

SIRIUS SAFETY RELAY WITH RELAY RELEASE CIRCUITS (RC),  
DC 24V, 45.0MM, SPRING-LOADED TERMINAL,  
RC INSTANT.: 3NO, RC DELAYED: 0NO,  
MK: 2NC, AUTOSTART / MONITORED START,  
BASIC DEVICE, MAX. ACHIEVABLE SIL: 3,  
PL: E

### General technical details:

|                                                                            |     |                                                                                                                                                                                                        |
|----------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                                                         |     | SIRIUS                                                                                                                                                                                                 |
| product designation                                                        |     | safety relays                                                                                                                                                                                          |
| Design of the product                                                      |     | for EMERGENCY-STOP units                                                                                                                                                                               |
| protection class IP / of the housing                                       |     | IP20                                                                                                                                                                                                   |
| Protection class IP / of the terminal                                      |     | IP20                                                                                                                                                                                                   |
| Protection against electrical shock                                        |     | finger-safe                                                                                                                                                                                            |
| Insulation voltage / rated value                                           | V   | 300                                                                                                                                                                                                    |
| Ambient temperature                                                        |     |                                                                                                                                                                                                        |
| • during storage                                                           | °C  | -40 ... +80                                                                                                                                                                                            |
| • during operating                                                         | °C  | -25 ... +60                                                                                                                                                                                            |
| Air pressure                                                               |     |                                                                                                                                                                                                        |
| • according to SN 31205                                                    | kPa | 90 ... 106                                                                                                                                                                                             |
| Relative humidity                                                          |     |                                                                                                                                                                                                        |
| • during operating phase                                                   | %   | 10 ... 95                                                                                                                                                                                              |
| Installation altitude / at a height over sea level / maximum               | m   | 2,000                                                                                                                                                                                                  |
| Resistance against vibration / according to IEC 60068-2-6                  |     | 5 ... 500 Hz: 0,075 mm                                                                                                                                                                                 |
| Resistance against shock                                                   |     | 8g / 10 ms                                                                                                                                                                                             |
| Impulse voltage resistance / rated value                                   | V   | 4,000                                                                                                                                                                                                  |
| EMC emitted interference                                                   |     | EN 60947-5-1                                                                                                                                                                                           |
| Installation environment relating to 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. |
| Item designation                                                           |     |                                                                                                                                                                                                        |
| • according to DIN 40719 extendable after IEC 204-2 / according to IEC 750 |     | KT                                                                                                                                                                                                     |
| • according to DIN EN 61346-2                                              |     | F                                                                                                                                                                                                      |
| Number of sensor inputs                                                    |     |                                                                                                                                                                                                        |
| • 1-channel or 2-channel                                                   |     | 1                                                                                                                                                                                                      |

|                                                                                                                                                                                                                                                              |     |                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------|
| <b>Design of the cascading</b>                                                                                                                                                                                                                               |     | none                           |
| <b>Type of the safety-related wiring / of the inputs</b>                                                                                                                                                                                                     |     | single-channel and two-channel |
| <b>Product feature / transverse contact-secure</b>                                                                                                                                                                                                           |     | Yes                            |
| <b>Safety Integrity Level (SIL)</b><br>• according to IEC 61508                                                                                                                                                                                              |     | SIL3                           |
| <b>SIL claim limit (for a subsystem) / according to EN 62061</b>                                                                                                                                                                                             |     | 3                              |
| <b>Performance Level (PL)</b><br>• according to ISO 13849-1                                                                                                                                                                                                  |     | e                              |
| <b>Category / according to EN 954-1</b>                                                                                                                                                                                                                      |     | 4                              |
| <b>Category / according to ISO 13849-1</b>                                                                                                                                                                                                                   |     | 4                              |
| <b>Hardware fault tolerance / according to IEC 61508</b>                                                                                                                                                                                                     |     | 1                              |
| <b>Safety device type / according to IEC 61508-2</b>                                                                                                                                                                                                         |     | Type A                         |
| <b>Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061</b>                                                                                                                                                      | 1/h | 0.15E-8                        |
| <b>Average probability of failure on demand (PFDavg) / with low demand rate / according to IEC 61508</b>                                                                                                                                                     | 1/y | 0.13E-5                        |
| <b>T1 value / for proof test interval or service life / according to IEC 61508</b>                                                                                                                                                                           | a   | 20                             |
| <b>Number of outputs / as contact-affected switching element</b><br>• as NC contact / for reporting function / instantaneous switching<br>• as NO contact / safety-related / instantaneous switching<br>• as NO contact / safety-related / delayed switching |     | 2<br>3<br>0                    |
| <b>Number of outputs / as contact-less semiconductor switching element</b><br>• safety-related<br>• delayed switching<br>• non-delayed<br>• for reporting function<br>• delayed switching<br>• non-delayed                                                   |     | 0<br>0<br>0<br>0               |
| <b>Stop category / according to DIN EN 60204-1</b>                                                                                                                                                                                                           |     | 0                              |

#### General technical details:

|                                                                                                           |     |                  |
|-----------------------------------------------------------------------------------------------------------|-----|------------------|
| <b>Design of the input</b><br>• cascading-input/functional switching<br>• feedback input<br>• start input |     | No<br>Yes<br>Yes |
| <b>Design of the electrical connection / jumper socket</b>                                                |     | Yes              |
| <b>Operating cycles / maximum</b>                                                                         | 1/h | 1,000            |
| <b>Switching capacity current</b><br>• of NO contacts of relay outputs                                    |     |                  |

|                                                                                                                  |    |                            |
|------------------------------------------------------------------------------------------------------------------|----|----------------------------|
| • at DC-13                                                                                                       | A  | 6                          |
| • at 24 V                                                                                                        | A  | 0.2                        |
| • at 115 V                                                                                                       | A  | 0.1                        |
| • at 230 V                                                                                                       |    |                            |
| • at AC-15                                                                                                       | A  | 6                          |
| • at 115 V                                                                                                       | A  | 6                          |
| • at 230 V                                                                                                       |    |                            |
| • of NC contacts of relay outputs                                                                                |    |                            |
| • at DC-13                                                                                                       | A  | 6                          |
| • at 24 V                                                                                                        | A  | 0.2                        |
| • at 115 V                                                                                                       | A  | 0.1                        |
| • at 230 V                                                                                                       |    |                            |
| • at AC-15                                                                                                       | A  | 6                          |
| • at 115 V                                                                                                       | A  | 6                          |
| • at 230 V                                                                                                       |    |                            |
| <b>Thermal current / of the contact-affected switching element / maximum</b>                                     | A  | 6                          |
| <b>Electrical operating cycles as operating time / typical</b>                                                   |    | 100,000                    |
| <b>Mechanical operating cycles as operating time / typical</b>                                                   |    | 10,000,000                 |
| <b>Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required</b> |    | gL/gG: 6 A, or quick: 10 A |
| <b>Resistance to direct current / of the cable / maximum</b>                                                     | Ω  | 30                         |
| <b>Cable length / between sensor and electronic evaluation device / with Cu 1.5 mm² and 150 nF/km / maximum</b>  | m  | 1,000                      |
| <b>Make time / with automatic start</b>                                                                          |    |                            |
| • for AC / maximum                                                                                               | ms | 150                        |
| <b>Make time / with monitored start</b>                                                                          |    |                            |
| • maximum                                                                                                        | ms | 25                         |
| <b>Backslide delay time / at mains power cut</b>                                                                 |    |                            |
| • maximum                                                                                                        | ms | 350                        |
| <b>Recovery time / after opening of the safety circuits / typical</b>                                            | ms | 200                        |
| <b>Recovery time / after mains power cut / typical</b>                                                           | s  | 0.5                        |
| <b>Pulse duration</b>                                                                                            |    |                            |
| • of the sensor input / minimum                                                                                  | ms | 25                         |
| • of the ON pushbutton input / minimum                                                                           | ms | 25                         |

#### Control circuit:

|                                                                                       |   |    |
|---------------------------------------------------------------------------------------|---|----|
| <b>Type of voltage / of the controlled supply voltage</b>                             |   | DC |
| <b>Control supply voltage / 1 / for DC / rated value</b>                              | V | 24 |
| <b>operating range factor control supply voltage rated value / of the magnet coil</b> |   |    |

- at 50 Hz
  - for AC
- at 60 Hz
  - for AC
- for DC

0.85 ... 1.1

0.85 ... 1.1

0.85 ... 1.1

#### Installation/mounting/dimensions:

##### mounting position

any

##### Type of mounting

screw and snap-on mounting

##### Width

mm

45

##### Height

mm

138.5

##### Depth

mm

120

#### Connections:

##### Design of the electrical connection

spring-loaded terminals

##### Type of the connectable conductor cross-section

- solid
- finely stranded
  - with wire end processing
  - without wire end processing

2x (0.25 ... 1.5 mm<sup>2</sup>)

2 x (0.25 ... 1.5 mm<sup>2</sup>)

2x (0.25 ... 1.5 mm<sup>2</sup>)

##### Type of the connectable conductor cross-section / for AWG conductors

- solid
- stranded

2x (24 ... 16)

2x (24 ... 16)

#### Product Function:

##### Product function

- light barrier monitoring
- standstill monitoring
- protective door monitoring
- automatic start
- magnetic switch monitoring Normally closed contact-Normally open contact
- rotation speed monitoring
- laser scanner monitoring
- monitored start-up
- light grid monitoring
- magnetic switch monitoring Normally closed contact-Normally closed contact
- emergency stop function
- step mat monitoring

No

No

Yes

Yes

No

No

No

Yes

No

No

Yes

Yes

|                                                |  |     |
|------------------------------------------------|--|-----|
| Suitability for interaction / pressing control |  | No  |
| Acceptability for application                  |  | Yes |
| • monitoring of floating sensors               |  | No  |
| • monitoring of non-floating sensors           |  | Yes |
| • safety cut-out switch                        |  | Yes |
| • position switch monitoring                   |  | Yes |
| • EMERGENCY-OFF circuit monitoring             |  | No  |
| • valve monitoring                             |  | No  |
| • tactile sensor monitoring                    |  | No  |
| • magnetically operated switches monitoring    |  | Yes |
| • safety-related circuits                      |  |     |

#### Certificates/approvals:

##### Verification of suitability

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

BG, SUVA, UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508

Yes

Yes

Yes

##### General Product Approval

##### EMC



CCC



CSA



GOST



UL



C-TICK

##### Functional Safety / Safety of Machinery

##### Declaration of Conformity

##### Test Certificates

##### other



ATEX



VDE



EG-Konf.

[Special Test Certificate](#)

[Confirmation](#)

[Environmental Confirmations](#)

#### Further information:

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

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

##### Industry Mall (Online ordering system)

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

##### Cax online generator:

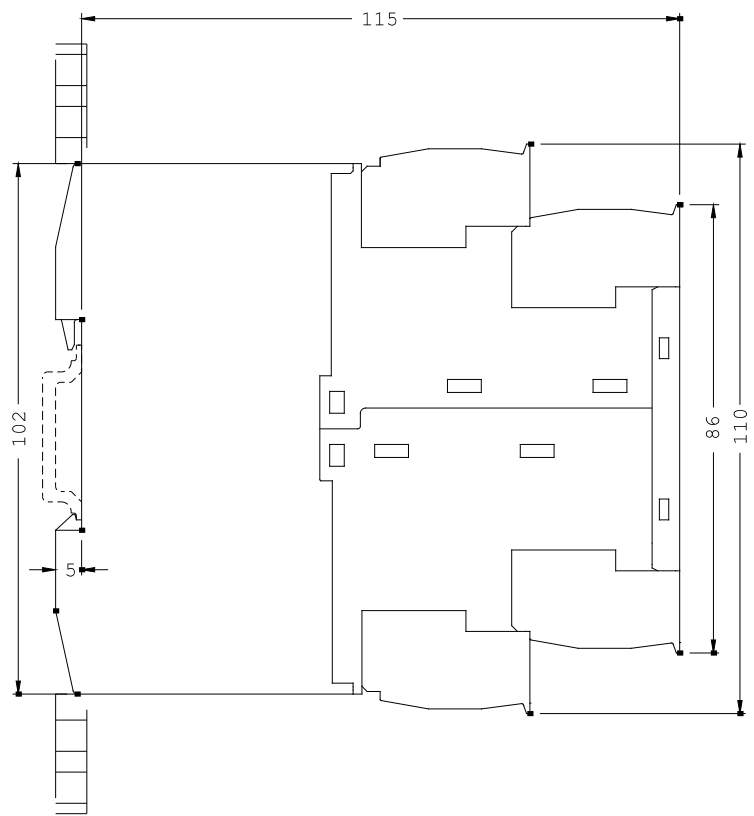
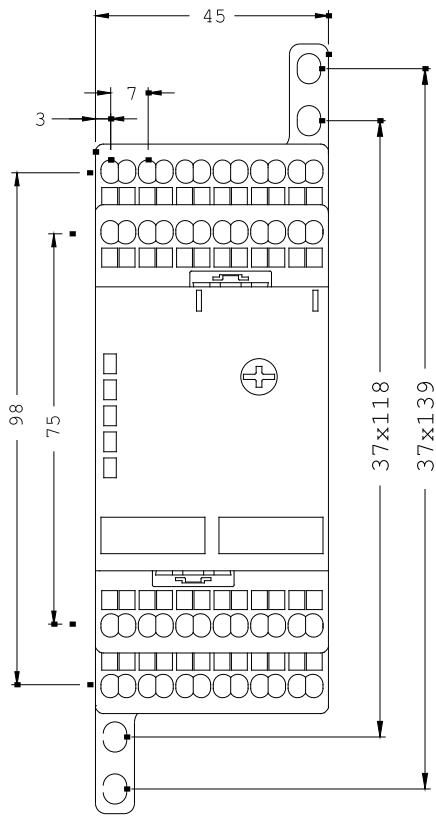
<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WW/view/en/3TK2825-2BB40/all>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3TK2825-2BB40](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2825-2BB40)



last change:

Feb 18, 2013