

SIRIUS SAFETY RELAY WITH ELECTRONIC RELEASE  
CIRCUIT (RC) DC 24V,  
22.5MM, SPRING-LOADED TERMINAL,  
RC INSTANT.: 2 HL, RC DELAYED: 0,  
MK: 0, AUTOSTART / MONITORED START,  
BASIC DEVICE, MAX. ACHIEVABLE SIL: 2,  
PL: D

### 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                                       |     | IP40                                                                                                                                                                                                   |
| Protection class IP / of the terminal                                      |     | IP20                                                                                                                                                                                                   |
| Protection against electrical shock                                        |     | finger-safe                                                                                                                                                                                            |
| Insulation voltage / rated value                                           | V   | 50                                                                                                                                                                                                     |
| 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 and 15g / 5 ms                                                                                                                                                                              |
| Impulse voltage resistance / rated value                                   | V   | 500                                                                                                                                                                                                    |
| EMC emitted interference                                                   |     | EN 60947-5-1, EN 61000-6-2, EN 61000-6-4                                                                                                                                                               |
| 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                                                                                                                                                                                              |     | SIL2                           |
| <b>SIL claim limit (for a subsystem) / according to EN 62061</b>                                                                                                                                                                                             |     | 2                              |
| <b>Performance Level (PL)</b><br>• according to ISO 13849-1                                                                                                                                                                                                  |     | d                              |
| <b>Category / according to EN 954-1</b>                                                                                                                                                                                                                      |     | 3                              |
| <b>Category / according to ISO 13849-1</b>                                                                                                                                                                                                                   |     | 3                              |
| <b>Hardware fault tolerance / according to IEC 61508</b>                                                                                                                                                                                                     |     | 1                              |
| <b>Safety device type / according to IEC 61508-2</b>                                                                                                                                                                                                         |     | Type B                         |
| <b>Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061</b>                                                                                                                                                      | 1/h | 0.11E-7                        |
| <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 |     | 0<br>0<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>2<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 | 2,000            |
| <b>Switching capacity current</b><br>• of semiconductor outputs<br>• for enabling circuit / for DC-13 / at 24 V | A   | 0.5              |

|                                                                                                           |    |              |
|-----------------------------------------------------------------------------------------------------------|----|--------------|
| Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required |    | not required |
| Resistance to direct current / of the cable / maximum                                                     | Ω  | 250          |
| Cable length / between sensor and electronic evaluation device / with Cu 1.5 mm² and 150 nF/km / maximum  | m  | 2,000        |
| Make time / with automatic start                                                                          |    |              |
| • typical                                                                                                 | ms | 80           |
| • for DC / maximum                                                                                        | ms | 100          |
| Make time / with automatic start / after mains power cut                                                  |    |              |
| • typical                                                                                                 | ms | 350          |
| • maximum                                                                                                 | ms | 500          |
| Make time / with monitored start                                                                          |    |              |
| • maximum                                                                                                 | ms | 100          |
| • typical                                                                                                 | ms | 60           |
| Backslide delay time / after opening of the safety circuits / typical                                     | ms | 20           |
| Backslide delay time / at mains power cut                                                                 |    |              |
| • typical                                                                                                 | ms | 0            |
| • maximum                                                                                                 | ms | 0            |
| Recovery time / after opening of the safety circuits / typical                                            | ms | 120          |
| Recovery time / after mains power cut / typical                                                           | s  | 0.5          |
| Pulse duration                                                                                            |    |              |
| • of the sensor input / minimum                                                                           | ms | 5            |
| • of the ON pushbutton input / minimum                                                                    | s  | 0.06         |
| • of the cascading-entrance / minimum                                                                     | s  | 0.0050       |

#### Control circuit:

|                                                                                |   |              |
|--------------------------------------------------------------------------------|---|--------------|
| Type of voltage / of the controlled supply voltage                             |   | DC           |
| Control supply voltage / 1 / for DC / rated value                              | V | 24           |
| operating range factor control supply voltage rated value / of the magnet coil |   |              |
| • for DC                                                                       |   | 0.9 ... 1.15 |

#### Installation/mounting/dimensions:

|                   |    |                            |
|-------------------|----|----------------------------|
| mounting position |    | any                        |
| Type of mounting  |    | screw and snap-on mounting |
| Width             | mm | 22.5                       |
| Height            | mm | 120                        |
| Depth             | mm | 88                         |

#### Connections:

|                                     |  |                         |
|-------------------------------------|--|-------------------------|
| Design of the electrical connection |  | spring-loaded terminals |
|-------------------------------------|--|-------------------------|

|                                                                                                                                                                                                                                                                  |  |                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------|
| <b>Type of the connectable conductor cross-section</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded <ul style="list-style-type: none"> <li>• with wire end processing</li> <li>• without wire end processing</li> </ul> </li> </ul> |  | 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> )  |
| <b>Type of the connectable conductor cross-section / for AWG conductors</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> </ul>                                                                                                        |  | 2x (24 ... 16)                      |
|                                                                                                                                                                                                                                                                  |  | 2x (24 ... 16)                      |
|                                                                                                                                                                                                                                                                  |  |                                     |

#### Product Function:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----|
| <b>Product function</b> <ul style="list-style-type: none"> <li>• light barrier monitoring</li> <li>• standstill monitoring</li> <li>• protective door monitoring</li> <li>• automatic start</li> <li>• magnetic switch monitoring Normally closed contact-Normally open contact</li> <li>• rotation speed monitoring</li> <li>• laser scanner monitoring</li> <li>• monitored start-up</li> <li>• light grid monitoring</li> <li>• magnetic switch monitoring Normally closed contact-Normally closed contact</li> <li>• emergency stop function</li> <li>• step mat monitoring</li> </ul> |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
| <b>Suitability for interaction / pressing control</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | No  |
| <b>Acceptability for application</b> <ul style="list-style-type: none"> <li>• monitoring of floating sensors</li> <li>• monitoring of non-floating sensors</li> <li>• safety cut-out switch</li> <li>• position switch monitoring</li> <li>• EMERGENCY-OFF circuit monitoring</li> <li>• valve monitoring</li> <li>• tactile sensor monitoring</li> <li>• magnetically operated switches monitoring</li> <li>• safety-related circuits</li> </ul>                                                                                                                                          |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Yes |

#### Certificates/approvals:

|                                                                                                                                        |  |                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------|
| <b>Verification of suitability</b> <ul style="list-style-type: none"> <li>• TÜV (German technical inspectorate) certificate</li> </ul> |  | UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508 |
|                                                                                                                                        |  | Yes                                                    |

- UL-registration
- BG BIA certificate

Yes

Yes

#### General Product Approval

#### EMC

#### Functional Safety / Safety of Machinery



CCC



CSA



GOST



UL



C-TICK



VDE

#### Declaration of Conformity

#### Test Certificates

#### other



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:

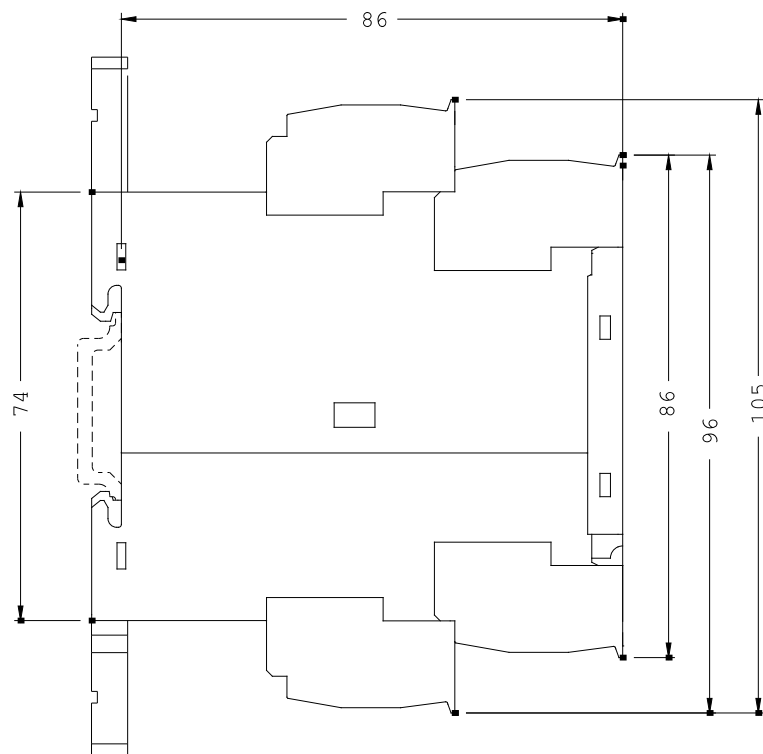
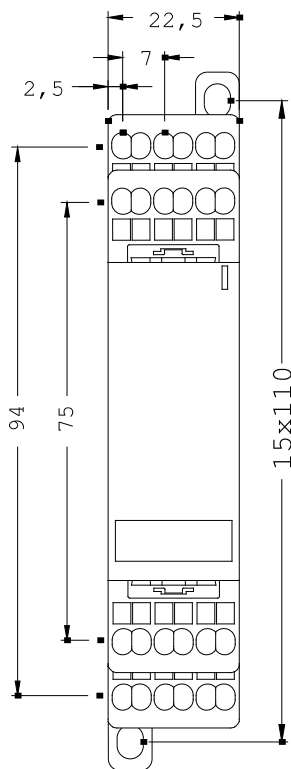
<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WW/view/en/3TK2840-2BB40/all>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3TK2840-2BB40](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2840-2BB40)



last change:

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