SIEMENS

Data sheet 3RN2011-2BA30

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

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	1.2 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
reference code acc. to IEC 81346-2	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
operational 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 isolation
galvanic isolation	
● between input and output	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	3 y

IEC 61508	
Connections/ Terminals	
product function removable terminal for auxiliary and control circuit	Yes
type of electrical connection	Push-in terminal
● for auxiliary and control circuit	spring-loaded terminals (push-in)
type of connectable conductor cross-sections	
● solid	0.5 ... 4 mm²
● finely stranded with core end processing	0.5 ... 2.5 mm²
● finely stranded without core end processing	0.5 ... 4 mm²
● at AWG cables solid	20 ... 12
● at AWG cables stranded	20 ... 12
● connectable conductor cross-section solid	0.5 ... 4 mm²
● connectable conductor cross-section finely stranded with core end processing	0.5 ... 2.5 mm²
● connectable conductor cross-section finely stranded without core end processing	0.5 ... 4 mm²
● AWG number as coded connectable conductor cross section solid	20 ... 12
● AWG number as coded connectable conductor cross section stranded	20 ... 12
Installation/ mounting/ dimensions	
mounting position	any
fastening method	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
● ambient temperature during storage	-40 ... +85 °C
● ambient temperature during transport	-40 ... +85 °C
relative humidity during operation	70 %
explosion protection category for dust	[Ex t] [Ex p]
explosion protection category for gas	[Ex e] [Ex d] [Ex px]

Certificates/ approvals

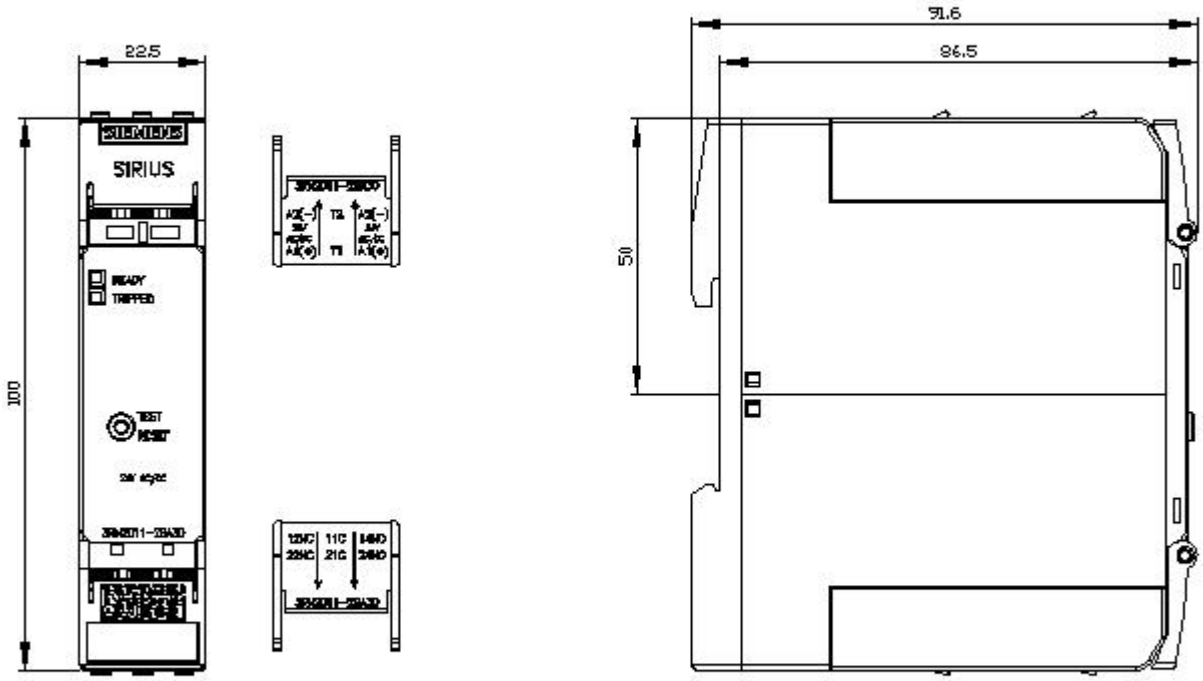
General Product Approval	EMC	For use in hazardous locations

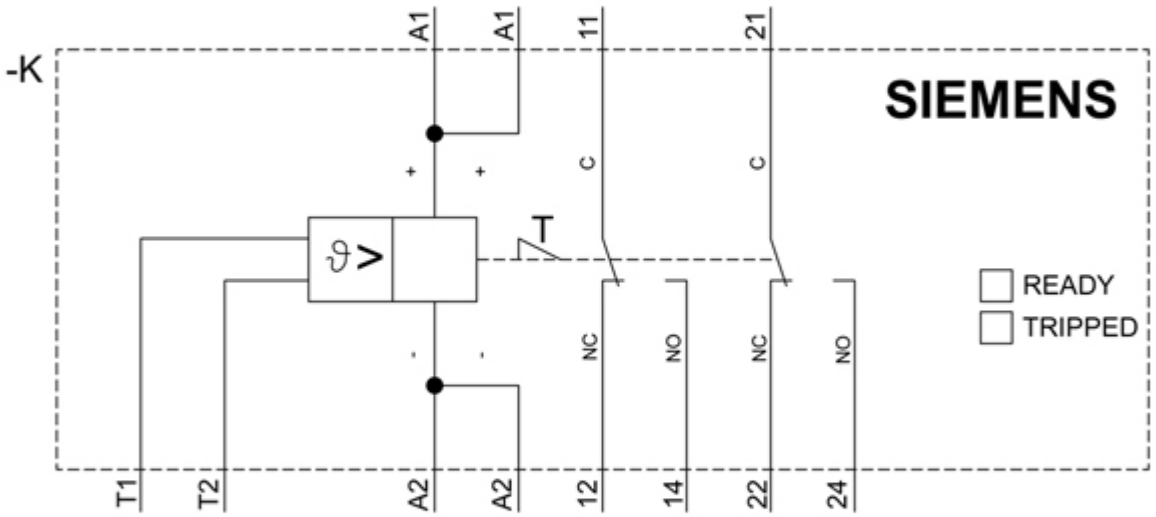
Declaration of Conformity	Test Certificates	Marine / Shipping
EG-Konf.	Miscellaneous	Type Test Certificates/Test Report

other	Railway
Confirmation	Confirmation

Further information

Information- and Downloadcenter (Catalogs, Brochures,…)
https://www.siemens.com/ic10
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RN2011-2BA30
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2011-2BA30
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RN2011-2BA30
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2011-2BA30&lang=en
Characteristic: Derating
https://support.industry.siemens.com/cs/ww/en/ps/3RN2011-2BA30/manual





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