

Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure Spring-type terminal 2 change-over contacts bistable US = 24 V-240 V AC/DC Manual/Auto/Remote reset 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	Bistable evaluation unit, open-circuit and short-circuit detection in the sensor circuit (no triggering in the event of control supply voltage failure)
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	1 W
• at DC in hot operating state	1 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 EN 81346-2	K

Control circuit/ Control

Type of voltage of the control supply voltage	AC/DC
Control supply voltage at AC • at 50 Hz rated value • at 60 Hz rated value	24 ... 240 V 24 ... 240 V
Control supply voltage at DC • rated value	24 ... 240 V
Operating range factor control supply voltage rated value at DC • initial value • Full-scale value	0.85 1.1
Operating range factor control supply voltage rated value at AC at 50 Hz • initial value • Full-scale value	0.85 1.1
Operating range factor control supply voltage rated value at AC at 60 Hz • initial value • Full-scale value	0.85 1.1
Inrush current peak • at 24 V • at 240 V	0.7 A 12 A
Duration of inrush current peak • at 24 V • at 240 V	0.25 ms 0.2 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
Number of NC contacts for auxiliary contacts	0
Number of NO contacts for auxiliary contacts	0
Number of CO contacts	
• for auxiliary contacts	2

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	Yes

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	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










Ambient conditions

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 %

Certificates/ approvals

General Product Approval			EMC	Declaration of Conformity	
 CCC	 CSA	 UL		 RCM	 EG-Konf.
Declaration of Conformity	Test Certificates	Marine / Shipping			other
Miscellaneous	Type Test Certificates/Test Report	 LRS	 PRS	 DNVGL.COM/AF	Confirmation

Railway

[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=3RN2012-2BW31>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2012-2BW31>

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

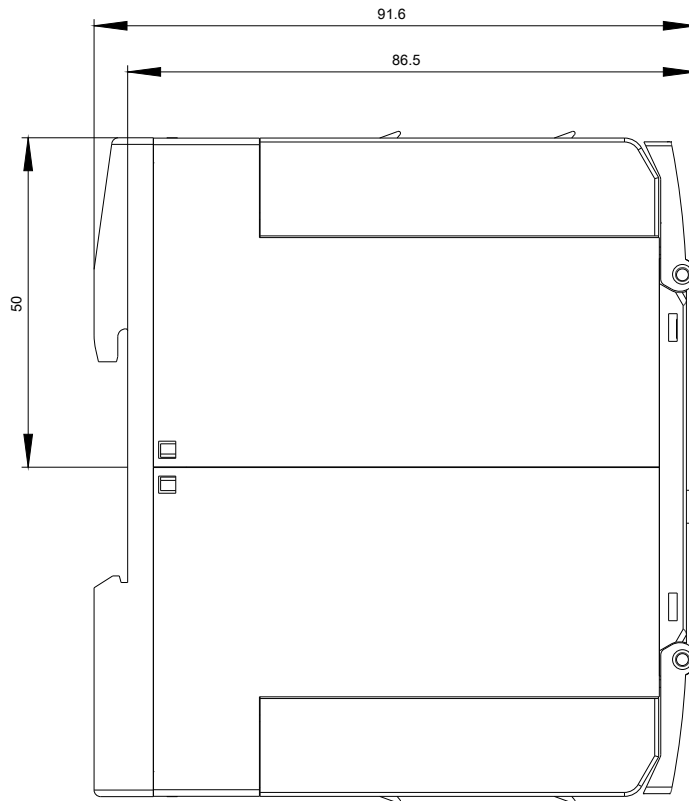
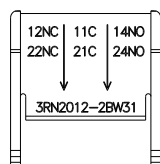
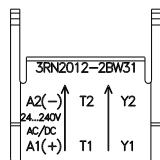
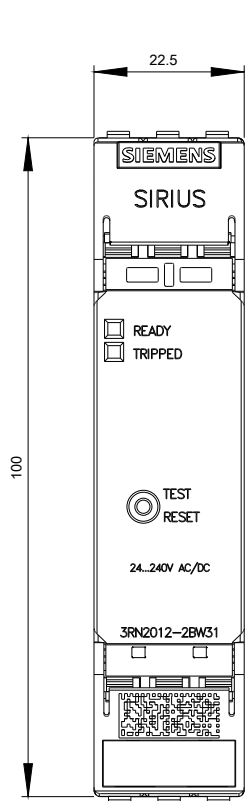
<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-2BW31>

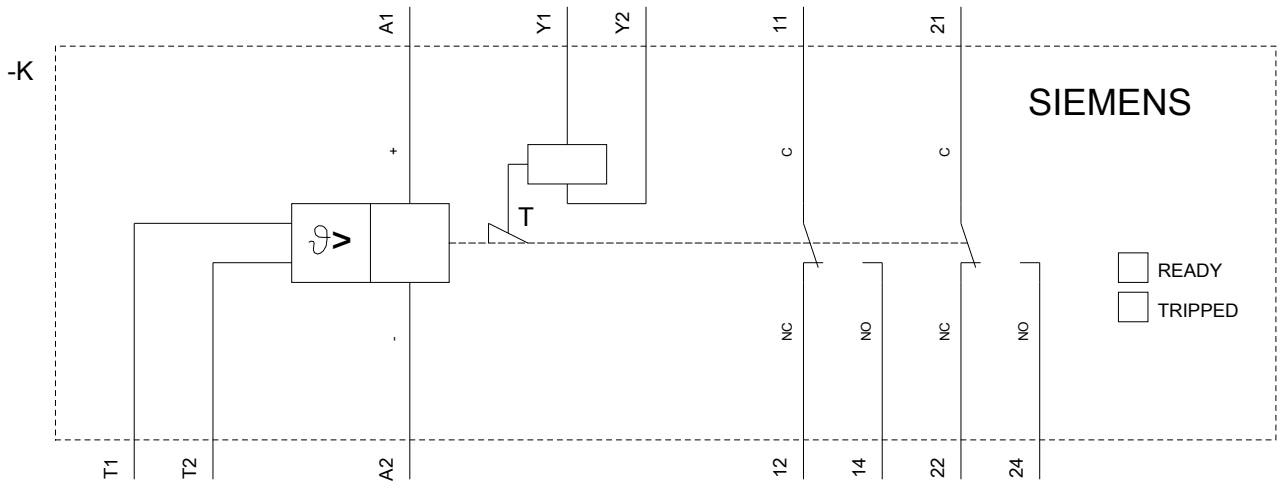
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2012-2BW31&lang=en

Characteristic: Derating

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-2BW31/manual>





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