



Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure  
 Spring-type terminal 2 change-over contacts US = 24 V-240 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

<b>product brand name</b>	SIRIUS
<b>product category</b>	SIRIUS 3RN2 thermistor motor protection
<b>product designation</b>	Thermistor motor protection relay
<b>design of the product</b>	Standard evaluation unit with ATEX approval, open-circuit and short-circuit detection in the sensor circuit, non-volatile
<b>product type designation</b>	3RN2
<b>General technical data</b>	
<b>product function</b>	thermistor motor protection
<b>display version LED</b>	Yes
insulation voltage for overvoltage category III according to IEC 60664 with degree of pollution 3 rated value	300 V
<b>degree of pollution</b>	3
<b>surge voltage resistance rated value</b>	4 kV
<b>protection class IP</b>	IP20
<b>shock resistance according to IEC 60068-2-27</b>	11g / 15 ms
<b>mechanical service life (operating cycles) typical</b>	10 000 000
<b>electrical endurance (operating cycles) at AC-15 at 230 V typical</b>	100 000
<b>thermal current of the switching element with contacts maximum</b>	5 A
<b>reference code according to IEC 81346-2</b>	K
<b>Substance Prohibitance (Date)</b>	05/28/2009
<b>SVHC substance name</b>	Blei - 7439-92-1 Bleimonoxid (Bleioxid) - 1317-36-8 Dicyclohexylphthalat (DCHP) - 84-61-7
<b>Product Function</b>	
<b>product function</b>	
• error memory	Yes
• dynamic open-circuit detection	Yes
• external reset	Yes
• auto-RESET	Yes
• manual RESET	Yes
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC/DC
<b>control supply voltage at AC</b>	
• at 50 Hz rated value	24 ... 240 V
• at 60 Hz rated value	24 ... 240 V
<b>control supply voltage at DC</b>	
• rated value	24 ... 240 V
<b>operating range factor control supply voltage rated value at 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	0.7 A
• at 240 V	12 A
<b>duration of inrush current peak</b>	
• at 24 V	0.25 ms
• at 240 V	0.2 ms
<b>Measuring circuit</b>	
<b>buffering time in the event of power failure minimum</b>	40 ms
<b>Precision</b>	
<b>relative metering precision</b>	2 %
<b>Auxiliary circuit</b>	
<b>material of switching contacts</b>	AgSnO2
<b>number of NC contacts for auxiliary contacts</b>	0
<b>number of NO contacts for auxiliary contacts</b>	0
<b>number of CO contacts for auxiliary contacts</b>	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>	
<b>operating frequency rated value</b>	50 ... 60 Hz
<b>ampacity of the output relay at AC-15 at 250 V at 50/60 Hz</b>	3 A
<b>ampacity of the output relay at DC-13</b>	
• at 24 V	1 A
• at 125 V	0.2 A
<b>continuous current of the DIAZED fuse link of the output relay</b>	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)
<b>electrostatic discharge according to IEC 61000-4-2</b>	6 kV contact discharge / 8 kV air discharge
<b>Galvanic isolation</b>	
<b>design of the electrical isolation</b>	galvanic isolation
<b>galvanic isolation</b>	
• between input and output	Yes
• between the outputs	Yes
• between the voltage supply and other circuits	Yes
<b>Safety related data</b>	
<b>failure rate [FIT] at rate of recognizable hazardous failures (<math>\lambda_{dd}</math>)</b>	6.8E-8 1/h
<b>failure rate [FIT] at rate of non-recognizable hazardous failures (<math>\lambda_{du}</math>)</b>	3.08E-7 1/h
<b>average diagnostic coverage level (DCavg)</b>	18 %
<b>MTBF</b>	97 a
<b>MTTFd</b>	303 a
<b>PFHD with high demand rate according to EN 62061</b>	3.76E-7 1/h
<b>performance level (PL) according to EN ISO 13849-1</b>	c
<b>category according to EN ISO 13849-1</b>	1
<b>Safety Integrity Level (SIL) according to IEC 61508</b>	1
<b>PFDavg with low demand rate according to IEC 61508</b>	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
<b>Connections/ Terminals</b>	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection	spring-loaded terminal (push-in)
• for auxiliary and control circuit	spring-loaded terminals (push-in)
type of connectable conductor cross-sections	
• 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
connectable conductor cross-section	
• 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>
AWG number as coded connectable conductor cross section	
• solid	20 ... 12
• stranded	20 ... 12
<b>Installation/ mounting/ dimensions</b>	
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
<b>Ambient conditions</b>	
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]
explosion protection category for gas	[Ex e] [Ex d] [Ex px]
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	



EG-Konf.

[Confirmation](#)



CCC



UL



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



ATEX

[Type Test Certificates/Test Report](#)



DNV



LRS



PRS

other

[Confirmation](#)

#### Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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=3RN2012-2BW30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2012-2BW30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-2BW30>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RN2012-2BW30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2012-2BW30&lang=en)

Characteristic: Derating

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-2BW30/manual>



