



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

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, non-volatile
Product type designation	3RN2

General technical data

Display version LED	Yes
Power loss [W] for rated value of the current - at AC in hot operating state - at DC in hot operating state	1.2 W 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
Protection class IP	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
Thermal current of the switching element with contacts maximum	5 A
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	K
Reference code acc. to DIN EN 81346-2	K
Reference code acc. to DIN EN 61346-2	K

Control circuit/ Control

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 DC	
• initial value	0.85
• Full-scale value	1.1
Operating range factor control supply voltage rated value at AC at 50 Hz	
• initial value	0.85
• Full-scale value	1.1
Operating range factor control supply voltage rated value at AC at 60 Hz	
• initial value	0.85
• Full-scale value	1.1
Inrush current peak	
• at 24 V	0.5 A
Duration of inrush current peak	
• at 24 V	50 ms

Measuring circuit

Buffering time in the event of power failure minimum	40 ms
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Precision

Relative metering precision	2 %
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Auxiliary circuit

Material of switching contacts	AgSnO2
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Number of NC contacts for auxiliary contacts	0
Number of NO contacts for auxiliary contacts	0
Number of CO contacts	
• for auxiliary contacts	2
Operating current of auxiliary contacts at DC-13	
• at 24 V	1 A
• at 125 V	0.2 A
• at 250 V	0.1 A

Main circuit

Operating frequency rated value	50 ... 60 Hz
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Outputs

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

Electromagnetic compatibility

Conducted interference	
• 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)
Electrostatic discharge acc. to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge

Galvanic isolation

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

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 (λ_{dd})	0.000000068 1/h

• at rate of non-recognizable hazardous failures (λ _{du})	0.00000031 1/h
PFHD with high demand rate acc. to EN 62061	0.00000038 1/h
PFDavg with low demand rate acc. to IEC 61508	0.0041
MTBF	97 y
MTTFd	303 y
Hardware fault tolerance acc. to IEC 61508	0
T1 value for proof test interval or service life acc. to IEC 61508	3 y

Connections/ Terminals

Product function	
• removable terminal for auxiliary and control circuit	Yes
Type of electrical connection	Push-in terminal
• for auxiliary and control current circuit	spring-loaded terminals (push-in)
Type of connectable conductor cross-sections	
• solid	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
• finely stranded without core end processing	0.5 ... 4 mm ²
• at AWG conductors solid	20 ... 12
• at AWG conductors stranded	20 ... 12
Connectable conductor cross-section	
• solid	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
• finely stranded without core end processing	0.5 ... 4 mm ²
AWG number as coded connectable conductor cross section	
• solid	20 ... 12
• stranded	20 ... 12

Installation/ mounting/ dimensions

Mounting position	any
Mounting type	screw and snap-on mounting onto 35 mm standard mounting 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
- Backwards
- upwards
- at the side
- downwards

0 mm
0 mm
0 mm
0 mm
0 mm

- for live parts

- forwards
- Backwards
- upwards
- downwards
- at the side

0 mm
0 mm
0 mm
0 mm
0 mm

Ambient conditions

Installation altitude at height above sea level

- maximum

2 000 m

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]

Certificates/ approvals

General Product Approval

EMC

For use in hazardous locations



CCC



CSA



UL



RCM



ATEX

Declaration of Conformity

Test Certificates

Marine / Shipping



EG-Konf.

[Miscellaneous](#)

[Type Test Certificates/Test Report](#)



LRS



PRS



DNVGL.COM/AF

other

[Confirmation](#)

Further information

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

www.siemens.com/sirius/catalogs

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RN2012-2BA30>

Cax online generator

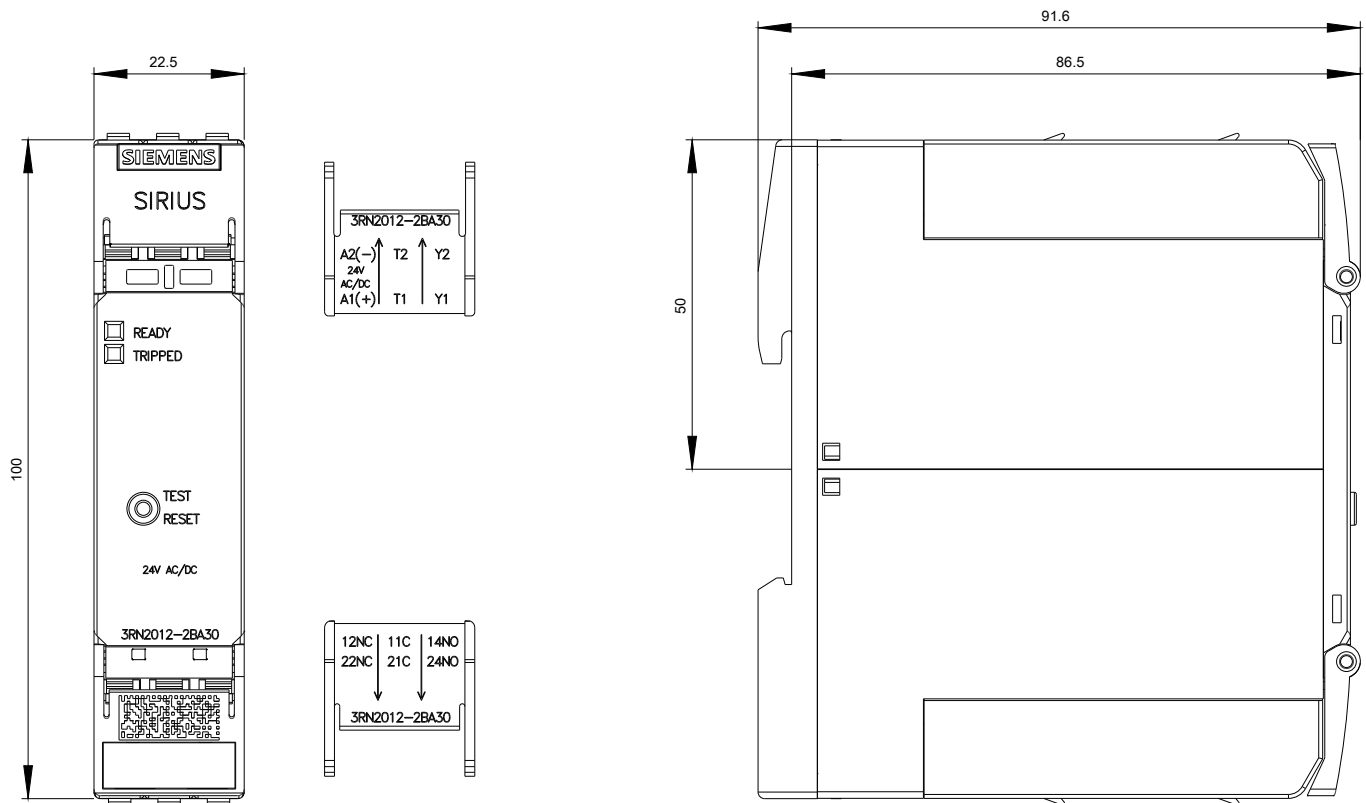
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2012-2BA30>

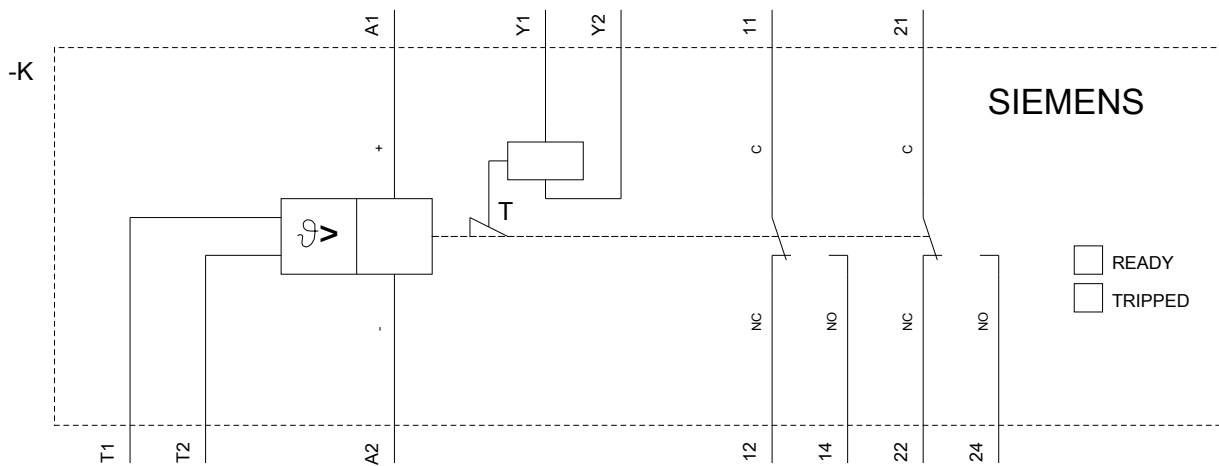
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-2BA30>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2012-2BA30&lang=en





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