



Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure screw terminal 2 change-over contacts US = 24 V-240 V AC/DC Manual/Auto/Remote reset with ATEX approval 2 LEDs (READY/TRIPPED) Safe 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, safe disconnection, 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
<b>power loss [W] for rated value of the current</b>	
• at AC in hot operating state	1.7 W
• at DC in hot operating state	1.7 W
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>	6 kV
<b>maximum permissible voltage for safe isolation</b>	
• between auxiliary and auxiliary circuit	300 V
• between control and auxiliary circuit	300 V
<b>protection class IP</b>	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
<b>thermal current of the switching element with contacts maximum</b>	5 A
<b>reference code acc. to IEC 81346-2</b>	K
<b>Substance Prohibitance (Date)</b>	28.05.2009 00:00:00
<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</b>	

<b>value at AC at 50 Hz</b>	
<ul style="list-style-type: none"> <li>initial value</li> <li>full-scale value</li> </ul>	0.85 1.1
<b>operating range factor control supply voltage rated value at AC at 60 Hz</b>	
<ul style="list-style-type: none"> <li>initial value</li> <li>full-scale value</li> </ul>	0.85 1.1
<b>inrush current peak</b>	
<ul style="list-style-type: none"> <li>at 24 V</li> <li>at 240 V</li> </ul>	0.7 A 12 A
<b>duration of inrush current peak</b>	
<ul style="list-style-type: none"> <li>at 24 V</li> <li>at 240 V</li> </ul>	0.25 ms 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>	AgSnO <sub>2</sub>
<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>	
<ul style="list-style-type: none"> <li>at 24 V</li> <li>at 125 V</li> <li>at 250 V</li> </ul>	1 A 0.2 A 0.1 A
<b>Main circuit</b>	
<b>operating frequency rated value</b>	50 ... 60 Hz
<b>Outputs</b>	
<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>	
<ul style="list-style-type: none"> <li>at 24 V</li> <li>at 125 V</li> </ul>	1 A 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>	
<ul style="list-style-type: none"> <li>due to burst acc. to IEC 61000-4-4</li> <li>due to conductor-earth surge acc. to IEC 61000-4-5</li> <li>due to conductor-conductor surge acc. to IEC 61000-4-5</li> </ul>	2 kV (power ports) / 1 kV (signal ports) 2 kV (line to ground) 1 kV (line to line)
<b>electrostatic discharge acc. 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>	Protective separation
<b>galvanic isolation</b>	
<ul style="list-style-type: none"> <li>between input and output</li> <li>between the outputs</li> <li>between the voltage supply and other circuits</li> </ul>	Yes Yes Yes
<b>Safety related data</b>	
<b>Safety Integrity Level (SIL) acc. to IEC 61508</b>	1
<b>performance level (PL) acc. to EN ISO 13849-1</b>	c
<b>category acc. to EN ISO 13849-1</b>	1
<b>Safe failure fraction (SFF)</b>	74 %
<b>average diagnostic coverage level (DCavg)</b>	18 %
<b>failure rate [FIT]</b>	
<ul style="list-style-type: none"> <li>at rate of recognizable hazardous failures (<math>\lambda_{dd}</math>)</li> <li>at rate of non-recognizable hazardous failures (<math>\lambda_{du}</math>)</li> </ul>	0.000000068 1/h 0.000000031 1/h
<b>PFHD with high demand rate acc. to EN 62061</b>	0.00000038 1/h
<b>PFDAvg with low demand rate acc. to IEC 61508</b>	0.0041
<b>MTBF</b>	97 y

<b>MTTFd</b>	303 y	
<b>hardware fault tolerance acc. to IEC 61508</b>	0	
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	3 y	
<b>Connections/ Terminals</b>		
<b>product component removable terminal for auxiliary and control circuit</b>	Yes	
<b>type of electrical connection</b> • for auxiliary and control circuit	screw-type terminals screw-type terminals	
<b>type of connectable conductor cross-sections</b> • solid • finely stranded with core end processing • at AWG cables solid	1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> ) 1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) 1x (20 ... 12), 2x (20 ... 14)	
<b>connectable conductor cross-section</b> • solid • finely stranded with core end processing	0.5 ... 4 mm <sup>2</sup> 0.5 ... 4 mm <sup>2</sup>	
<b>AWG number as coded connectable conductor cross section</b> • solid • stranded	20 ... 12 20 ... 12	
tightening torque with screw-type terminals	0.6 ... 0.8 N·m	
<b>Installation/ mounting/ dimensions</b>		
<b>mounting position</b>	any	
<b>fastening method</b>	screw and snap-on mounting onto 35 mm standard mounting 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 — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — downwards — at the side	0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm	
<b>Ambient conditions</b>		
installation altitude at height above sea level maximum	2 000 m	
<b>ambient temperature</b> • during operation • during storage • during transport	-25 ... +60 °C -40 ... +85 °C -40 ... +85 °C	
relative humidity during operation	70 %	
<b>explosion protection category for dust</b>	[Ex t] [Ex p]	
<b>explosion protection category for gas</b>	[Ex e] [Ex d] [Ex px]	
<b>Certificates/ approvals</b>		
<b>General Product Approval</b>	<b>EMC</b>	<b>For use in hazardous locations</b>



Declaration of Conformity	Test Certificates	Marine / Shipping	other
---------------------------	-------------------	-------------------	-------



EG-Konf.

[Type Test Certificates/Test Report](#)



LRS



PRS



DNV-GL

[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=3RN2013-1BW30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2013-1BW30>

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

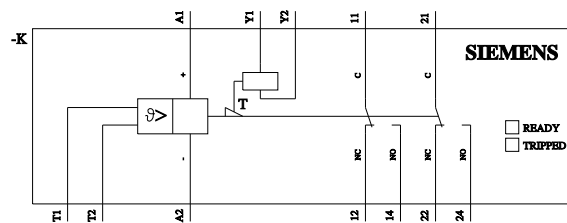
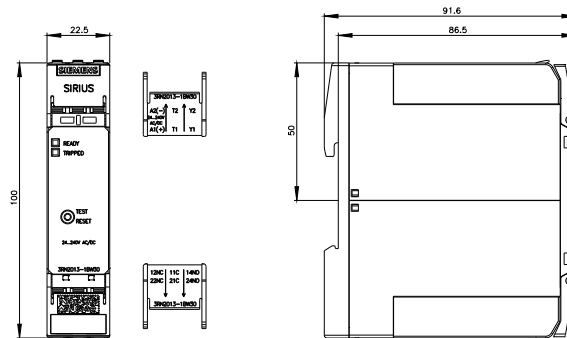
<https://support.industry.siemens.com/cs/ww/en/ps/3RN2013-1BW30>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RN2013-1BW30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2013-1BW30&lang=en)

Characteristic: Derating

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2013-1BW30/manual>



last modified:

5/1/2021