
Response voltage • For operating current	V mA	15 2		90
Drop-out voltage	V	5		15

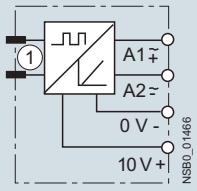
Type		3RF2906-0FA08	3RF2920-0FA08	3RF2920-0GA..	3RF2950-0GA..	3RF2990-0GA..
Current measurement						
Rated operational current I_e	A	6	20		50	90
Current measurement						
• Teach range	A	0.25 ... 6	0.65 ... 20	0.56 ... 20	1.62 ... 50	2.93 ... 90
• Measuring range	A	0 ... 6.6	0 ... 22		0 ... 55	0 ... 99
• Minimum partial load current	A	0.25	0.65		1.6	2.9
Number of partial loads		1 ... 6		1 ... 12		

Type		3RF2920-0HA..	3RF2950-0HA..	3RF2990-0HA..	3RF2916-0JA..	3RF2932-0JA..
Current measurement						
Rated operational current I_e	A	20	50	90	16	32
Current measurement						
• Teach range	A	4 ... 20	10 ... 50	18 ... 90	0.42 ... 16	0.8 ... 32
• Measuring range	A	0 ... 22	0 ... 55	4 ... 99	0 ... 16	0 ... 32
• Minimum partial load current	A	--			0.42	0.8
Number of partial loads		--			1 ... 6	

Type		3RF2904-0KA..	3RF2920-0KA..	3RF2950-0KA..	3RF2990-0KA..
Current measurement					
Rated operational current I_e	A	4	20	50	90
Current measurement					
• Teach range	A	0.15 ... 4	0.65 ... 20	1.6 ... 50	2.9 ... 90
• Measuring range	A	0 ... 4	0 ... 22	0 ... 55	0 ... 99
• Minimum partial load current	A	--	0.65	1.6	2.9
Number of partial loads		--	1 ... 6		

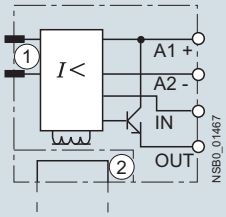
Circuit diagrams

Converters



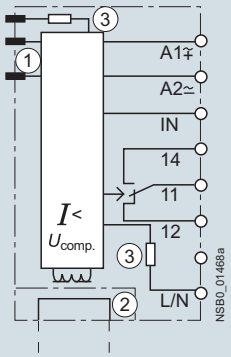
1 Internal connection

Basic load monitoring



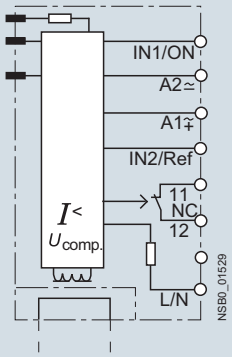
1 Internal connection
2 Straight-through transformer

Extended load monitoring



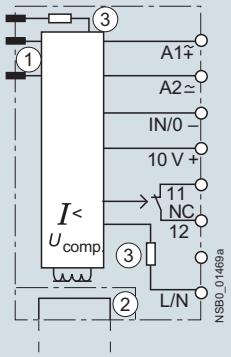
1 Internal connection
2 Straight-through transformer
3 Voltage detection not electrically isolated (3 MΩ per path)

Heating current monitoring



1 Internal connection
2 Straight-through transformer
3 Voltage detection not electrically isolated (3 MΩ per path)

Power controller and regulator



1 Internal connection
2 Straight-through transformer
3 Voltage detection not electrically isolated (3 MΩ per path)

Overview

Load monitoring for 3RF2 single-phase solid-state switching devices

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of load elements (up to 6 in the basic version or up to 12 in the extended version), alloyed power semiconductors, a lack of voltage or a break in a load circuit. A fault is indicated by one or more LEDs and reported to the controller by way of a PLC-compatible output.

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during start up by the simple press of a button. In order to detect the failure of one of several loads, the current difference must be 1/6 (in the basic version) or 1/12 (in the extended version) of the reference value. In the event of a fault, an output is actuated and one or more LEDs indicate the fault.

Application

The device is used for monitoring one or more loads (partial loads). The function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor. The devices with spring-type connections in the load circuit are not suitable.

Selection and ordering data

Rated operational current I_e	Rated operational voltage U_e	SD	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
A	V	d					
Basic load monitoring							
Rated control supply voltage 24 V DC							
6	--	2	**3RF2906-0FA08**		1	1 unit	41C
20	--	2	**3RF2920-0FA08**		1	1 unit	41C
• With mounted 3RF2900-0RA88 cover							
6	--	2	**3RF2906-0FA08-0KH0**		1	1 unit	41C
20	--	2	**3RF2920-0FA08-0KH0**		1	1 unit	41C
Extended load monitoring							
Rated control supply voltage 24 V AC/DC							
20	110 ... 230	2	**3RF2920-0GA13**		1	1 unit	41C
20	400 ... 600	2	**3RF2920-0GA16**		1	1 unit	41C
50	110 ... 230	2	**3RF2950-0GA13**		1	1 unit	41C
50	400 ... 600	2	**3RF2950-0GA16**		1	1 unit	41C
90	110 ... 230	2	**3RF2990-0GA13**		1	1 unit	41C
90	400 ... 600	2	**3RF2990-0GA16**		1	1 unit	41C
Rated control supply voltage 110 V AC							
20	110 ... 230	2	**3RF2920-0GA33**		1	1 unit	41C
20	400 ... 600	2	**3RF2920-0GA36**		1	1 unit	41C
50	110 ... 230	2	**3RF2950-0GA33**		1	1 unit	41C
50	400 ... 600	2	**3RF2950-0GA36**		1	1 unit	41C
90	110 ... 230	2	**3RF2990-0GA33**		1	1 unit	41C
90	400 ... 600	2	**3RF2990-0GA36**		1	1 unit	41C


3RF2920-0FA08


3RF2920-0GA13

Accessories

Version	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	d					
Optional accessories						
Sealable covers for function modules (not for converters)	5	**3RF2900-0RA88**		1	10 units	41C


3RF2900-0RA88

* You can order this quantity or a multiple thereof.
Illustrations are approximate