

Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure screw terminal 2 change-over contacts US = 24 V-240 V AC/DC Manul/Remote-Reset with ATEX approval 2 LEDs (READY/TRIPPED) galvanic isolation Test/reset button Wire break monitoring Short circuit monitoring



Figure similar

Product brand name	SIRIUS
Product category	SIRIUS 3RN2 thermistor motor protection
Product designation	Thermistor motor protection relay
Design of the product	Standard evaluation unit with ATEX approval, open-circuit and short-circuit detection in the sensor circuit
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	1.6 W
• at DC in hot operating state	1.6 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	
<ul style="list-style-type: none"> • acc. to IEC 60068-2-27 	11g / 15 ms
Vibration resistance	
<ul style="list-style-type: none"> • acc. to IEC 60068-2-6 	10 ... 55 Hz: 0.35 mm
Mechanical service life (switching cycles)	
<ul style="list-style-type: none"> • typical 	10 000 000
Electrical endurance (switching cycles)	
<ul style="list-style-type: none"> • 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 DIN EN 81346-2	K
Reference code 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	
<ul style="list-style-type: none"> • at 50 Hz rated value 	24 ... 240 V
<ul style="list-style-type: none"> • at 60 Hz rated value 	24 ... 240 V
Control supply voltage at DC	
<ul style="list-style-type: none"> • rated value 	24 ... 240 V
Operating range factor control supply voltage rated value at DC	
<ul style="list-style-type: none"> • initial value 	0.85
<ul style="list-style-type: none"> • Full-scale value 	1.1
Operating range factor control supply voltage rated value at AC at 50 Hz	
<ul style="list-style-type: none"> • initial value 	0.85
<ul style="list-style-type: none"> • Full-scale value 	1.1
Operating range factor control supply voltage rated value at AC at 60 Hz	
<ul style="list-style-type: none"> • initial value 	0.85
<ul style="list-style-type: none"> • Full-scale value 	1.1
Inrush current peak	
<ul style="list-style-type: none"> • at 24 V 	0.7 A
<ul style="list-style-type: none"> • at 240 V 	12 A
Duration of inrush current peak	
<ul style="list-style-type: none"> • at 24 V 	0.25 ms
<ul style="list-style-type: none"> • at 240 V 	0.2 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	Yes
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]	
<ul style="list-style-type: none"> at rate of recognizable hazardous failures (λ_{dd}) 	0.000000068 1/h
<ul style="list-style-type: none"> at rate of non-recognizable hazardous failures (λ_{du}) 	0.000000031 1/h
PFHD with high demand rate acc. to EN 62061	0.000000038 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	
<ul style="list-style-type: none"> removable terminal for auxiliary and control circuit 	Yes
Type of electrical connection	screw-type terminals
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> solid 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
<ul style="list-style-type: none"> finely stranded with core end processing 	1x (0.5 ... 4 mm ²), 2x (0.5 ... 1.5 mm ²)
<ul style="list-style-type: none"> at AWG conductors solid 	1x (20 ... 12), 2x (20 ... 14)
Connectable conductor cross-section	
<ul style="list-style-type: none"> solid 	0.5 ... 4 mm ²
<ul style="list-style-type: none"> finely stranded with core end processing 	0.5 ... 4 mm ²
AWG number as coded connectable conductor cross section	
<ul style="list-style-type: none"> solid 	20 ... 12
<ul style="list-style-type: none"> stranded 	20 ... 12
Tightening torque	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> with side-by-side mounting 	
<ul style="list-style-type: none"> — forwards 	0 mm
<ul style="list-style-type: none"> — Backwards 	0 mm
<ul style="list-style-type: none"> — 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



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?mfb=3RN2011-1BW30>

Cax online generator

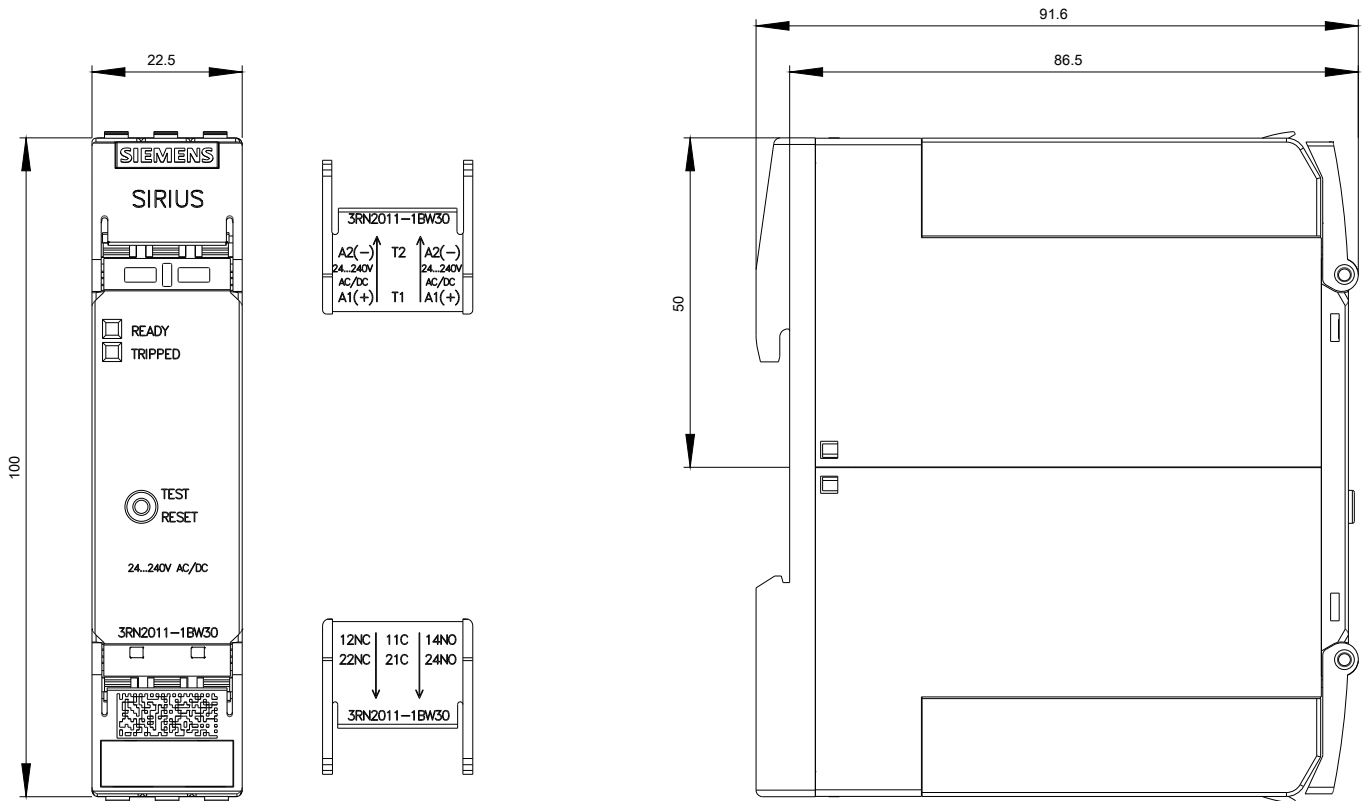
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RN2011-1BW30>

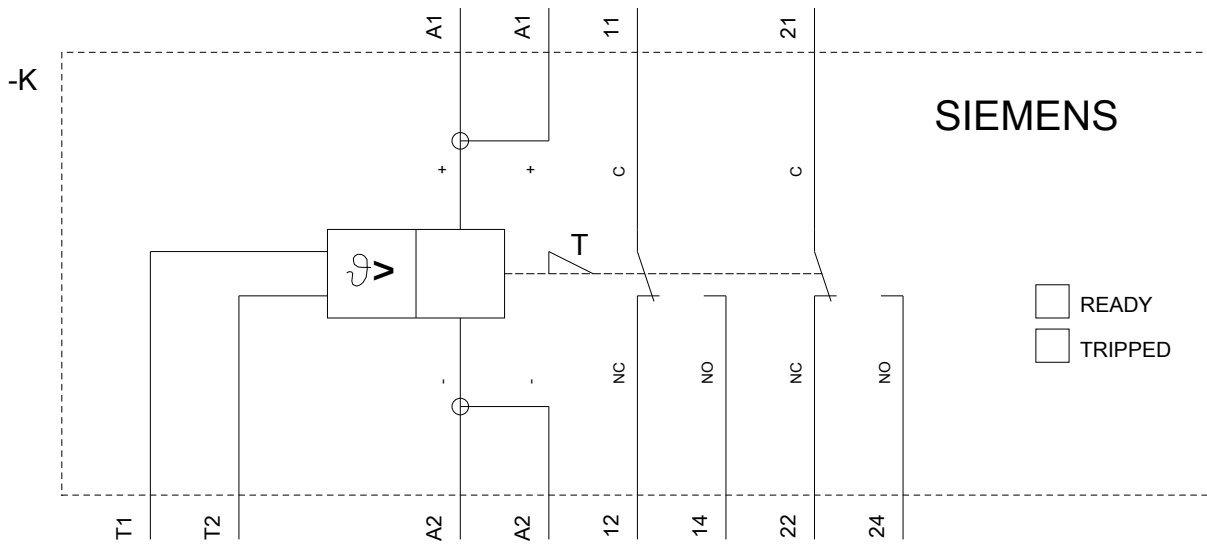
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2011-1BW30>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mfb=3RN2011-1BW30&lang=en





last modified:

08/15/2018