SIEMENS

Data sheet 3RN2012-1BA30

Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure screw terminal 2 change-over contacts US = 24 V AC/DC Manual/Auto/Remote reset with ATEX approval 2 LEDs (READY/TRIPPED) galvanic isolation Test/reset button Wire break monitoring Short circuit monitoring non-volatile

Figure similar

Product brand name	SIRIUS
Product category	SIRIUS 3RN2 thermistor motor protection
Product designation	Thermistor motor protection relay
Product type designation	3RN2

General technical data	
Display version LED	Yes
Power loss [W] for rated value of the current	
• at AC in hot operating state	1.7 W
• at DC in hot operating state	1.2 W
Insulation voltage	
• for overvoltage category III according to IEC 60664	
— with degree of pollution 3 rated value	300 V
Degree of pollution	3
Surge voltage resistance rated value	4 kV
Protection class IP	IP20
Shock resistance	

• acc. to IEC 60068-2-27	11g / 15 ms
Vibration resistance	
• acc. to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
Mechanical service life (switching cycles)	
• typical	10 000 000
Electrical endurance (switching cycles)	
• at AC-15 at 230 V typical	100 000
Thermal current of the switching element with contacts maximum	5 A
Certificate of suitability relating to ATEX	PTB 15 ATEX 3011
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	K
Reference code	
• acc. to IEC 81346-2:2009	K
• acc. to DIN EN 61346-2	K

Control circuit/ Control

Type of voltage of the control supply voltage	AC/DC
Control supply voltage at AC	
• at 50 Hz rated value	24 ... 24 V
• at 60 Hz rated value	24 ... 24 V
Control supply voltage at DC	
• rated value	24 ... 24 V
Operating range factor control supply voltage rated value at DC	
• initial value	0.85
• Full-scale value	1.1
Operating range factor control supply voltage rated value at AC at 50 Hz	
• initial value	0.85
• Full-scale value	1.1
Operating range factor control supply voltage rated value at AC at 60 Hz	
• initial value	0.85
• Full-scale value	1.1
Inrush current peak	
• at 24 V	0.5 A
Duration of inrush current peak	
• at 24 V	50 ms

Measuring circuit

Buffering time in the event of power failure minimum	40 ms

Precision

Relative metering precision	2 %

Auxiliary circuit	
Material of switching contacts	AgSnO2
Number of NC contacts	
• **for auxiliary contacts**	0
Number of NO contacts	
• **for auxiliary contacts**	0
Number of CO contacts	
• **for auxiliary contacts**	2
Operating current of auxiliary contacts at DC-13	
• at 24 V	1 A
• at 125 V	0.2 A
• at 250 V	0.1 A

Main circuit	
Operating frequency rated value	50 ... 60 Hz

Outputs	
Ampacity of the output relay at AC-15	
• at 250 V at 50/60 Hz	3 A
Ampacity of the output relay at DC-13	
• at 24 V	1 A
• at 125 V	0.2 A
Continuous current of the DIAZED fuse link of the output relay	6 A

Electromagnetic compatibility	
Conducted interference	
• due to burst acc. to IEC 61000-4-4	2 kV (power ports) / 1 kV (signal ports)
• due to conductor-earth surge acc. to IEC 61000-4-5	2 kV (line to ground)
• due to conductor-conductor surge acc. to IEC 61000-4-5	1 kV (line to line)
Electrostatic discharge acc. to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge

Galvanic isolation	
Design of the electrical isolation	galvanic
Galvanic isolation	
• between entrance and outlet	Yes
• between the outputs	Yes
• between the voltage supply and other circuits	No

Safety related data	
Safety Integrity Level (SIL) acc. to IEC 61508	1
Performance level (PL) acc. to EN ISO 13849-1	c
Category acc. to EN ISO 13849-1	1
Safe failure fraction (SFF)	74 %

Average diagnostic coverage level (DCavg)	18 %
Failure rate [FIT]	
• at rate of recognizable hazardous failures (λdd)	0.000000068 1/h
• at rate of non-recognizable hazardous failures (λdu)	0.00000031 1/h
PFHD with high demand rate acc. to EN 62061	0.00000038 1/h
PFDavg with low demand rate acc. to IEC 61508	0.0041
MTBF	97 y
MTTFd	303 y
Hardware fault tolerance acc. to IEC 61508	0
T1 value for proof test interval or service life acc. to IEC 61508	3 y

Connections/Terminals

Product function	
• removable terminal for auxiliary and control circuit	Yes
Type of electrical connection	screw-type terminals
Type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)
• finely stranded with core end processing	1x (0.5 ... 4 mm²), 2x (0.5 ... 1.5 mm²)
• at AWG conductors solid	1x (20 ... 12), 2x (20 ... 14)
Connectable conductor cross-section	
• solid	0.5 ... 4 mm²
• finely stranded with core end processing	0.5 ... 4 mm²
AWG number as coded connectable conductor cross section	
• solid	20 ... 12
• stranded	20 ... 12
Tightening torque	
• with screw-type terminals	0.6 ... 0.8 N·m

Installation/ mounting/ dimensions

Mounting position	any
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail
Height	100 mm
Width	22.5 mm
Depth	90 mm
Required spacing	
• with side-by-side mounting	
— forwards	0 mm
— Backwards	0 mm
— upwards	0 mm
— downwards	0 mm

— at the side	0 mm
• for grounded parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	0 mm
— at the side	0 mm
— downwards	0 mm
• for live parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	0 mm
— downwards	0 mm
— at the side	0 mm

Ambient conditions

Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Relative humidity	
• during operation	70 %
Explosion protection category for dust	[Ex t] [Ex p]

Certificates/approvals

General Product Approval				EMC	For use in hazardous locations
CCC	CSA	UL	EAC	C-Tick	ATEX

Declaration of Conformity	Test Certificates	Marine / Shipping			other
EG-Konf.	Type Test Certificates/Test Report	LRS	PRS	DNVGL.COM/AF	Confirmation

Further information

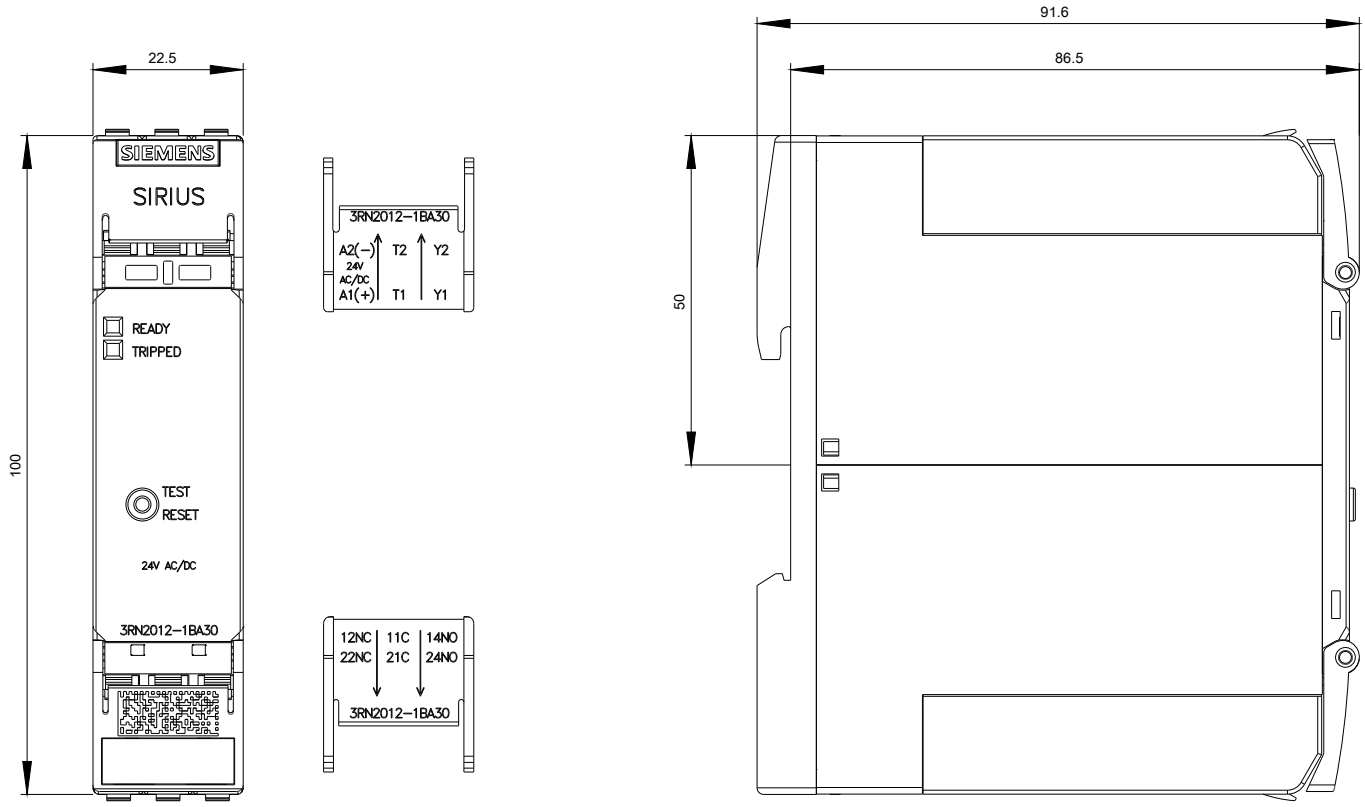
Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

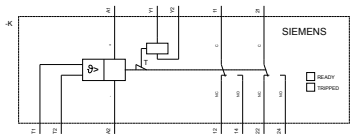
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RN2012-1BA30

Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2012-1BA30

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-1BA30

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2012-1BA30&lang=en





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