



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
<b>General technical data</b>	
product function	thermistor motor protection
display version LED	Yes
power loss [W] for rated value of the current	
• at AC in hot operating state	1.2 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
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	0.175 kg
<b>Product Function</b>	
product function	
• error memory	No
• dynamic open-circuit detection	Yes
• external reset	Yes
• auto-RESET	No
• manual RESET	Yes
<b>Control circuit/ Control</b>	
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	

<b>DC</b>	
• initial value	0.85
• full-scale value	1.1
<b>operating range factor control supply voltage rated value at AC at 50 Hz</b>	
• initial value	0.85
• full-scale value	1.1
<b>operating range factor control supply voltage rated value at AC at 60 Hz</b>	
• initial value	0.85
• full-scale value	1.1
<b>inrush current peak</b>	
• at 24 V	0.5 A
<b>duration of inrush current peak</b>	
• at 24 V	50 ms
<b>Measuring circuit</b>	
buffering time in the event of power failure minimum	40 ms
<b>Precision</b>	
relative metering precision	2 %
<b>Auxiliary circuit</b>	
material of switching contacts	AgSnO <sub>2</sub>
number of NC contacts for auxiliary contacts	0
number of NO contacts for auxiliary contacts	0
number of CO contacts for auxiliary contacts	2
<b>operational current of auxiliary contacts at DC-13</b>	
• at 24 V	1 A
• at 125 V	0.2 A
• at 250 V	0.1 A
<b>Main circuit</b>	
operating frequency rated value	50 ... 60 Hz
ampacity of the output relay at AC-15 at 250 V at 50/60 Hz	3 A
<b>ampacity of the output relay at DC-13</b>	
• at 24 V	1 A
• at 125 V	0.2 A
continuous current of the DIAZED fuse link of the output relay	6 A
<b>Electromagnetic compatibility</b>	
<b>conducted interference</b>	
• 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
<b>Galvanic isolation</b>	
design of the electrical isolation	galvanic isolation
<b>galvanic isolation</b>	
• between input and output	Yes
• between the outputs	Yes
• between the voltage supply and other circuits	No
<b>Safety related data</b>	
failure rate [FIT] at rate of recognizable hazardous failures ( $\lambda_{dd}$ )	6.8E-8 1/h
failure rate [FIT] at rate of non-recognizable hazardous failures ( $\lambda_{du}$ )	3.08E-7 1/h
average diagnostic coverage level (DCavg)	18 %
MTBF	97 a
MTTFd	303 a
<b>IEC 62061</b>	
Safety Integrity Level (SIL) according to IEC 62061	SIL 1
PFHD with high demand rate according to IEC 62061	3.76E-7 1/h
<b>ISO 13849</b>	
performance level (PL) according to EN ISO 13849-1	PL c

category according to EN ISO 13849-1	1
<b>performance level (PL) according to ISO 13849-1</b>	PL c
<b>IEC 61508</b>	
Safety Integrity Level (SIL) according to IEC 61508	1
<b>safety device type according to IEC 61508-2</b>	Type B
PFDAvg with low demand rate according to IEC 61508	0.0041
<b>Safe failure fraction (SFF)</b>	74 %
hardware fault tolerance according to IEC 61508	0
T1 value for proof test interval or service life according to IEC 61508	3 a
<b>Connections/ Terminals</b>	
<b>product component removable terminal for auxiliary and control circuit</b>	Yes
<b>type of electrical connection</b>	spring-loaded terminal (push-in)
• for auxiliary and control circuit	spring-loaded terminals (push-in)
<b>type of connectable conductor cross-sections</b>	
• solid	0.5 ... 4 mm <sup>2</sup>
• finely stranded with core end processing	0.5 ... 2.5 mm <sup>2</sup>
• finely stranded without core end processing	0.5 ... 4 mm <sup>2</sup>
• for AWG cables solid	20 ... 12
• for AWG cables stranded	20 ... 12
<b>connectable conductor cross-section</b>	
• solid	0.5 ... 4 mm <sup>2</sup>
• finely stranded with core end processing	0.5 ... 2.5 mm <sup>2</sup>
• finely stranded without core end processing	0.5 ... 4 mm <sup>2</sup>
<b>AWG number as coded connectable conductor cross section</b>	
• solid	20 ... 12
• stranded	20 ... 12
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting onto 35 mm DIN rail
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	90 mm
<b>required spacing</b>	
• 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
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• 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]
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	



[Confirmation](#)



EG-Konf.



UL



EMV	For use in hazardous locations	Test Certificates	Marine / Shipping
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RCM



ATEX



TÜV

[Type Test Certificates/Test Report](#)



DNV



LRS

Marine / Shipping	other	Environment
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PRS

[Confirmation](#)

[Environmental Confirmations](#)

#### 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=3RN2011-2BA30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2011-2BA30>

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

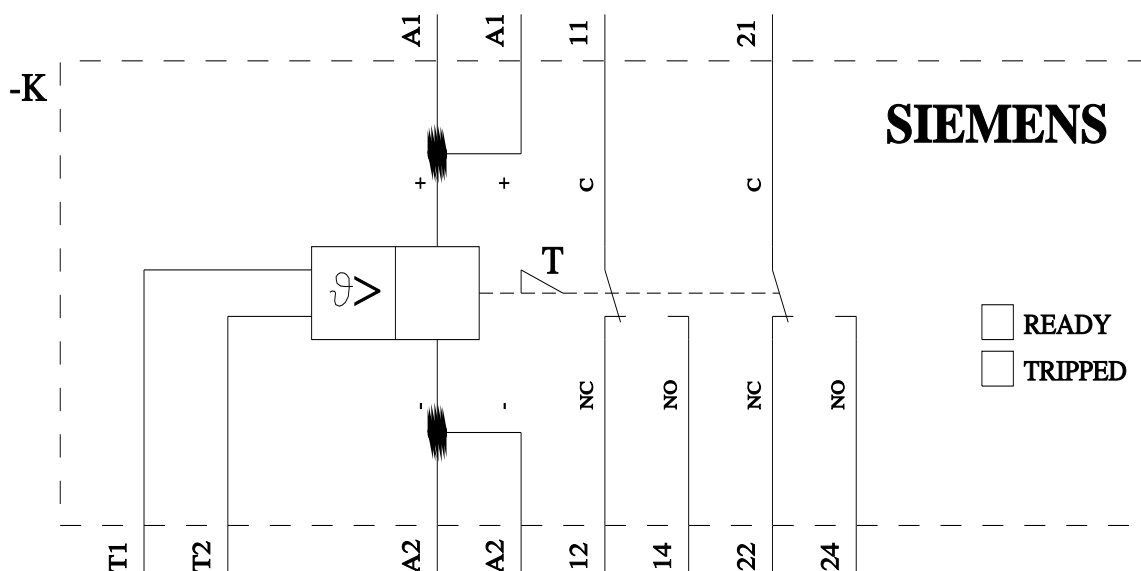
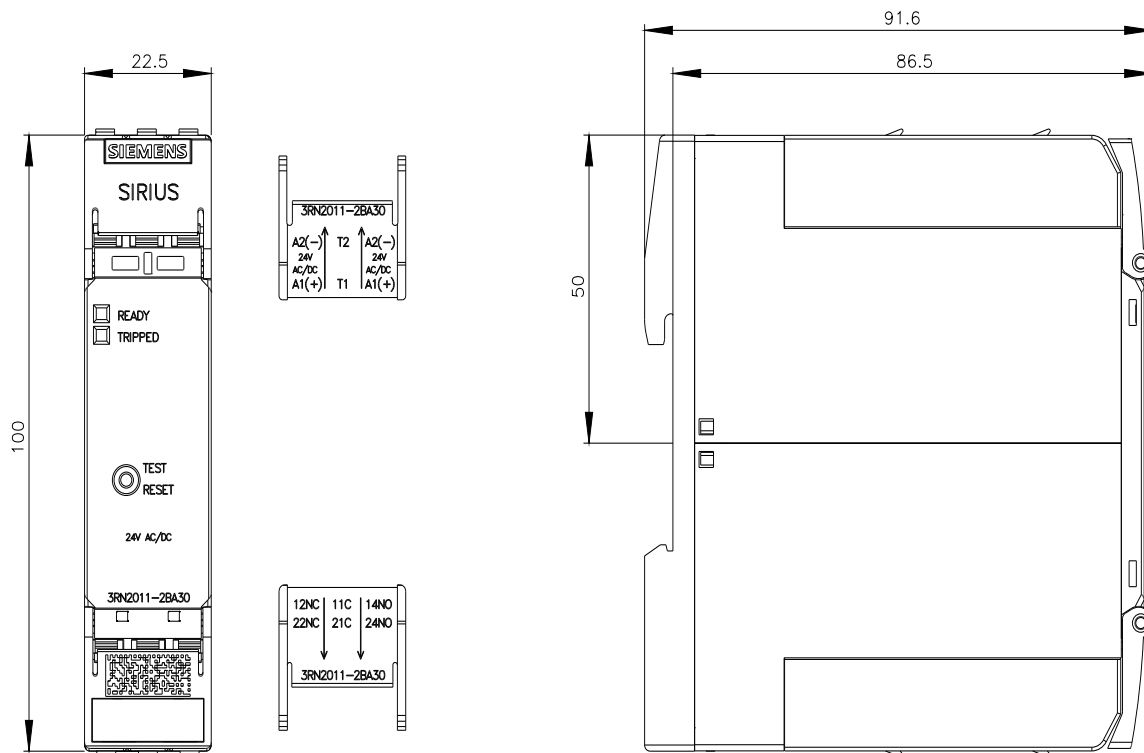
<https://support.industry.siemens.com/cs/ww/en/ps/3RN2011-2BA30>

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](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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