



Thermistor motor prot. relay Standard evaluation unit  
 22.5 mm enclosure Screw terminals 2 CO contacts US =  
 24 V AC/DC Manual/Auto/Remote RESET with ATEX  
 certification 2 LEDs (READY/TRIPPED) Protective  
 separation Test/Reset button Open-circuit monitoring  
 Short-circuit monitoring Non-volatile

Figure similar

Article number		
<b>Product brand name</b>		SIRIUS
<b>Product category</b>		SIRIUS 3RN2 thermistor motor protection
<b>Product designation</b>		Thermistor motor protection relay
<b>Product type designation</b>		3RN2

General technical data

<b>Display version LED</b>		Yes
<b>Power loss [W] for rated value of the current</b>		
• at AC in hot operating state	W	1.2
• at DC in hot operating state	W	1.2
<b>Insulation voltage</b>		
• for overvoltage category III according to IEC 60664		
— with degree of pollution 3 rated value	V	300
<b>Degree of pollution</b>		3
<b>Surge voltage resistance rated value</b>	kV	6
<b>maximum permissible voltage for safe isolation</b>		
• between auxiliary and auxiliary circuit	V	300

<ul style="list-style-type: none"> <li>• between control and auxiliary circuit</li> </ul>	V	300
<b>Protection class IP</b>		IP20
<b>Shock resistance</b>		
<ul style="list-style-type: none"> <li>• acc. to IEC 60068-2-27</li> </ul>		11g / 15 ms
<b>Vibration resistance</b>		
<ul style="list-style-type: none"> <li>• acc. to IEC 60068-2-6</li> </ul>		10 ... 55 Hz: 0.35 mm
<b>Mechanical service life (switching cycles)</b>		
<ul style="list-style-type: none"> <li>• typical</li> </ul>		10 000 000
<b>Electrical endurance (switching cycles)</b>		
<ul style="list-style-type: none"> <li>• at AC-15 at 230 V typical</li> </ul>		100 000
<b>Thermal current of the switching element with contacts maximum</b>	A	5
<b>Equipment marking</b>		
<ul style="list-style-type: none"> <li>• acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750</li> </ul>		K
<ul style="list-style-type: none"> <li>• acc. to DIN EN 61346-2</li> </ul>		K
<ul style="list-style-type: none"> <li>• acc. to DIN EN 81346-2</li> </ul>		K

#### Control circuit/ Control

<b>Type of voltage of the control supply voltage</b>		AC/DC
<b>Control supply voltage at AC</b>		
<ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> </ul>	V	24 ... 24
<ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>	V	24 ... 24
<b>Control supply voltage at DC</b>		
<ul style="list-style-type: none"> <li>• rated value</li> </ul>	V	24 ... 24
<b>Operating range factor control supply voltage rated value at DC</b>		
<ul style="list-style-type: none"> <li>• initial value</li> </ul>		0.85
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>		1.1
<b>Operating range factor control supply voltage rated value at AC at 50 Hz</b>		
<ul style="list-style-type: none"> <li>• initial value</li> </ul>		0.85
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>		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> </ul>		0.85
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>		1.1
<b>Inrush current peak</b>		
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	A	0.7
<b>Duration of inrush current peak</b>		
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	ms	0.25

#### Measuring circuit

<b>Buffering time in the event of power failure minimum</b>	ms	40
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Precision		
Relative metering precision	%	2
Auxiliary circuit		
Material of switching contacts		AgSnO <sub>2</sub>
Number of NC contacts <ul style="list-style-type: none"> <li>• for auxiliary contacts</li> </ul>		0
Number of NO contacts <ul style="list-style-type: none"> <li>• for auxiliary contacts</li> </ul>		0
Number of CO contacts <ul style="list-style-type: none"> <li>• for auxiliary contacts</li> </ul>		2
Operating current of auxiliary contacts at DC-13 <ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 125 V</li> <li>• at 250 V</li> </ul>	A A A	1 0.2 0.1
Main circuit		
Operating frequency rated value	Hz	50 ... 60
Outputs		
Ampacity of the output relay at AC-15 <ul style="list-style-type: none"> <li>• at 250 V at 50/60 Hz</li> </ul>	A	3
Ampacity of the output relay at DC-13 <ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 125 V</li> </ul>	A A	1 0.2
Continuous current of the DIAZED fuse link of the output relay	A	6
Electromagnetic compatibility		
Conducted interference <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)
Electrostatic discharge acc. to IEC 61000-4-2		6 kV contact discharge / 8 kV air discharge
Galvanic isolation		
Design of the electrical isolation		Protective separation
Galvanic isolation <ul style="list-style-type: none"> <li>• between entrance and outlet</li> <li>• between the outputs</li> <li>• between the voltage supply and other circuits</li> </ul>		Yes Yes Yes
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 ( $\lambda_{dd}$ )	1/h	0.000000068
• at rate of non-recognizable hazardous failures ( $\lambda_{du}$ )	1/h	0.000000031
PFHD with high demand rate acc. to EN 62061	1/h	0.000000038
PFDavg with low demand rate acc. to IEC 61508		0.0041
MTTFd	y	303
Hardware fault tolerance acc. to IEC 61508		0
T1 value for proof test interval or service life acc. to IEC 61508	y	3

### Connections/Terminals

Product function		Yes
• removable terminal for auxiliary and control circuit		
Type of electrical connection		screw-type terminals
Type of connectable conductor cross-sections		
• solid		1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
• finely stranded with core end processing		1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
• at AWG conductors solid		1x (20 ... 12), 2x (20 ... 14)
Connectable conductor cross-section		
• solid	mm <sup>2</sup>	0.5 ... 4
• finely stranded with core end processing	mm <sup>2</sup>	0.5 ... 4
AWG number as coded connectable conductor cross section		
• solid		20 ... 12
• stranded		20 ... 12
Tightening torque		
• with screw-type terminals	N·m	0.6 ... 0.8

### Installation/ mounting/ dimensions

Mounting position		any
Mounting type		screw and snap-on mounting onto 35 mm standard mounting rail
Height	mm	100
Width	mm	22.5
Depth	mm	90
Required spacing		
• with side-by-side mounting		
— forwards	mm	0
— Backwards	mm	0

— upwards	mm	0
— downwards	mm	0
— at the side	mm	0
• for grounded parts		
— forwards	mm	0
— Backwards	mm	0
— upwards	mm	0
— at the side	mm	0
— downwards	mm	0
• for live parts		
— forwards	mm	0
— Backwards	mm	0
— upwards	mm	0
— downwards	mm	0
— at the side	mm	0

### Ambient conditions

<b>Installation altitude at height above sea level</b>		
• maximum	m	2 000
<b>Ambient temperature</b>		
• during operation	°C	-25 ... +60
• during storage	°C	-40 ... +85
• during transport	°C	-40 ... +85
<b>Relative humidity</b>		
• during operation	%	70
<b>Explosion protection category for dust</b>		[Ex t] [Ex p]

### Certificates/approvals

<b>General Product Approval</b>	<b>EMC</b>	<b>For use in hazardous locations</b>	<b>Declaration of Conformity</b>
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<b>Test Certificates</b>	<b>Marine / Shipping</b>	<b>other</b>
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[Type Test Certificates/Test Report](#)



[Confirmation](#)

[Environmental Confirmations](#)

## Further information

### Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

### Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mfb=3RN2013-1BA30>

### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RN2013-1BA30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2013-1BA30>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mfb=3RN2013-1BA30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mfb=3RN2013-1BA30&lang=en)



