

Temperature monitoring relay with display and IO-Link for resistance temperature sensors and thermocouples, 24 V DC, Width 22.5 mm, 2 change-over contacts, Spring-type terminal (push-in)

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| product brand name | SIRIUS |
| product designation | Temperature monitoring relay |
| design of the product | Digital device for IO-Link, 1 sensor, 2 threshold values |
| product type designation | 3RS2 |
| General technical data | |
| product function | temperature monitoring |
| display version LED | No |
| insulation voltage for overvoltage category III according to IEC 60664 with degree of pollution 3 rated value | 300 V |
| test voltage for isolation test | 6 kV |
| degree of pollution | 3 |
| maximum permissible voltage for protective separation | |
| • between control and auxiliary circuit | 300 V |
| protection class IP | 20 |
| shock resistance according to IEC 60068-2-27 | 11g / 15 ms |
| switching behavior | monostable |
| 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 |
| certificate of suitability relating to ATEX | Yes, with sensor extension module 3RS29 |
| reference code according to IEC 81346-2 | K |
| influence of the surrounding temperature | 0.05% per K deviation from T20 |
| measurable temperature | |
| • initial value | -99 °C |
| • full-scale value | 1 800 °C |
| measurable Fahrenheit temperature | |
| • initial value | -146 °F |
| • full-scale value | 3 276 °F |
| Substance Prohibitance (Date) | 05/01/2012 |
| SVHC substance name | Blei - 7439-92-1 Bleimonoxid (Bleioxid) - 1317-36-8 2-Methyl-1-(4-methylthiophenyl)-2-morpho - 71868-10-5 |
| product function | |
| • error memory | Yes |
| • external reset | Yes |
| design of the sensor connectable | Resistance sensors: Pt100, Pt1000, KTY83-110, KTY84, NTC Thermocouples: Type J, K, T, E, N, S, R, B |
| measurable temperature with KTY-sensor maximum | 300 °C |
| sensor current with KTY-sensor | 0.33 mA |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | DC |
| control supply voltage at DC rated value | 24 ... 24 V |
| control supply voltage 1 | |
| • at DC rated value | 24 V |
| • at DC | 24 ... 24 V |
| operating range factor control supply voltage rated value at DC | |
| • initial value | 0.7 |
| • full-scale value | 1.25 |
| supply voltage frequency for auxiliary and control circuit | 50 ... 60 Hz |

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| number of measuring circuits | 1 |
| buffering time in the event of power failure minimum | 20 ms |
| Precision | |
| relative metering precision | 1 % |
| Short-circuit protection | |
| design of the fuse link | |
| <ul style="list-style-type: none"> for short-circuit protection of the NO contacts of the relay outputs required | gL/gG: 6 A or MCB type C: 1 A |
| <ul style="list-style-type: none"> for short circuit protection of the NC contacts of the relay outputs required | gL/gG: 6 A or MCB type C: 1 A |
| design of the fuse link | |
| <ul style="list-style-type: none"> for short-circuit protection of the NO contacts of the relay outputs safety-related required | gL/gG: 2 A or MCB type C: 1 A |
| <ul style="list-style-type: none"> for short circuit protection of the NC contacts of the relay outputs safety-related required | gL/gG: 2 A or MCB type C: 1 A |
| Communication/ Protocol | |
| protocol is supported IO-Link protocol | Yes |
| IO-Link transfer rate | COM2 (38,4 kBaud) |
| point-to-point cycle time between master and IO-Link device minimum | 5 ms |
| type of voltage supply via input/output link master | Yes |
| data volume | |
| <ul style="list-style-type: none"> of the address range of the inputs with cyclical transfer total | 4 byte |
| <ul style="list-style-type: none"> of the address range of the outputs with cyclical transfer total | 2 byte |
| 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 | 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 |
| contact reliability of auxiliary contacts | one incorrect switching operation of 100 million switching operations (17 V, 5 mA) |
| contact rating of auxiliary contacts according to UL | R300 / B300 |
| 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 | 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 |
| continuous current of DIAZED fuse link of the output relay safety-related | 2 A |
| Electromagnetic compatibility | |
| EMC emitted interference according to IEC 60947-1 | class A |
| conducted interference | |
| <ul style="list-style-type: none"> due to burst according to IEC 61000-4-4 | 2 kV (power ports), 1 kV (signal ports) |
| <ul style="list-style-type: none"> due to conductor-earth surge according to IEC 61000-4-5 | 2 kV (line to ground) |
| <ul style="list-style-type: none"> due to conductor-conductor surge according to IEC 61000-4-5 | 1 kV (line to line) |
| field-based interference according to IEC 61000-4-3 | 10 V/m |
| 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 | Yes |
| <ul style="list-style-type: none"> between the outputs | Yes |
| <ul style="list-style-type: none"> between the voltage supply and other circuits | Yes |
| Safety related data | |
| SIL Claim Limit (subsystem) according to EN 62061 | 1 |

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| performance level (PL) according to EN ISO 13849-1 | c |
| category according to EN ISO 13849-1 | 1 |
| Safe failure fraction (SFF) | 66 % |
| hardware fault tolerance according to IEC 61508 | 0 |
| T1 value for proof test interval or service life according to IEC 61508 | 20 a |

Connections/ Terminals

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|---|-----------------------------------|
| product component removable terminal for auxiliary and control circuit | Yes |
| type of electrical connection | spring-loaded terminal (push-in) |
| <ul style="list-style-type: none"> • for auxiliary and control circuit | spring-loaded terminals (push-in) |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • solid | 0.5 ... 4 mm ² |
| <ul style="list-style-type: none"> • finely stranded with core end processing | 0.5 ... 2.5 mm ² |
| <ul style="list-style-type: none"> • finely stranded without core end processing | 0.5 ... 4 mm ² |
| <ul style="list-style-type: none"> • for AWG cables solid | 20 ... 12 |
| <ul style="list-style-type: none"> • for AWG cables stranded | 20 ... 12 |
| connectable conductor cross-section | |
| <ul style="list-style-type: none"> • solid | 0.5 ... 4 mm ² |
| <ul style="list-style-type: none"> • finely stranded with core end processing | 0.5 ... 2.5 mm ² |
| <ul style="list-style-type: none"> • finely stranded without core end processing | 0.5 ... 4 mm ² |
| AWG number as coded connectable conductor cross section | |
| <ul style="list-style-type: none"> • solid | 20 ... 12 |
| <ul style="list-style-type: none"> • stranded | 20 ... 12 |

Installation/ mounting/ dimensions










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| 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 | |
| <ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — backwards — upwards — downwards — at the side | 0 mm |
| <ul style="list-style-type: none"> — forwards | 0 mm |
| <ul style="list-style-type: none"> — backwards | 0 mm |
| <ul style="list-style-type: none"> — upwards | 0 mm |
| <ul style="list-style-type: none"> — downwards | 0 mm |
| <ul style="list-style-type: none"> — at the side | 0 mm |
| <ul style="list-style-type: none"> • for grounded parts <ul style="list-style-type: none"> — forwards — backwards — upwards — at the side — downwards | 0 mm |
| <ul style="list-style-type: none"> — forwards | 0 mm |
| <ul style="list-style-type: none"> — backwards | 0 mm |
| <ul style="list-style-type: none"> — upwards | 0 mm |
| <ul style="list-style-type: none"> — at the side | 0 mm |
| <ul style="list-style-type: none"> — downwards | 0 mm |
| <ul style="list-style-type: none"> • for live parts <ul style="list-style-type: none"> — forwards — backwards — upwards — downwards — at the side | 0 mm |
| <ul style="list-style-type: none"> — forwards | 0 mm |
| <ul style="list-style-type: none"> — backwards | 0 mm |
| <ul style="list-style-type: none"> — upwards | 0 mm |
| <ul style="list-style-type: none"> — downwards | 0 mm |
| <ul style="list-style-type: none"> — at the side | 0 mm |

Ambient conditions

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| installation altitude at height above sea level maximum | 2 000 m |
| ambient temperature | |
| <ul style="list-style-type: none"> • during operation | -25 ... +60 °C |
| <ul style="list-style-type: none"> • during storage | -40 ... +85 °C |
| <ul style="list-style-type: none"> • during transport | -40 ... +85 °C |
| relative humidity during operation | 70 % |
| explosion protection category for dust | Ex II (2) D [b1] [Ex h] [pyb] [tb] [mb] [kb] [sb] III C Db |
| explosion protection category for gas | Ex II (2) G [b1] [Ex h] [db] [eb] [pyb] [mb] [ob] [q] [kb] [sb] II C Gb |

Approvals Certificates

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|---------------------------------|------------|---------------------------|
| General Product Approval | EMC | For use in hazard- |
|---------------------------------|------------|---------------------------|

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|---|--|---|---|---|---|
| | | | | | ous locations |
|  | Confirmation |  |  |  | Explosion Protection Certificate |
| For use in hazardous locations | Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates | Marine / Shipping | |
|  | Type Examination Certificate |  |  | Special Test Certificate |  |
| Marine / Shipping | other | Railway | | | |
|  | Confirmation | Confirmation | | | |

Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

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

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=3RS2800-2BA40>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RS2800-2BA40>

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

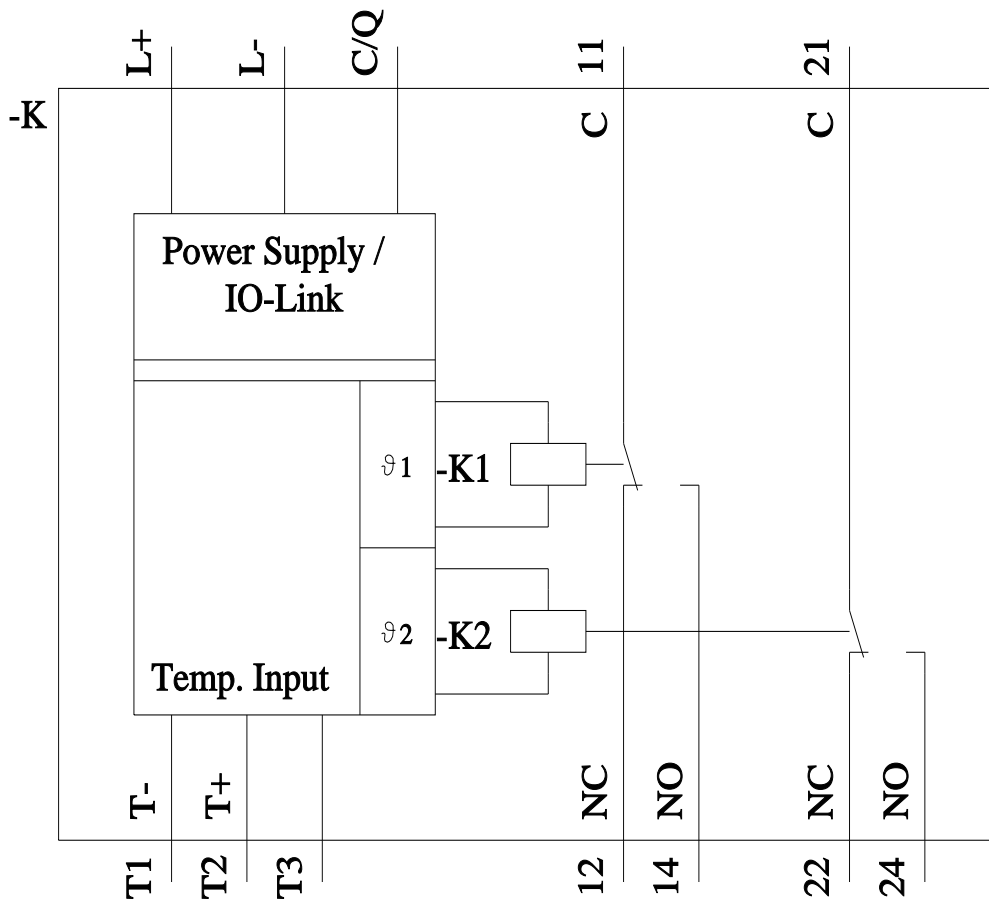
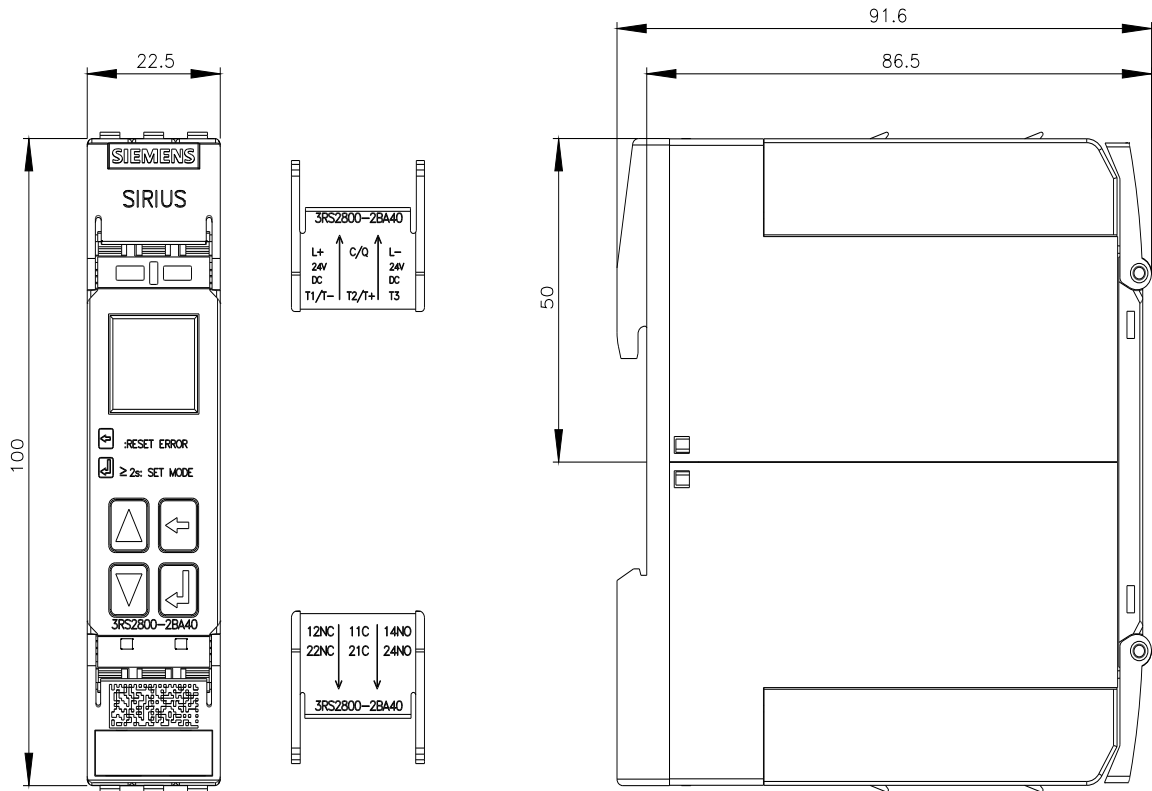
<https://support.industry.siemens.com/cs/ww/en/ps/3RS2800-2BA40>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RS2800-2BA40&lang=en

Characteristic: Derating

<https://support.industry.siemens.com/cs/ww/en/ps/3RS2800-2BA40/manual>



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