



Thermistor motor protection relay Standard evaluation unit 22.5 mm enclosure Spring-type terminal 2 change-over contacts US = 24 V AC/DC Manul/Remote-Reset with ATEX approval 2 LEDs (READY/TRIPPED) galvanic isolation Test/reset button Wire break monitoring Short circuit monitoring

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|---|---|
| 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 |
| 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 | 1.2 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 |

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| <ul style="list-style-type: none"> • 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 | 0.85 |
| <ul style="list-style-type: none"> • full-scale value | 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 | 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 | |
| <ul style="list-style-type: none"> • at 24 V | 1 A |
| <ul style="list-style-type: none"> • at 125 V | 0.2 A |
| <ul style="list-style-type: none"> • at 250 V | 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 | 1 A |
| <ul style="list-style-type: none"> • at 125 V | 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 | 2 kV (power ports) / 1 kV (signal ports) |
| <ul style="list-style-type: none"> • due to conductor-earth surge acc. to IEC 61000-4-5 | 2 kV (line to ground) |
| <ul style="list-style-type: none"> • 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 | |
| <ul style="list-style-type: none"> • between input and output | Yes |
| <ul style="list-style-type: none"> • between the outputs | Yes |
| <ul style="list-style-type: none"> • between the voltage supply and other circuits | 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}) | 0.000000068 1/h |
| <ul style="list-style-type: none"> • at rate of non-recognizable hazardous failures (λ_{du}) | 0.00000031 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 |

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|---|--|--|--------------------------------|
| T1 value for proof test interval or service life acc. to IEC 61508 | | 3 y | |
| Connections/ Terminals | | | |
| product function removable terminal for auxiliary and control circuit | | Yes | |
| type of electrical connection <ul style="list-style-type: none">for auxiliary and control circuit | | Push-in terminal spring-loaded terminals (push-in) | |
| type of connectable conductor cross-sections <ul style="list-style-type: none">solidfinely stranded with core end processingfinely stranded without core end processingat AWG cables solidat AWG cables stranded | | 0.5 ... 4 mm ² 0.5 ... 2.5 mm ² 0.5 ... 4 mm ² 20 ... 12 20 ... 12 | |
| <ul style="list-style-type: none">connectable conductor cross-section solidconnectable conductor cross-section finely stranded with core end processingconnectable conductor cross-section finely stranded without core end processing | | 0.5 ... 4 mm ² 0.5 ... 2.5 mm ² 0.5 ... 4 mm ² | |
| <ul style="list-style-type: none">AWG number as coded connectable conductor cross section solidAWG number as coded connectable conductor cross section stranded | | 20 ... 12 20 ... 12 | |
| 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 style="list-style-type: none">with side-by-side mounting<ul style="list-style-type: none">forwardsbackwardsupwardsdownwardsat the sidefor grounded parts<ul style="list-style-type: none">forwardsbackwardsupwardsat the sidedownwardsfor live parts<ul style="list-style-type: none">forwardsbackwardsupwardsdownwardsat 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 | |
| <ul style="list-style-type: none">ambient temperature during operationambient temperature during storageambient temperature 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

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LRS



PRS



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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=3RN2011-2BA30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RN2011-2BA30>

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

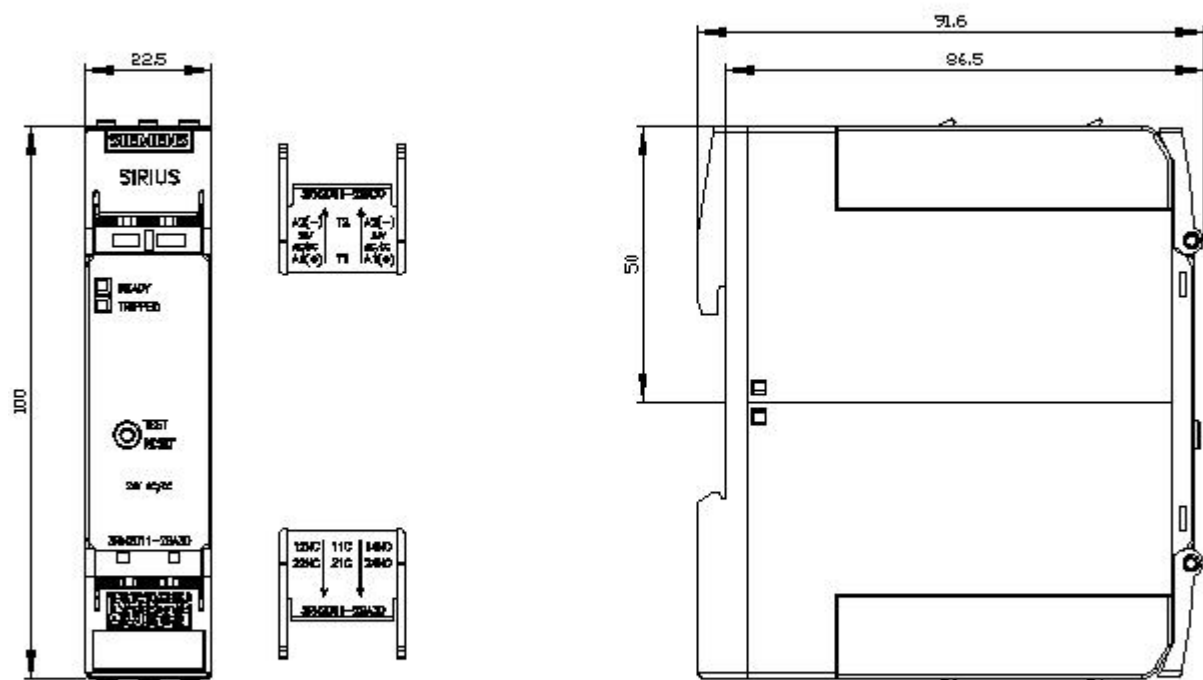
<https://support.industry.siemens.com/cs/ww/en/ps/3RN2011-2BA30>

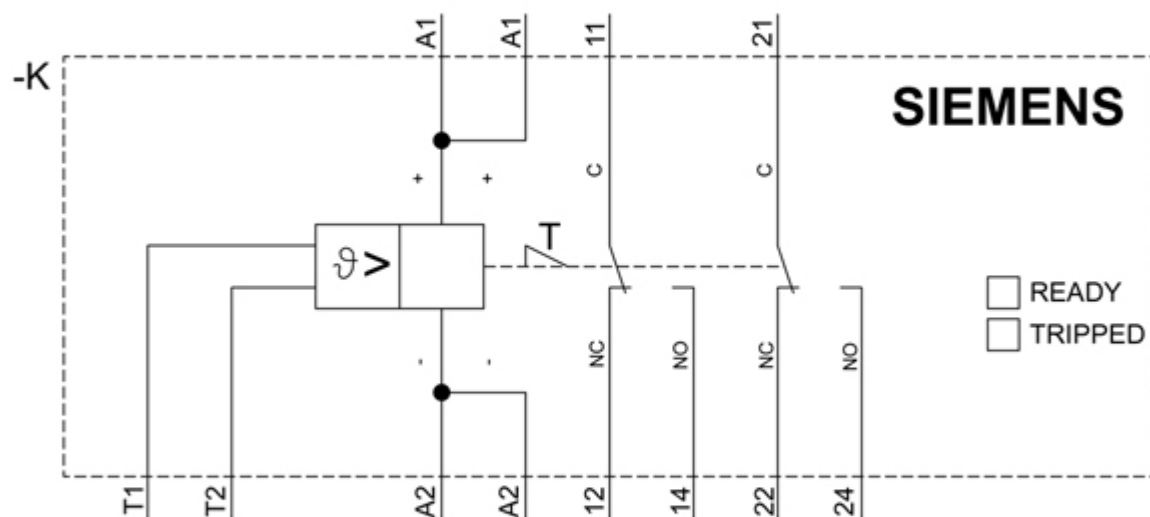
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RN2011-2BA30&lang=en

Characteristic: Derating

<https://support.industry.siemens.com/cs/ww/en/ps/3RN2011-2BA30/manual>





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