



Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure screw 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	
product function	thermistor motor protection
display version LED	Yes
power loss [W] for rated value of the current	
• at AC in hot operating state	1.2 W
• at DC in hot operating state	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 IEC 81346-2	K
Substance Prohibitance (Date)	28.05.2009 00:00:00
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	
<ul style="list-style-type: none"> initial value full-scale value 	0.85 1.1
inrush current peak	
<ul style="list-style-type: none"> at 24 V 	0.5 A
duration of inrush current peak	
<ul style="list-style-type: none"> at 24 V 	50 ms
Measuring circuit	
buffering time in the event of power failure minimum	40 ms
Precision	
relative metering precision	2 %
Auxiliary circuit	
material of switching contacts	AgSnO ₂
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	
<ul style="list-style-type: none"> at 24 V at 125 V at 250 V 	1 A 0.2 A 0.1 A
Main circuit	
operating frequency rated value	50 ... 60 Hz
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	
<ul style="list-style-type: none"> at 24 V at 125 V 	1 A 0.2 A
continuous current of the DIAZED fuse link of the output relay	6 A
Electromagnetic compatibility	
conducted interference	
<ul style="list-style-type: none"> 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 	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	galvanic isolation
galvanic isolation	
<ul style="list-style-type: none"> between input and output between the outputs between the voltage supply and other circuits 	Yes Yes 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]	
<ul style="list-style-type: none"> at rate of recognizable hazardous failures (λ_{dd}) at rate of non-recognizable hazardous failures (λ_{du}) 	0.000000068 1/h 0.000000031 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 component removable terminal for auxiliary and control circuit	Yes	
type of electrical connection • for auxiliary and control circuit	screw-type terminals screw-type terminals	
type of connectable conductor cross-sections • solid • finely stranded with core end processing • at AWG cables solid	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²) 1x (0.5 ... 4 mm ²), 2x (0.5 ... 1.5 mm ²) 1x (20 ... 12), 2x (20 ... 14)	
connectable conductor cross-section • solid • finely stranded with core end processing	0.5 ... 4 mm ² 0.5 ... 4 mm ²	
AWG number as coded connectable conductor cross section • solid • stranded	20 ... 12 20 ... 12	
tightening torque with screw-type terminals	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 • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — downwards — at the side	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	
Ambient conditions		
installation altitude at height above sea level maximum	2 000 m	
ambient temperature • during operation • during storage • during transport	-25 ... +60 °C -40 ... +85 °C -40 ... +85 °C	
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



Declaration of Conformity	Test Certificates	Marine / Shipping	other
---------------------------	-------------------	-------------------	-------



EG-Konf.

[Type Test Certificates/Test Report](#)



LRS



PRS



DNV-GL

[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=3RN2012-1BA30>

Cax online generator

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

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

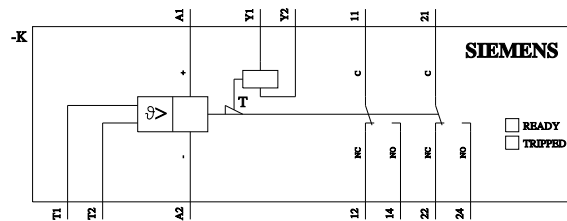
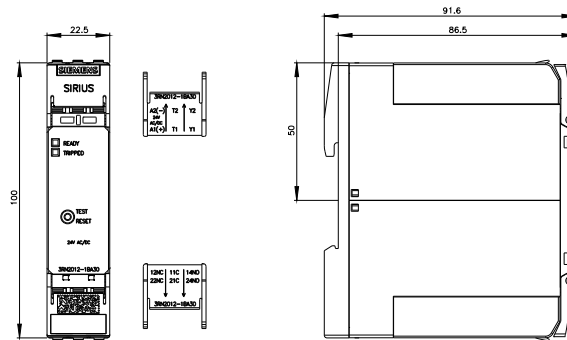
<https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-1BA30>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2012-1BA30&lang=en

Characteristic: Derating

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



last modified:

5/1/2021