SIEMENS

Data sheet 3RN2012-1BW30



thermistor motor protection relay standard evaluation unit 22.5 mm enclosure screw terminal 2 changeover contacts Us = 24 V-240 V AC/DC manual/auto/remote RESET with ATEX approval 2 LEDs (ready/tripped) electrical 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 	1.7 W
 at DC in hot operating state 	1.7 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
shock resistance according to IEC 60068-2-27	11g / 15 ms
vibration resistance according to IEC 60068-2-6	10 55 Hz: 0.35 mm
mechanical service life (operating cycles) typical	10 000 000
electrical endurance (operating cycles) at AC-15 at 230 V typical	100 000
thermal current of the switching element with contacts maximum	5 A
reference code according to IEC 81346-2	K
Substance Prohibitance (Date)	05/28/2009
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1
Weight	0.18 kg
Product Function	
product function	
• error memory	Yes
 dynamic open-circuit detection 	Yes
external reset	Yes
• auto-RESET	Yes
• manual RESET	Yes
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
at 50 Hz rated value	24 240 V
at 60 Hz rated value	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	0.85
full-scale value	1.1
operating range factor control supply voltage rated value at	1.1
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	0.7 A
• at 240 V	12 A
duration of inrush current peak	
• at 24 V	0.25 ms
• at 240 V	0.2 ms
Measuring circuit	
buffering time in the event of power failure minimum	40 ms
Precision	0.07
relative metering precision	2 %
Auxiliary circuit	1000
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 AC-15 maximum	3 A
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	
operating frequency rated value	50 60 Hz
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 according to IEC 61000-4-4 	2 kV (power ports) / 1 kV (signal ports)
 due to conductor-earth surge according to IEC 61000-4-5 	2 kV (line to ground)
due to conductor-conductor surge according to IEC	1 kV (line to line)
61000-4-5	CIA/ anatost discharge (CIA/ in the
electrostatic discharge according to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge
Galvanic isolation	galvania inelation
design of the electrical isolation	galvanic isolation
galvanic isolation	Yes
between input and outputbetween the outputs	Yes
 between the outputs between the voltage supply and other circuits 	Yes
Safety related data	160
failure rate [FIT] at rate of recognizable hazardous failures	6.8E-8 1/h
(\lambdadd)	
failure rate [FIT] at rate of non-recognizable hazardous failures (λdu)	3.08E-7 1/h
average diagnostic coverage level (DCavg)	18 %
MTBF	97 a
MTTFd	303 a
IEC 62061	

Safety Integrity Level (SIL) according to IEC 62061	SIL 1
PFHD with high demand rate according to IEC 62061	3.76E-7 1/h
ISO 13849	
performance level (PL) according to EN ISO 13849-1	С
category according to EN ISO 13849-1	1
performance level (PL) according to ISO 13849-1	PL c
IEC 61508	
Safety Integrity Level (SIL) according to IEC 61508	1
safety device type according to IEC 61508-2	Type B
PFDavg with low demand rate according to IEC 61508	0.0041
Safe failure fraction (SFF)	74 %
hardware fault tolerance according to IEC 61508	0
T1 value for proof test interval or service life according to IEC	3 a
61508	
Connections/ Terminals	
product component removable terminal for auxiliary and	Yes
control circuit	
type of electrical connection	screw terminal
for auxiliary and control circuit	screw-type terminals
type of connectable conductor cross-sections	4 (05 4 3) 0 (05 05 3)
• solid	1x (0.5 4 mm²), 2x (0.5 2.5 mm²)
finely stranded with core end processing	1x (0.5 4 mm²), 2x (0.5 1.5 mm²)
for AWG cables solid	1x (20 12), 2x (20 14)
connectable conductor cross-section	
• solid	0.5 4 mm²
finely stranded with core end processing	0.5 4 mm²
AWG number as coded connectable conductor cross section	
• solid	20 12
	20 12
• stranded	
tightening torque with screw-type terminals	0.6 0.8 N·m
Installation/ mounting/ dimensions	
mounting position	any
mounting position fastening method	screw and snap-on mounting onto 35 mm DIN rail
mounting position fastening method height	screw and snap-on mounting onto 35 mm DIN rail 100 mm
mounting position fastening method height width	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm
mounting position fastening method height width depth	screw and snap-on mounting onto 35 mm DIN rail 100 mm
mounting position fastening method height width depth required spacing	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — backwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — at the side • for grounded parts — forwards — backwards — upwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — at the side • to grounded parts — at the side	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — at the side • at the side — downwards — backwards — backwards — backwards — backwards — upwards — at the side — downwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — at the side • for grounded parts — forwards — backwards — upwards — backwards — upwards — obackwards — upwards — at the side — downwards • for live parts	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards — at the side — downwards • for live parts — forwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards • for live parts — forwards — backwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards • for live parts — forwards — backwards — backwards — upwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — downwards • for live parts — forwards — backwards — upwards — backwards — upwards — downwards	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — backwards — upwards — downwards — at the side	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — at the side — downwards — backwards — upwards — backwards — upwards — backwards — upwards — at the side Ambient conditions	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m
mounting position fastening method height width depth required spacing • with side-by-side mounting — forwards — backwards — upwards — downwards — at the side • for grounded parts — forwards — backwards — upwards — at the side • for grounded parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — at the side — downwards • for live parts — forwards — backwards — upwards — backwards — upwards — at the side Ambient conditions installation altitude at height above sea level maximum ambient temperature	screw and snap-on mounting onto 35 mm DIN rail 100 mm 22.5 mm 90 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 m

during transport	-40 +85 °C
relative humidity during operation maximum	70 %
explosion protection category for dust	[Ex t] [Ex p]
explosion protection category for gas	[Ex e] [Ex d] [Ex px]
Approvale Cortificator	

Approvals Certificates

General Product Approval

EMV













For use in hazardous locations

Test Certificates

Maritime application













other

Environment



Confirmation

Environmental Confirmations

Further information

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

Information for data generation and storage

https://support.industry.siemens.com/cs/ww/en/view/109995012

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=3RN2012-1BW30

Cax online generator

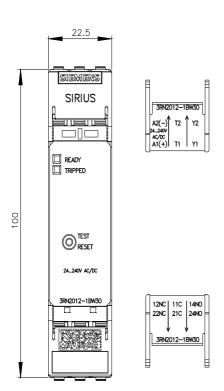
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2012-1BW30

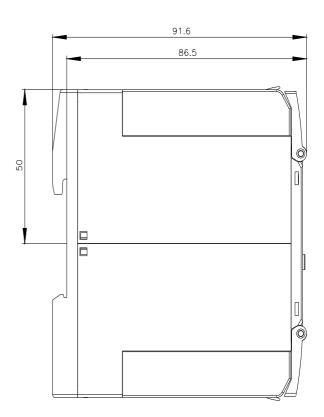
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

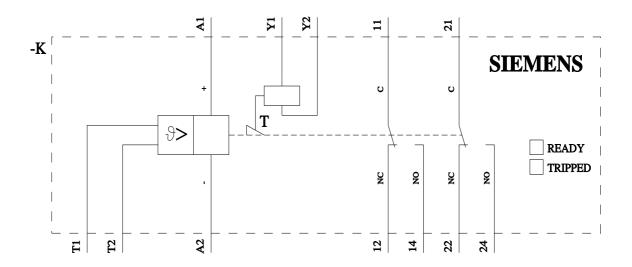
https://support.industry.siemens.com/cs/ww/en/ps/3RN2012-1BW30

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2012-1BW30&lang=en







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