

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) Galvanic  
 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	1.7
• 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	4
<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	0.5
<b>Duration of inrush current peak</b>		
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	ms	50

Measuring circuit		
<b>Buffering time in the event of power failure minimum</b>	ms	40
Precision		
<b>Relative metering precision</b>	%	2

Auxiliary circuit		
<b>Material of switching contacts</b>		AgSnO <sub>2</sub>
<b>Number of NC contacts</b>		0
• for auxiliary contacts		
<b>Number of NO contacts</b>		0
• for auxiliary contacts		
<b>Number of CO contacts</b>		2
• for auxiliary contacts		
<b>Operating current of auxiliary contacts at DC-13</b>		
• at 24 V	A	1
• at 125 V	A	0.2
• at 250 V	A	0.1

Main circuit		
<b>Operating frequency rated value</b>	Hz	50 ... 60

Outputs		
<b>Ampacity of the output relay at AC-15</b>		
• at 250 V at 50/60 Hz	A	3
<b>Ampacity of the output relay at DC-13</b>		
• at 24 V	A	1
• at 125 V	A	0.2
<b>Continuous current of the DIAZED fuse link of the output relay</b>	A	6

Electromagnetic compatibility		
<b>Conducted interference</b>		
• due to burst acc. to IEC 61000-4-4		2 kV (power ports) / 1 kV (signal ports)
• due to conductor-earth surge acc. to IEC 61000-4-5		2 kV (line to ground)
• due to conductor-conductor surge acc. to IEC 61000-4-5		1 kV (line to line)
<b>Electrostatic discharge acc. to IEC 61000-4-2</b>		6 kV contact discharge / 8 kV air discharge

Galvanic isolation		
<b>Design of the electrical isolation</b>		galvanic
<b>Galvanic isolation</b>		
• between entrance and outlet		Yes
• between the outputs		Yes
• between the voltage supply and other circuits		No

Safety related data		
<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>		
• 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
<b>PFHD with high demand rate acc. to EN 62061</b>	1/h	0.000000038
<b>PFDavg with low demand rate acc. to IEC 61508</b>		0.0041
<b>MTTFd</b>	y	303
<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>	y	3

### Connections/Terminals

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

### Installation/ mounting/ dimensions

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

- at the side
- for grounded parts
  - forwards
  - Backwards
  - upwards
  - at the side
  - downwards
- for live parts
  - forwards
  - Backwards
  - upwards
  - downwards
  - at the side

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	0
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=3RN2012-1BA30>

**Cax online generator**

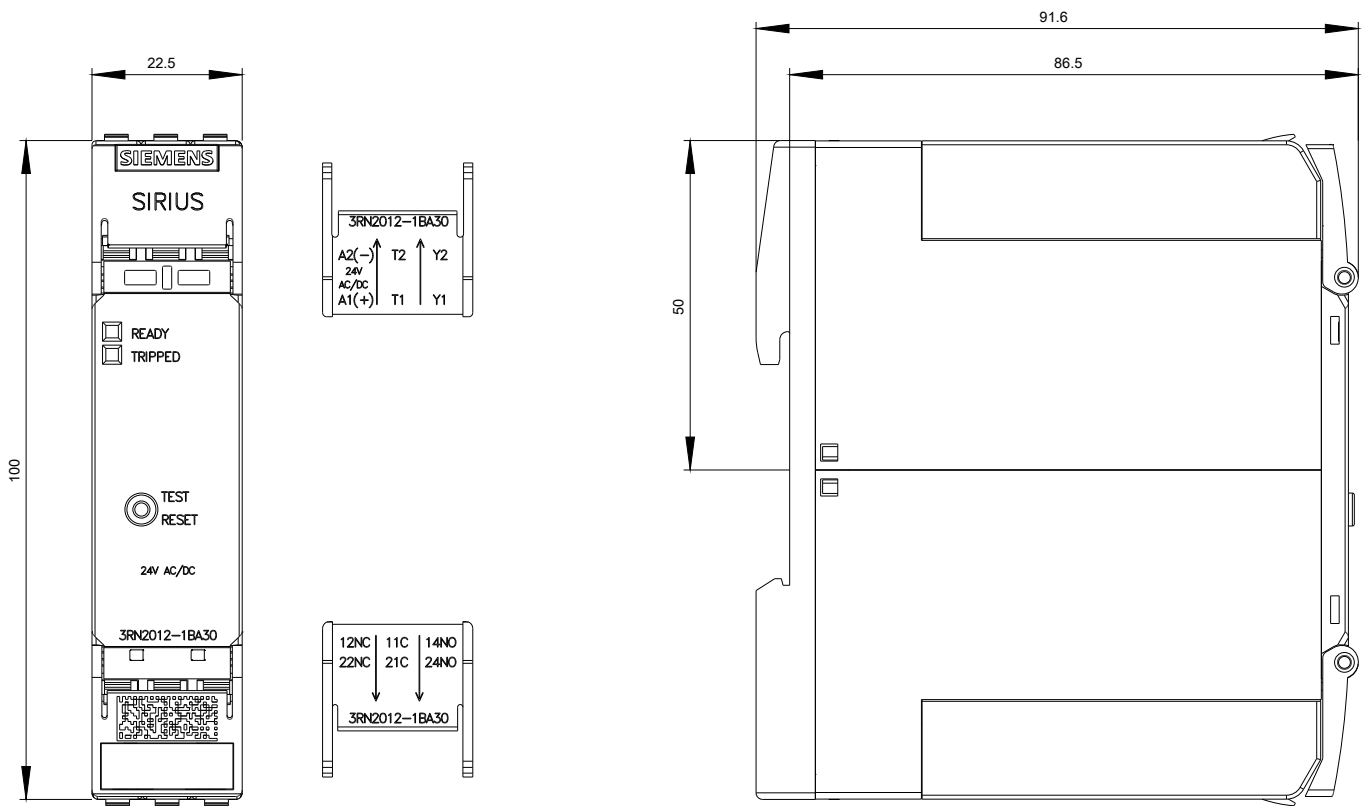
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RN2012-1BA30>

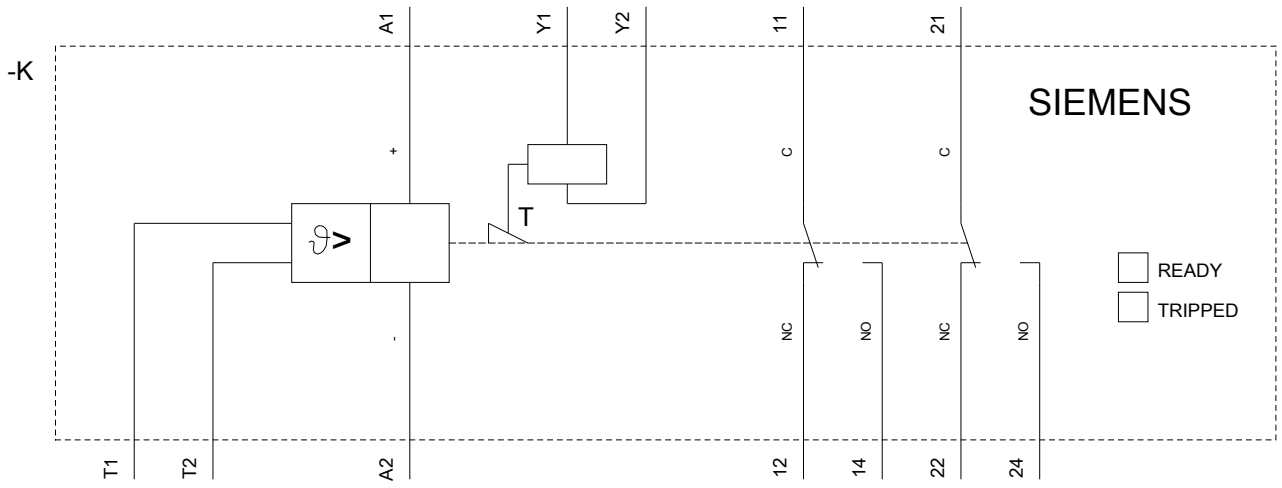
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-1BA30>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mfb=3RN2012-1BA30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mfb=3RN2012-1BA30&lang=en)





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