## **SIEMENS**

Data sheet 3RN2010-1BA30



Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure screw terminal 2 change-over contacts US = 24 V AC/DC Autoreset suitable for bimetallic switch 2 LEDs (READY/TRIPPED) galvanic isolation

product brand name	SIRIUS
product category	SIRIUS 3RN2 thermistor motor protection
product designation	Thermistor motor protection relay
design of the product	Standard evaluation unit, suitable for bimetallic switch
product type designation	3RN2
General technical data	
display version LED	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	0.6 W
<ul> <li>at DC in hot operating state</li> </ul>	0.6 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 IEC 81346-2	К
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	

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value at AC at 60 Hz	
initial value	0.85
full-scale value	1.1
inrush current peak	
● at 24 V	1.8 A
duration of inrush current peak	
• at 24 V	2 ms
Measuring circuit	
buffering time in the event of power failure minimum	40 ms
Precision	
relative metering precision	9 %
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
operational 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	0.171
operating frequency rated value	50 60 Hz
Outputs	30 00 HZ
	3 A
ampacity of the output relay at AC-15 at 250 V at 50/60 Hz ampacity of the output relay at DC-13	3 A
• 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	
Electromagnetic compatibility conducted interference	
	2 kV (power ports) / 1 kV (signal ports)
conducted interference	2 kV (power ports) / 1 kV (signal ports) 2 kV (line to ground)
conducted interference • due to burst acc. to IEC 61000-4-4	
conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5	2 kV (line to ground)
conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2	2 kV (line to ground)
<ul> <li>conducted interference</li> <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 (line to ground) 1 kV (line to line)
conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2	2 kV (line to ground) 1 kV (line to line)
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conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation  • between input and output	2 kV (line to ground) 1 kV (line to line) 6 kV contact discharge / 8 kV air discharge
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conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation  • between input and output  • between the outputs	2 kV (line to ground) 1 kV (line to line) 6 kV contact discharge / 8 kV air discharge  galvanic isolation  Yes Yes
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conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation  • between input and output  • between the outputs  • between the voltage supply and other circuits  Connections/ Terminals  product function removable terminal for auxiliary and control circuit	2 kV (line to ground) 1 kV (line to line) 6 kV contact discharge / 8 kV air discharge  galvanic isolation  Yes Yes No
conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation  • between input and output  • between the outputs  • between the voltage supply and other circuits  Connections/ Terminals  product function removable terminal for auxiliary and control circuit  type of electrical connection	2 kV (line to ground) 1 kV (line to line) 6 kV contact discharge / 8 kV air discharge  galvanic isolation  Yes Yes No  Yes Screw-type terminals
conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation  • between input and output  • between the outputs  • between the voltage supply and other circuits  Connections/ Terminals  product function removable terminal for auxiliary and control circuit  type of electrical connection  • for auxiliary and control circuit	2 kV (line to ground) 1 kV (line to line) 6 kV contact discharge / 8 kV air discharge  galvanic isolation  Yes Yes No  Yes screw-type terminals
conducted interference  • due to burst acc. to IEC 61000-4-4 • due to conductor-earth surge acc. to IEC 61000-4-5 • due to conductor-conductor surge acc. to IEC 61000-4-5 • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation • between input and output • between the outputs • between the voltage supply and other circuits  Connections/ Terminals  product function removable terminal for auxiliary and control circuit  type of electrical connection • for auxiliary and control circuit  type of connectable conductor cross-sections	2 kV (line to ground) 1 kV (line to line) 6 kV contact discharge / 8 kV air discharge  galvanic isolation  Yes Yes No  Yes screw-type terminals screw-type terminals
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conducted interference  • due to burst acc. to IEC 61000-4-4  • due to conductor-earth surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  • due to conductor-conductor surge acc. to IEC 61000-4-5  electrostatic discharge acc. to IEC 61000-4-2  Galvanic isolation  design of the electrical isolation  galvanic isolation  • between input and output  • between the outputs  • between the voltage supply and other circuits  Connections/ Terminals  product function removable terminal for auxiliary and control circuit  type of electrical connection  • for auxiliary and control circuit  type of connectable conductor cross-sections  • solid  • finely stranded with core end processing  • at AWG cables solid  • connectable conductor cross-section finely stranded with core end processing	2 kV (line to ground) 1 kV (line to line)  6 kV contact discharge / 8 kV air discharge  galvanic isolation  Yes Yes No  Yes screw-type terminals screw-type terminals  1x (0.5 4.0 mm²), 2x (0.5 2.5 mm²) 1x (0.5 4 mm²), 2x (0.5 1.5 mm²) 1x (20 12), 2x (20 14) 0.5 4 mm²
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<ul> <li>tightening torque with screw-type terminals</li> </ul>	0.6 0.8 N·m
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting onto 35 mm standard mounting rail
height	100 mm
width	22.5 mm
depth	90 mm
required spacing	
<ul><li>with side-by-side mounting</li></ul>	
— forwards	0 mm
— backwards	0 mm
— upwards	0 mm
— downwards	0 mm
— at the side	0 mm
<ul> <li>for grounded parts</li> </ul>	
— forwards	0 mm
— backwards	0 mm
— upwards	0 mm
— at the side	0 mm
— downwards	0 mm
<ul> <li>for live parts</li> </ul>	
— 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
ambient temperature during storage	-40 +85 °C
ambient temperature during transport	-40 +85 °C
relative humidity during operation	70 %
Certificates/ approvals	













**EMC** 

Miscellaneous

Declaration of Conformity

Declaration of Conformity

**Test Certificates** 

Marine / Shipping

other



Type Test
Certificates/Test
Report







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=3RN2010-1BA30

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2010-1BA30

 ${\bf Service \& Support \ (Manuals, \ Certificates, \ Characteristics, \ FAQs, ...)}$ 

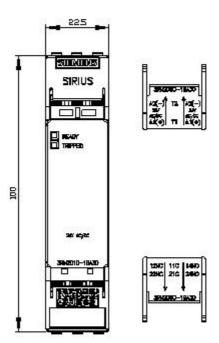
https://support.industry.siemens.com/cs/ww/en/ps/3RN2010-1BA30

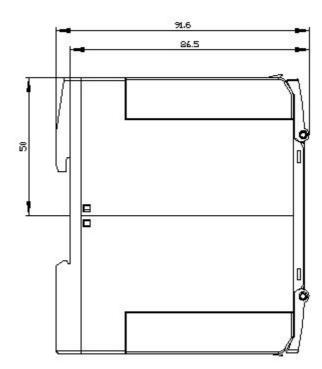
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

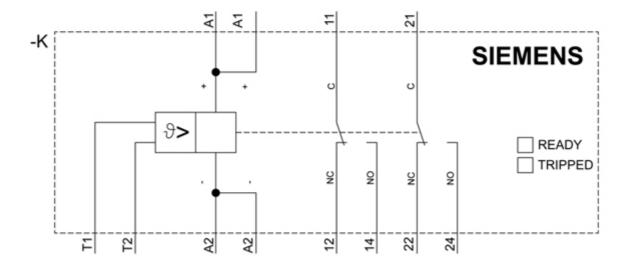
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RN2010-1BA30&lang=en

**Characteristic: Derating** 

https://support.industry.siemens.com/cs/ww/en/ps/3RN2010-1BA30/manual







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