



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

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	
product function	thermistor motor protection
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
shock resistance according to IEC 60068-2-27	11g / 15 ms
vibration resistance according to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
mechanical service life (operating cycles) typical	10 000 000
electrical endurance (operating cycles) at AC-15 at 230 V typical	100 000
thermal current of the switching element with contacts maximum	5 A
reference code according to IEC 81346-2	K
Substance Prohibitance (Date)	05/28/2009
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	0.183 kg
Product Function	
product function	
• error memory	No
• dynamic open-circuit detection	Yes
• external reset	Yes
• auto-RESET	No
• manual RESET	Yes
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
• at 50 Hz rated value	24 ... 240 V
• at 60 Hz rated value	24 ... 240 V
control supply voltage at DC rated value	24 ... 240 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	0.7 A
	• at 240 V	12 A
duration of inrush current peak	• at 24 V	0.25 ms
	• 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		AgSnO ₂
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
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 according to IEC 61000-4-4	2 kV (power ports) / 1 kV (signal ports)
	• due to conductor-earth surge according to IEC 61000-4-5	2 kV (line to ground)
	• due to conductor-conductor surge according to IEC 61000-4-5	1 kV (line to line)
electrostatic discharge according 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	Yes
Safety related data		
failure rate [FIT] at rate of recognizable hazardous failures (λ_{dd})		6.8E-8 1/h
failure rate [FIT] at rate of non-recognizable hazardous failures (λ_{du})		3.08E-7 1/h
average diagnostic coverage level (DCavg)		18 %
MTBF		97 a
MTTFd		303 a
IEC 62061		
Safety Integrity Level (SIL) according to IEC 62061		SIL 1
PFHD with high demand rate according to IEC 62061		3.76E-7 1/h

ISO 13849	
performance level (PL) according to EN ISO 13849-1	PL c
category according to EN ISO 13849-1	1
performance level (PL) according to ISO 13849-1	PL c
IEC 61508	
Safety Integrity Level (SIL) according to IEC 61508	1
safety device type according to IEC 61508-2	Type B
PFDAvg with low demand rate according to IEC 61508	0.0041
Safe failure fraction (SFF)	74 %
hardware fault tolerance according to IEC 61508	0
T1 value for proof test interval or service life according to IEC 61508	3 a
Connections/ Terminals	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection	screw terminal
• for auxiliary and control circuit	screw-type terminals
type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
• finely stranded with core end processing	1x (0.5 ... 4 mm ²), 2x (0.5 ... 1.5 mm ²)
• for AWG cables solid	1x (20 ... 12), 2x (20 ... 14)
connectable conductor cross-section	
• solid	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 4 mm ²
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
fastening method	screw and snap-on mounting onto 35 mm DIN 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 maximum	70 %

explosion protection category for dust	[Ex t] [Ex p]
explosion protection category for gas	[Ex e] [Ex d] [Ex px]
Approvals Certificates	
General Product Approval	



[Confirmation](#)



EMV	For use in hazardous locations	Test Certificates	Marine / Shipping
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[Type Test Certificates/Test Report](#)



Marine / Shipping	other
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[Confirmation](#)

Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

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=3RN2011-1BW30>

Cax online generator

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

Characteristic: Derating

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



