

SIRIUS SAFETY RELAY WITH REL.- U. EL. RELEASE CIRCUIT (RC), DC 24V, 45.0MM, SCREW TERMINAL, RC INSTANT.: 2S, RC DELAYED: 2, MK: 1, AUTO- U. MONITORED START, BASIC DEVICE, MAX. ACHIEVABLE PL TO EN13849-1: E, MAX. ACHIEVABLE SIL TO IEC61508:3,

| General technical data:                                                             |                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                                                                  | SIRIUS                                                                                                                                                                                                 |
| Product designation                                                                 | safety relays                                                                                                                                                                                          |
| Design of the product                                                               | monitored start and autostart                                                                                                                                                                          |
| Protection class IP of the enclosure                                                | IP20                                                                                                                                                                                                   |
| Protection class IP of the terminal                                                 | IP20                                                                                                                                                                                                   |
| 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 and 15g / 5 ms                                                                                                                                                                              |
| Surge voltage resistance rated value                                                | 4 000 V                                                                                                                                                                                                |
| EMC emitted interference                                                            | IEC 60947-5-1, IEC 60000-4-3, IEC 60000-4-5, IEC 60000-4-6                                                                                                                                             |
| 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. |
| Equipment marking acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750 | KT                                                                                                                                                                                                     |
| Equipment marking acc. to DIN EN 61346-2                                            | F                                                                                                                                                                                                      |
| Number of sensor inputs                                                             |                                                                                                                                                                                                        |
| • 1-channel or 2-channel                                                            | 2                                                                                                                                                                                                      |
| Design of the cascading                                                             | cascading or in-service switching                                                                                                                                                                      |
| 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                                                                 | SIL3                                                                                                                                                                                                   |
| • for delayed release circuit acc. to IEC 61508                                     | SIL3                                                                                                                                                                                                   |

|                                                                           |                  |
|---------------------------------------------------------------------------|------------------|
| <b>SIL Claim Limit (subsystem) acc. to EN 62061</b>                       | 3                |
| <b>Performance level (PL)</b>                                             |                  |
| • acc. to EN ISO 13849-1                                                  | e                |
| • for delayed release circuit acc. to EN ISO 13849-1                      | e                |
| <b>Category acc. to EN 954-1</b>                                          | 4                |
| <b>Category acc. to EN ISO 13849-1</b>                                    | 4                |
| <b>Hardware fault tolerance acc. to IEC 61508</b>                         | 1                |
| <b>Safety device type acc. to IEC 61508-2</b>                             | Type B           |
| <b>PFHD with high demand rate acc. to EN 62061</b>                        | 0.0000000069 1/h |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b> | 20 y             |
| <b>Number of outputs as contact-affected switching element</b>            |                  |
| • as NC contact                                                           |                  |
| — for signaling function instantaneous contact                            | 0                |
| • as NO contact                                                           |                  |
| — safety-related instantaneous contact                                    | 1                |
| — safety-related delayed switching                                        | 1                |
| <b>Number of outputs as contact-less semiconductor switching element</b>  |                  |
| • safety-related                                                          |                  |
| — delayed switching                                                       | 1                |
| — instantaneous contact                                                   | 1                |
| • for signaling function                                                  |                  |
| — delayed switching                                                       | 0                |
| — instantaneous contact                                                   | 1                |
| <b>Stop category acc. to DIN EN 60204-1</b>                               | 0 + 1            |

#### General technical data:

|                                                     |           |
|-----------------------------------------------------|-----------|
| <b>Design of input</b>                              |           |
| • cascading input/functional switching              | Yes       |
| • feedback input                                    | Yes       |
| • Start input                                       | Yes       |
| <b>Type of electrical connection Plug-in socket</b> | Yes       |
| <b>Operating frequency maximum</b>                  | 2 000 1/h |
| <b>Switching capacity current</b>                   |           |
| • of semiconductor outputs                          |           |
| — for signaling function at DC-13 at 24 V           | 0.5 A     |
| — for enabling circuit at DC-13 at 24 V             | 1 A       |
| • of the NO contacts of the relay outputs           |           |
| — at DC-13                                          |           |

|                                                                                                                     |                               |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------|
| — at 24 V                                                                                                           | 1 A                           |
| — at 115 V                                                                                                          | 0.1 A                         |
| — at 230 V                                                                                                          | 0.1 A                         |
| — at AC-15                                                                                                          |                               |
| — at 115 V                                                                                                          | 3 A                           |
| — at 230 V                                                                                                          | 3 A                           |
| <b>Mechanical service life (switching cycles) typical</b>                                                           | 100 000                       |
| <b>Design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required</b>        | gL/gG: 4 A or fast-acting: 4A |
| <b>DC resistance of the cable maximum</b>                                                                           | 1 000 $\Omega$                |
| <b>Wire length between sensor and electronic evaluation device with Cu 1.5 mm<sup>2</sup> and 150 nF/km maximum</b> | 1 000 m                       |
| <b>Make time with automatic start</b>                                                                               |                               |
| • typical                                                                                                           | 60 ms                         |
| • at DC maximum                                                                                                     | 100 ms                        |
| <b>Make time with monitored start</b>                                                                               |                               |
| • maximum                                                                                                           | 100 ms                        |
| • typical                                                                                                           | 60 ms                         |
| <b>Backslide delay time in the event of power failure</b>                                                           |                               |
| • typical                                                                                                           | 25 ms                         |
| • maximum                                                                                                           | 30 ms                         |
| <b>Adjustable OFF-delay time after opening of the safety circuits</b>                                               | 5 ... 300 s                   |
| <b>Recovery time after opening of the safety circuits typical</b>                                                   | 400 ms                        |
| <b>Recovery time after power failure typical</b>                                                                    | 8 000 ms                      |
| <b>Pulse duration</b>                                                                                               |                               |
| • of the sensor input minimum                                                                                       | 45 ms                         |
| • of the ON pushbutton input minimum                                                                                | 0.2 s                         |
| • of the cascading input minimum                                                                                    | 0.045 s                       |

#### Control circuit/ Control:

|                                                                                 |               |
|---------------------------------------------------------------------------------|---------------|
| <b>Type of voltage of the control supply voltage</b>                            | DC            |
| <b>Control supply voltage 1</b>                                                 |               |
| • at DC rated value                                                             | 24 V          |
| <b>Operating range factor control supply voltage rated value of magnet coil</b> |               |
| • at DC                                                                         | 0.85 ... 1.15 |

#### Installation/ mounting/ dimensions:

|                          |                            |
|--------------------------|----------------------------|
| <b>Mounting position</b> | any                        |
| <b>Mounting type</b>     | screw and snap-on mounting |
| <b>Width</b>             | 45 mm                      |

|                                                                       |                                                                      |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Height</b>                                                         | 138.5 mm                                                             |
| <b>Depth</b>                                                          | 88 mm                                                                |
| <b>Connections/ Terminals:</b>                                        |                                                                      |
| <b>Type of electrical connection</b>                                  | screw-type terminals                                                 |
| <b>Type of connectable conductor cross-sections</b>                   |                                                                      |
| • solid                                                               | 1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| • finely stranded<br>— with core end processing                       | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| <b>Type of connectable conductor cross-sections at AWG conductors</b> |                                                                      |
| • solid                                                               | 2x (20 ... 14)                                                       |
| • stranded                                                            | 2x (20 ... 14)                                                       |
| <b>Product Function:</b>                                              |                                                                      |
| <b>Product function</b>                                               |                                                                      |
| • Light barrier monitoring                                            | Yes                                                                  |
| • Standstill monitoring                                               | No                                                                   |
| • protective door monitoring                                          | Yes                                                                  |
| • Automatic start                                                     | Yes                                                                  |
| • magnetically operated switch monitoring NC-NO                       | No                                                                   |
| • rotation speed monitoring                                           | No                                                                   |
| • laser scanner monitoring                                            | Yes                                                                  |
| • monitored start-up                                                  | Yes                                                                  |
| • Light array monitoring                                              | Yes                                                                  |
| • magnetically operated switch monitoring NC-NC                       | Yes                                                                  |
| • EMERGENCY OFF function                                              | Yes                                                                  |
| • Pressure-sensitive mat monitoring                                   | Yes                                                                  |
| <b>Suitability for interaction press control</b>                      | No                                                                   |
| <b>Suitability for use</b>                                            |                                                                      |
| • Monitoring of floating sensors                                      | Yes                                                                  |
| • Monitoring of non-floating sensors                                  | Yes                                                                  |
| • safety switch                                                       | Yes                                                                  |
| • position switch monitoring                                          | Yes                                                                  |
| • EMERGENCY-OFF circuit monitoring                                    | Yes                                                                  |
| • valve monitoring                                                    | No                                                                   |
| • tactile sensor monitoring                                           | Yes                                                                  |
| • magnetically operated switch monitoring                             | Yes                                                                  |
| • safety-related circuits                                             | Yes                                                                  |
| <b>Certificates/ approvals:</b>                                       |                                                                      |
| <b>Certificate of suitability</b>                                     | UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508               |

- TÜV (German technical inspectorate) certificate
- UL approval
- BG BIA certificate

Yes  
Yes  
Yes

| General Product Approval | EMC | Functional Safety/Safety of Machinery |
|--------------------------|-----|---------------------------------------|
|--------------------------|-----|---------------------------------------|



[Baumusterprüfbescheinigung](#)

| Declaration of Conformity | Test Certificates | other |
|---------------------------|-------------------|-------|
|---------------------------|-------------------|-------|



[spezielle Prüfbescheinigungen](#)

[Bestätigungen](#)

[Umweltbestätigung](#)

#### Further information

**Information- and Downloadcenter (Catalogs, Brochures,...)**

<http://www.siemens.com/industrial-controls/catalogs>

**Industry Mall (Online ordering system)**

<http://www.siemens.com/industrymall>

**Cax online generator**

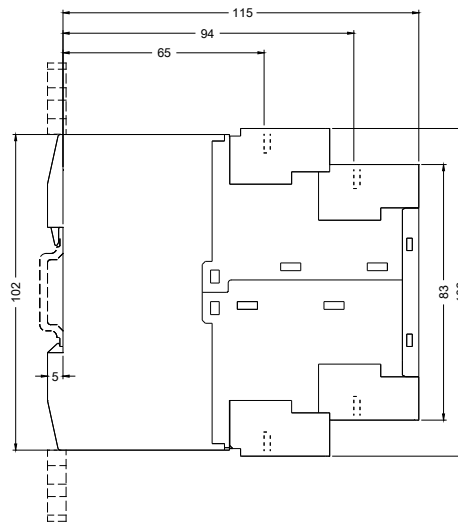
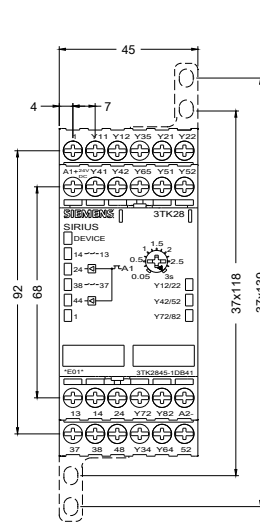
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2845-1HB44>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2845-1HB44>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3TK2845-1HB44&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2845-1HB44&lang=en)



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