SIEMENS

## Data sheet 3TK2825-1AL20

Figure similar

SIRIUS safety relay with relay enabling circuits (EC) 230 V AC, 45 mm overall width Screw terminal EC instantaneous: 3 NO EC delayed: 0 NO SC: 2 NC Autostart/monitored start Basic device Maximum achieved SIL: 3, PL: E

| General technical data | |
|---|---|
| **product brand name** | SIRIUS |
| **product designation** | safety relays |
| **design of the product** | for EMERGENCY-STOP and safety doors |
| **protection class IP of the enclosure** | IP20 |
| **protection class IP of the terminal** | IP20 |
| **touch protection against electrical shock** | finger-safe |
| **insulation voltage rated value** | 300 V |
| **ambient temperature** | |
| ● during storage | -40 ... +80 °C |
| ● during operation | -25 ... +60 °C |
| **air pressure acc. to SN 31205** | 90 ... 106 kPa |
| **relative humidity during operation** | 10 ... 95 % |
| **installation altitude at height above sea level maximum** | 2 000 m |
| **vibration resistance acc. to IEC 60068-2-6** | 5 ... 500 Hz: 0,075 mm |
| **shock resistance** | 8g / 10 ms |
| **surge voltage resistance rated value** | 4 000 V |
| **EMC emitted interference** | EN 60947-5-1 |
| **installation environment regarding EMC** | This product is suitable for Class A environments only. It can cause undesired radio-frequency interference in residential environments. If this is the case, the user must take appropriate measures. |
| **reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750** | KT |
| **reference code acc. to DIN EN 61346-2** | F |
| **number of sensor inputs** | |
| ● 1-channel or 2-channel | 1 |
| **design of the cascading** | none |
| **type of the safety-related wiring of the inputs** | single-channel and two-channel |
| **product feature cross-circuit-proof** | Yes |
| **Safety Integrity Level (SIL)** | |
| ● acc. to IEC 61508 | 3 |
| **SIL Claim Limit (subsystem) acc. to EN 62061** | 3 |
| **performance level (PL)** | |
| ● acc. to EN ISO 13849-1 | e |
| **category acc. to EN ISO 13849-1** | 4 |
| **hardware fault tolerance acc. to IEC 61508** | 1 |
| **safety device type acc. to IEC 61508-2** | Type A |

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| **PFHD with high demand rate acc. to EN 62061** | 0.0000000015 1/h |
| **Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508** | 0.0000013 1/y |
| **T1 value for proof test interval or service life acc. to IEC 61508** | 20 y |
| **number of outputs as contact-affected switching element** | |
| ● as NC contact | |
| — for signaling function instantaneous contact | 2 |
| ● as NO contact | |
| — safety-related instantaneous contact | 3 |
| — safety-related delayed switching | 0 |
| **number of outputs as contact-less semiconductor switching element** | |
| ● safety-related | |
| — delayed switching | 0 |
| — instantaneous contact | 0 |
| ● for signaling function | |
| — delayed switching | 0 |
| — instantaneous contact | 0 |
| **stop category acc. to DIN EN 60204-1** | 0 |
| **Inputs** | |
| **design of input** | |
| ● cascading input/functional switching | No |
| ● feedback input | Yes |
| ● start input | Yes |
| **Outputs** | |
| **type of electrical connection plug-in socket** | Yes |
| **operating frequency maximum** | 1 000 1/h |
| **switching capacity current** | |
| **● of the NO contacts of the relay outputs at DC-13** | |
| — at 24 V | 6 A |
| — at 115 V | 0.2 A |
| — at 230 V | 0.1 A |
| **● of the NO contacts of the relay outputs at AC-15** | |
| — at 115 V | 6 A |
| — at 230 V | 6 A |
| **● of the NC contacts of the relay outputs at DC-13** | |
| — at 24 V | 6 A |
| — at 115 V | 0.2 A |
| — at 230 V | 0.1 A |
| **● of the NC contacts of the relay outputs at AC-15** | |
| — at 115 V | 6 A |
| — at 230 V | 6 A |
| **thermal current of the switching element with contacts maximum** | 6 A |
| **electrical endurance (switching cycles) typical** | 100 000 |
| **mechanical service life (switching cycles) typical** | 10 000 000 |
| **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 |
| **DC resistance of the cable maximum** | 30 Ω |
| **wire length between sensor and electronics evaluation device with Cu 1.5 mm² and 150 nF/km maximum** | 1 000 m |
| **make time with automatic start** | |
| ● at AC maximum | 150 ms |
| **make time with monitored start** | |
| ● maximum | 25 ms |
| **backslide delay time in the event of power failure** | |
| ● maximum | 350 ms |

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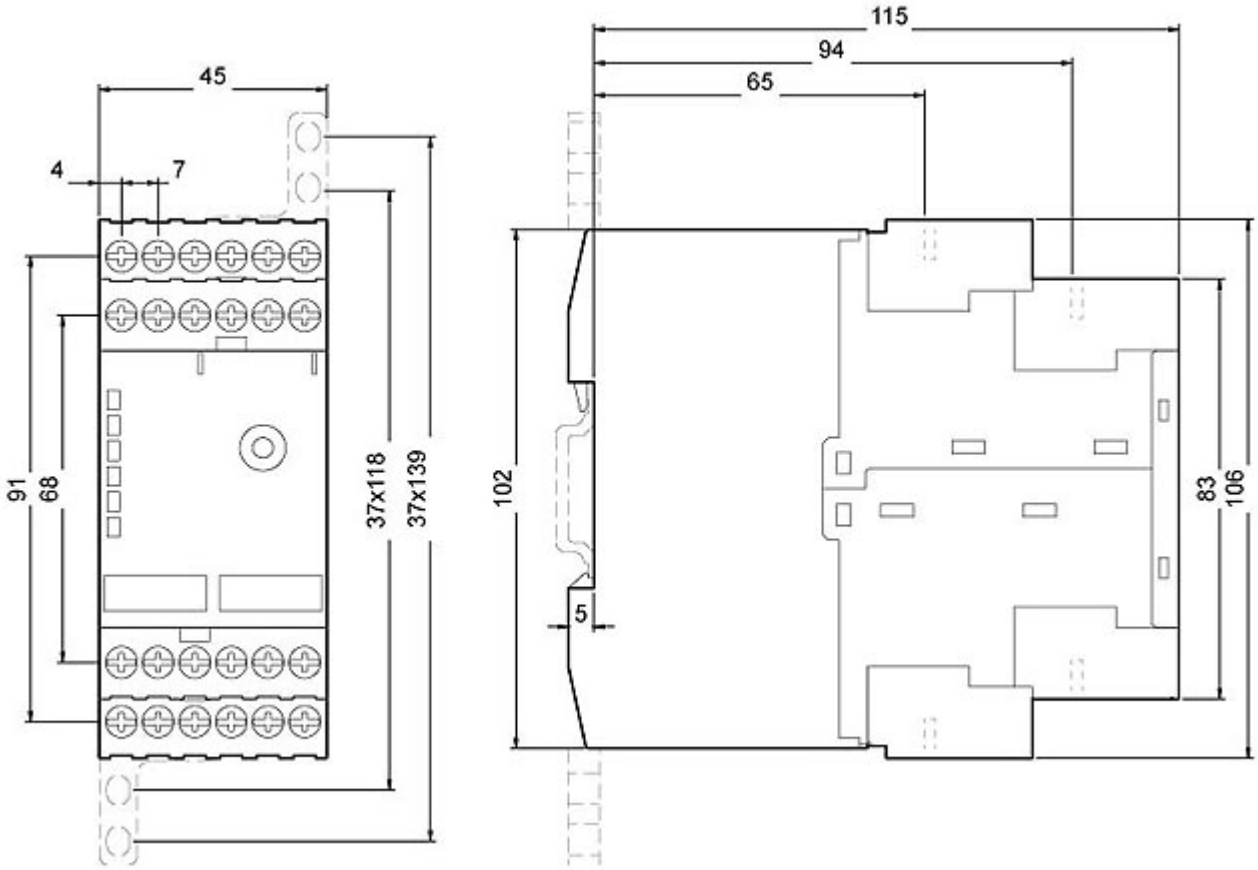
|---|---|
| **recovery time after opening of the safety circuits typical** | 200 ms |
| **recovery time after power failure typical** | 50 ms |
| **pulse duration** | |
| ● of the sensor input minimum | 25 ms |
| ● of the ON pushbutton input minimum | 25 ms |
| **Control circuit/ Control** | |
| **type of voltage of the control supply voltage** | AC |
| **control supply voltage frequency** | |
| ● 1 rated value | 50 Hz |
| ● 2 rated value | 60 Hz |
| **control supply voltage 1 at AC** | |
| ● at 50 Hz rated value | 230 V |
| ● at 60 Hz rated value | 230 V |
| **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 |
| ● at DC | 0.85 ... 1.1 |
| **Installation/ mounting/ dimensions** | |
| **mounting position** | any |
| **fastening method** | screw and snap-on mounting |
| **width** | 44.8 mm |
| **height** | 138.5 mm |
| **depth** | 120 mm |
| **Connections/ Terminals** | |
| **type of electrical connection** | screw-type terminals |
| **type of connectable conductor cross-sections** | |
| ● solid | 1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²) |
| ● finely stranded | |
| — with core end processing | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²) |
| **type of connectable conductor cross-sections at AWG cables** | |
| ● solid | 2x (20 ... 14) |
| ● stranded | 2x (20 ... 14) |
| **Product Function** | |
| **product function** | |
| ● light barrier monitoring | No |
| ● standstill monitoring | No |
| ● protective door monitoring | Yes |
| ● automatic start | Yes |
| ● magnetically operated switch monitoring NC-NO | No |
| ● rotation speed monitoring | No |
| ● laser scanner monitoring | No |
| ● monitored start-up | Yes |
| ● light array monitoring | No |
| ● magnetically operated switch monitoring NC-NC | No |
| ● EMERGENCY OFF function | Yes |
| ● pressure-sensitive mat monitoring | Yes |
| **suitability for interaction press control** | No |
| **suitability for use** | |
| ● monitoring of floating sensors | Yes |
| ● monitoring of non-floating sensors | No |
| ● safety switch | Yes |
| ● position switch monitoring | Yes |
| ● EMERGENCY-OFF circuit monitoring | Yes |
| ● valve monitoring | No |

| | |
|---|---|
| ● tactile sensor monitoring | No |
| ● magnetically operated switch monitoring | No |
| ● safety-related circuits | Yes |
| **Certificates/ approvals** | |
| **certificate of suitability** | BG, SUVA, UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508 |
| ● TÜV (German technical inspectorate) certificate | Yes |
| ● UL approval | Yes |
| ● BG BIA approval | Yes |

*Approvals Certificates*

**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=3TK2825-1AL20
**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2825-1AL20
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3TK2825-1AL20
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2825-1AL20&lang=en

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