

Function Relays

Thermistor Motor Protection

SIMIREL

3RN1 for PTC temperature sensors

Technical data

	Compact devices		Standard devices			Multi-function devices	Warning + switch-off	Multiple motor protection	
	3RN10 00	3RN10 10	3RN10 11	3RN10 12	3RN10 13				
Type	3RN10 00	3RN10 10	3RN10 11	3RN10 12	3RN10 13	3RN10 22	3RN10 62		
General data									
Width	mm	22.5						45	
No. of connectable sensor circuits		1					2	6	
Response to failure of the control voltage	see Overview								
Manual RESET	No		Yes						
Automatic RESET	Yes		No		Yes				
Remote RESET	No		Yes ¹⁾		Yes				
TEST button	No		Yes						
Short-circuit detection in sensor circuit	No				Yes		No		
Indication of short-circuit and wire-break	No				Yes ²⁾		No		
Warning and switch-off in one unit	No					Yes		No	
Weight	kg	0.120	0.133	0.145	0.145	0.145	0.145	0.260	
Tripping unit									
Rated insulation voltage U_i (pollution degree 3)	V	300							
Permissible ambient temperature	°C	-25 to +60							
Permissible storage temperature		-40 to +80							
EMC tests	EN 50 081-2; IEC 61000-6-3								
Class acc. to DIN 19251, DIN V0801	AK 3								
Degree of protection acc. to DIN 40 050	IP 20								
Conductor cross-section									
Terminal screws		M 3.5 (for standard screwdriver Size 2 and Pozidriv 2)							
• Solid	mm ²	1 x (0.5 to 4) / 2 x (0.5 to 2.5)							
• Finely stranded with end sleeves	mm ²	1 x (0.5 to 2.5) / 2 x (0.5 to 1.5)							
• AWG conductor connections, solid or stranded	AWG	2 x (20 to 14)							
• Tightening torque	Nm	0.8 to 1.2							
Cage Clamp terminals									
• Solid	mm ²	2 x (0.25 to 1.5)							
• Finely stranded with end sleeves	mm ²	2 x (0.25 to 1)							
• Finely stranded, without end sleeves	mm ²	2 x (0.25 to 1.5)							
• AWG wires, solid or stranded	AWG	2 x (24 to 16)							
• Corresponding opening tool (screw driver)		8WA2 807							
Sensor circuit									
Circuit burden at $R_F \leq 1.5 \text{ k}\Omega$	mW	≤ 5							
Voltage in sensor circuit at $R_F \leq 1.5 \text{ k}\Omega$	V	≤ 2							
Tripping temperature (specified by sensor)	°C	60 to 180							
Coupling time (due to mounting of sensor)	s	approx. 5 s							
Total cold resistance R_F (per sensor loop)	k Ω	≤ 1.5							
Triggering value	k Ω	3.4 to 3.8							
Return value	k Ω	1.5 to 1.65							
Triggering tolerance	°C	± 6							

1) Remote RESET due to interruption of the control voltage.

2) Indication of wire-break only for monostable designs (3RN10 13-....0).

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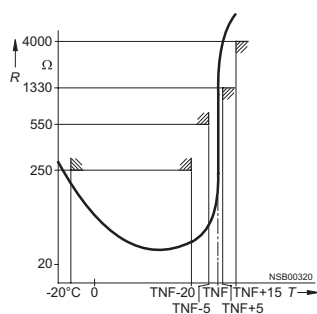
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Type	3RN10 00	3RN10 10	3RN10 11	3RN10 12	3RN10 13	3RN10 22	3RN10 62	
Control circuit								
Rated control supply voltage U_s	1)							
Operating range								
• AC	0.85 to $1.1 \times U_s$							
• AC/DC	0.85 to $1.1 \times U_s$							
• DC	0.85 to $1.2 \times U_s$							
Rated power								
• AC	W	< 2						
• AC/DC	W	< 2						
• DC	W	< 2						
Auxiliary circuit								
Conventional free-air thermal current I_{th}	A	5						
Rated operational current I_e								
• AC-15 240 V	A	3						
• DC-13 24 V	A	1	2		1 ²⁾	1	2	
Short-circuit protection acc. to Alpha/Lovag								
Utilisation category gL/gG	A	6						
Ⓢ and Ⓜ ratings, control current circuit								
Rated control voltage	50/60 Hz							
• AC	V	300						
• DC	V	300						
Switching capacity								
R 300/B 300								
Safe isolation up to 300 V								
					3RN10 13-1BW10	-		

Resistance/temperature characteristic of a PTC thermistor

with a characteristic (Type A)
according to DIN VDE 0660 Part 303



1) See selection and ordering data.

2) For 3RN10 13-1BW10 (bistable output relay) 2 A.