



thermistor motor protection relay standard evaluation unit 22.5 mm enclosure
 spring-loaded terminal 2 changeover contacts $U_s = 24\text{ V}-240\text{ V AC/DC}$
 manual/auto/remote RESET with ATEX approval 2 LEDs (ready/tripped) safe
 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, safe disconnection, 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	6 kV
maximum permissible voltage for protective separation	
• between auxiliary and auxiliary circuit	300 V
• between control and auxiliary circuit	300 V
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 24 V typical	100 000
• 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)	07/01/2006
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	0.177 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	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> initial value full-scale value 	0.85 1.1
operating range factor control supply voltage rated value at AC at 50 Hz	
<ul style="list-style-type: none"> initial value full-scale value 	0.85 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 at 240 V 	0.7 A 12 A
duration of inrush current peak	
<ul style="list-style-type: none"> 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
Precision	
relative metering precision	2 %
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 AC-15 maximum	3 A
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
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 according to IEC 61000-4-4 due to conductor-earth surge according to IEC 61000-4-5 due to conductor-conductor surge according 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 according to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge
Galvanic isolation	
design of the electrical isolation	Protective separation
galvanic isolation	
<ul style="list-style-type: none"> between input and output between the outputs between the voltage supply and other circuits 	Yes Yes Yes
Safety related data	
failure rate [FIT] at rate of recognizable hazardous failures (λ_{dd})	6.8E-8 1/h
failure rate [FIT] at rate of non-recognizable hazardous failures (λ_{du})	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	c
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 61508	3 a
Connections/ Terminals	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection • for auxiliary and control circuit	spring-loaded terminal (push-in) spring-loaded terminals (push-in)
type of connectable conductor cross-sections • solid • finely stranded with core end processing • finely stranded without core end processing • for AWG cables solid • for AWG cables stranded	1x (0.5 ... 4 mm ²) 1x (0.5 ... 2.5 mm ²) 0.5 ... 4 mm ² 1x (20 ... 12) 20 ... 12
connectable conductor cross-section • solid • finely stranded with core end processing • finely stranded without core end processing	0.5 ... 4 mm ² 0.5 ... 2.5 mm ² 0.5 ... 4 mm ²
AWG number as coded connectable conductor cross section • solid • stranded	20 ... 12 20 ... 12
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting onto 35 mm DIN 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	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 0 mm 0 mm 0 mm 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 maximum	70 %
explosion protection category for dust	[Ex t] [Ex p]
explosion protection category for gas	[Ex e] [Ex d] [Ex px]

Approvals Certificates

General Product Approval

EMV



For use in hazardous locations

Test Certificates

Maritime application



[Miscellaneous](#)

[Type Test Certificates/Test Report](#)



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=3RN2013-2BW30>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2013-2BW30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2013-2BW30>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2013-2BW30&lang=en



