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## Data sheet 3TK2827-1BB41



Figure similar

SIRIUS safety relay with relay enabling circuits (EC) 24 V DC, 45 mm overall width Screw terminal EC instantaneous: 2 NO EC delayed: 2NO, 0.05...3 s SC: 1NC monitored start Basic device Maximum achieved SIL: 3/2, PL: e/d

| | |
|---|---|
| **product brand name** | SIRIUS |
| **product designation** | safety relays |
| **design of the product** | for EMERGENCY-STOP and safety doors |
| **product type designation** | 3TK28 |
| **Product Function** | |
| **product function** | |
| ● automatic start | No |
| ● light barrier monitoring | No |
| ● standstill monitoring | No |
| ● protective door monitoring | No |
| ● magnetically operated switch monitoring NC-NO | No |
| ● magnetically operated switch monitoring NC-NC | No |
| ● rotation speed monitoring | No |
| ● laser scanner monitoring | No |
| ● light array monitoring | No |
| ● EMERGENCY OFF function | Yes |
| ● monitored start-up | Yes |
| ● pressure-sensitive mat monitoring | Yes |
| **product feature cross-circuit-proof** | Yes |
| **suitability for interaction press control** | No |
| **suitability for use** | |
| ● monitoring of floating sensors | Yes |
| ● monitoring of non-floating sensors | No |
| ● position switch monitoring | Yes |
| ● EMERGENCY-OFF circuit monitoring | Yes |
| ● valve monitoring | No |
| ● opto-electronic protection device monitoring | No |
| ● tactile sensor monitoring | No |
| ● magnetically operated switch monitoring | No |
| ● proximity switch monitoring | No |
| ● safety-related circuits | Yes |
| **General technical data** | |
| certificate of suitability UL approval | Yes |
| **insulation voltage rated value** | 300 V |
| **surge voltage resistance rated value** | 4 000 V |
| **protection class IP** | |
| ● of the enclosure | IP20 |
| ● of the terminal | IP20 |


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| **shock resistance** | 8 g / 10 ms |
| **vibration resistance according to IEC 60068-2-6** | 5 ... 500 Hz: 0,075 mm |
| **operating frequency maximum** | 1 000 1/h |
| electrical endurance (operating cycles) typical | 100 000 |
| **Substance Prohibitance (day/month/year)** | 05/01/2012 |
| **SVHC substance name** | Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol CAS-No. 79-94-7<br>6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol CAS-No. 119-47-1 |
| **Net Weight** | 0.442 kg |
| **Ambient conditions** | |
| installation altitude at height above sea level maximum | 2 000 m |
| **ambient temperature** | |
| ● during operation | -25 ... +60 °C |
| ● during storage | -40 ... +80 °C |
| relative humidity during operation | 10 ... 95 % |
| air pressure according to SN 31205 | 90 ... 106 kPa |
| **Electromagnetic compatibility** | |
| **installation environment regarding EMC** | This product is suitable for Class A environments only. In household environments, this device can cause unwanted radio interference. The user is required to implement appropriate measures in this case. |
| **EMC emitted interference** | EN 60947-5-1 |
| **Safety related data** | |
| product function suitable for safety function | Yes |
| **stop category according to IEC 60204-1** | 0 + 1 |
| IEC 62061 | |
| SIL Claim Limit (subsystem) according to EN 62061 | 3 |
| PFHD with high demand rate according to IEC 62061 | 2.7E-9 1/h |
| ISO 13849 | |
| category according to EN ISO 13849-1 | 4 |
| **performance level (PL)** | |
| ● for delayed release circuit according to ISO 13849-1 | d |
| IEC 61508 | |
| **Safety Integrity Level (SIL)** | |
| ● according to IEC 61508 | 3 |
| ● for delayed release circuit according to IEC 61508 | SIL2 |
| **safety device type according to IEC 61508-2** | Type A |
| hardware fault tolerance according to IEC 61508 | 1 |
| T1 value for proof test interval or service life according to IEC 61508 | 20 a |
| Electrical Safety | |
| **touch protection against electrical shock** | finger-safe |
| **Short-circuit protection** | |
| design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required | gL/gG: 6 A, or quick: 10 A |
| **Inputs** | |
| **design of input** | |
| ● cascading input/functional switching | No |
| ● feedback input | Yes |
| ● start input | Yes |
| **number of sensor inputs** | |
| ● 1-channel or 2-channel | 1 |
| **Outputs** | |
| **number of outputs as contact-affected switching element** | |
| ● as NC contact | |
| — for signaling function instantaneous contact | 1 |
| ● as NO contact | |
| — safety-related instantaneous contact | 2 |
| — safety-related delayed switching | 2 |
| **mechanical service life (operating cycles) typical** | 10 000 000 |
| **thermal current of the switching element with contacts maximum** | 5 A |


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| **number of outputs as contact-less semiconductor switching element** | |
| ● for signaling function | |
| — delayed switching | 0 |
| — instantaneous contact | 0 |
| ● safety-related | |
| — delayed switching | 0 |
| — instantaneous contact | 0 |
| **switching capacity current of the NO contacts of the relay outputs for delayed release circuit** | |
| ● at AC-15 at 230 V | 3 A |
| ● at DC-13 at 24 V | 2 A |
| **switching capacity current of the NO contacts of the relay outputs for instantaneous enabling circuit** | |
| ● at AC-15 at 230 V | 5 A |
| ● at DC-13 at 24 V | 5 A |
| **wire length between sensor and electronics evaluation device with Cu 1.5 mm² and 150 nF/km maximum** | 1 000 m |
| **Times** | |
| **make time with automatic start after power failure** | |
| ● typical | 8 000 ms |
| ● maximum | 8 000 ms |
| **make time with monitored start** | |
| ● maximum | 80 ms |
| **backslide delay time in the event of power failure** | |
| ● maximum | 100 ms |
| **adjustable OFF-delay time after opening of the safety circuits** | 0.05 ... 3 s |
| **recovery time after power failure typical** | 200 ms |
| **pulse duration** | |
| ● of the sensor input minimum | 25 ms |
| ● of the ON pushbutton input minimum | 0.025 s |
| **Control circuit/ Control** | |
| **type of voltage of the control supply voltage** | DC |
| **control supply voltage 1 at DC rated value** | 24 V |
| **operating range factor control supply voltage rated value of magnet coil at DC** | |
| ● initial value | 0.85 |
| ● full-scale value | 1.1 |
| **operating range factor control supply voltage rated value of magnet coil at AC** | |
| ● at 50 Hz | 0.85 ... 1.1 |
| ● at 60 Hz | 0.85 ... 1.1 |
| **Installation/ mounting/ dimensions** | |
| **mounting position** | any |
| **fastening method** | screw and snap-on mounting |
| **height** | 138.5 mm |
| **width** | 44.8 mm |
| **depth** | 120 mm |
| **Connections/ Terminals** | |
| **type of electrical connection** | screw terminal |
| **type of connectable conductor cross-sections** | |
| ● solid | 1x (0.5 ... 4.0mm²), 2x (0.5 ... 2.5 mm²) |
| ● finely stranded with core end processing | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²) |
| ● for AWG cables solid | 2x (20 ... 14) |
| ● for AWG cables stranded | 2x (20 ... 14) |
| **connectable conductor cross-section** | |
| ● solid | 0.5 ... 4 mm² |
| ● finely stranded with core end processing | 0.5 ... 2.5 mm² |
| **AWG number as coded connectable conductor cross section** | |


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| | |
|---|---|
| ● solid | 20 ... 14 |
| ● stranded | 20 ... 14 |
| **DC resistance of the cable maximum** | 30 Ω |
| **type of electrical connection plug-in socket** | Yes |

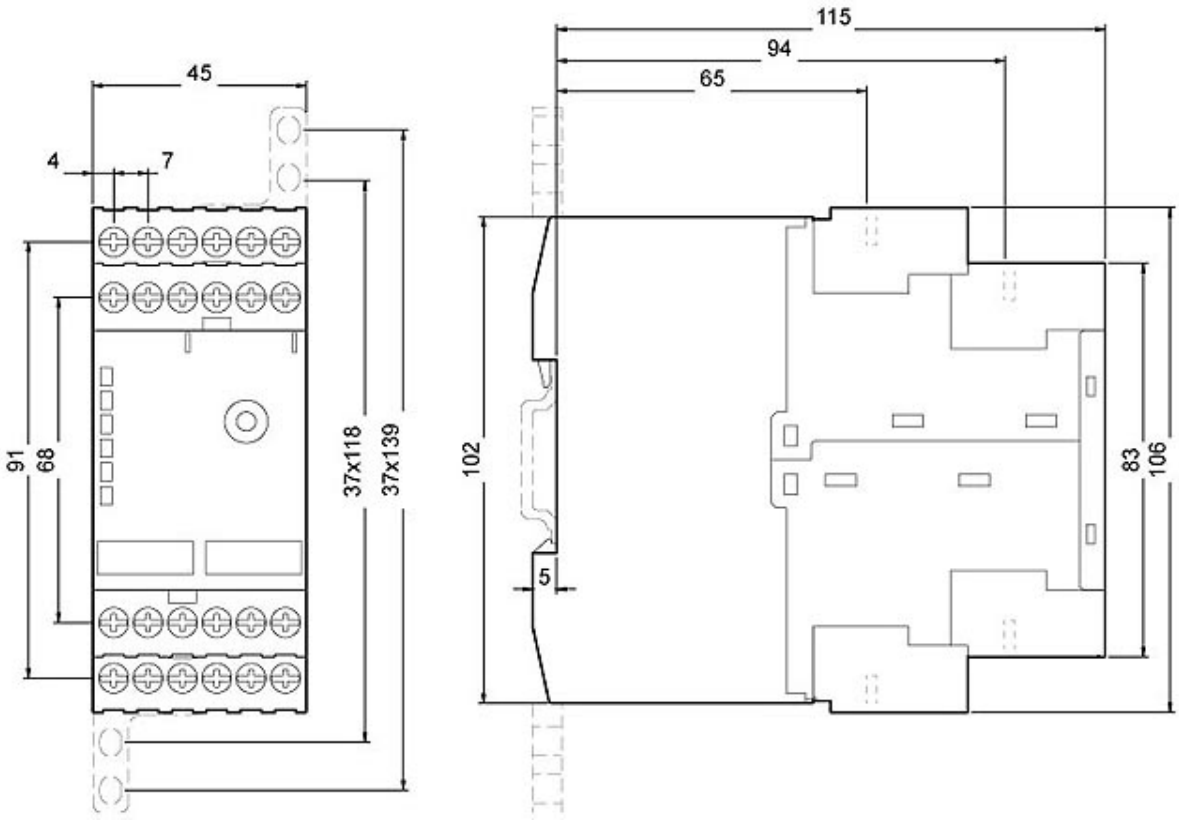
## Approvals Certificates

| Environment | General Product Approval | | | EMV | Functional Saftey |
|---|---|---|---|---|---|
| Environmental Confirmations | CCC | UL | EAC | RCM | Type Examination Certificate |

| Test Certificates | other | |
|---|---|---|
| Special Test Certificate | Confirmation | 产品合格 QC PASS |

## 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=3TK2827-1BB41
**Cax online generator**
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2827-1BB41
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