

SIRIUS safety relay Output expansion 3RO Power, with Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact  $U_s = 24 \text{ V DC}$  screw terminal



### General technical data

|                                                                                                                |                                  |
|----------------------------------------------------------------------------------------------------------------|----------------------------------|
| Product brand name                                                                                             | SIRIUS                           |
| Product category                                                                                               | Safety relays                    |
| Product designation                                                                                            | Output expansion                 |
| Design of the product                                                                                          | Relay enabling circuits          |
| Protection class IP of the enclosure                                                                           | IP20                             |
| Protection against electrical shock                                                                            | finger-safe                      |
| Insulation voltage rated value                                                                                 | 300 V                            |
| Ambient temperature <ul style="list-style-type: none"> <li>during storage</li> <li>during operation</li> </ul> | -40 ... +80 °C<br>-25 ... +60 °C |
| Air pressure acc. to SN 31205                                                                                  | 90 kPa ... 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: 0.75 mm            |
| Shock resistance                                                                                               | 5 g / 10 ms                      |
| Surge voltage resistance rated value                                                                           | 4 000 V                          |
| EMC emitted interference                                                                                       | IEC 60947-5-1, IEC 61000         |

|                                                                           |                                                                                                  |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Installation environment regarding EMC</b>                             | This product is suitable for Class B environments and can also be used in domestic environments. |
| <b>Overvoltage category</b>                                               | 3                                                                                                |
| <b>Degree of pollution</b>                                                | 3                                                                                                |
| <b>Reference code acc. to DIN EN 61346-2</b>                              | F                                                                                                |
| <b>Reference code acc. to DIN EN 81346-2</b>                              | F                                                                                                |
| <b>Power loss [W] maximum</b>                                             | 5.5 W                                                                                            |
| <b>Safety Integrity Level (SIL) acc. to IEC 61508</b>                     | 3                                                                                                |
| <b>Performance level (PL) acc. to EN ISO 13849-1</b>                      | e                                                                                                |
| <b>Category acc. to EN ISO 13849-1</b>                                    | 4                                                                                                |
| <b>PFHD with high demand rate acc. to EN 62061</b>                        | 0.000000001 1/h                                                                                  |
| <b>PFDavg with low demand rate acc. to IEC 61508</b>                      | 0.000001                                                                                         |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b> | 20 y                                                                                             |
| <b>Hardware fault tolerance acc. to IEC 61508</b>                         | 1                                                                                                |
| <b>Safety device type acc. to IEC 61508-2</b>                             | Type A                                                                                           |
| <b>Number of outputs as contact-affected switching element</b>            |                                                                                                  |
| • as NC contact                                                           |                                                                                                  |
| — for signaling function delayed switching                                | 0                                                                                                |
| — for feedback circuit instantaneous contact                              | 1                                                                                                |
| — safety-related instantaneous contact                                    | 0                                                                                                |
| — safety-related delayed switching                                        | 0                                                                                                |
| • as NO contact                                                           |                                                                                                  |
| — for signaling function instantaneous contact                            | 0                                                                                                |
| — for signaling function delayed switching                                | 0                                                                                                |
| — safety-related instantaneous contact                                    | 3                                                                                                |
| — safety-related delayed switching                                        | 0                                                                                                |
| <b>Number of outputs as contact-less semiconductor switching element</b>  |                                                                                                  |
| • for signaling function                                                  |                                                                                                  |
| — delayed switching                                                       | 0                                                                                                |
| <b>Stop category acc. to DIN EN 60204-1</b>                               | 0                                                                                                |

#### General technical data

|                                                                           |         |
|---------------------------------------------------------------------------|---------|
| <b>Type of electrical connection Plug-in socket</b>                       | No      |
| <b>Operating frequency maximum</b>                                        | 360 1/h |
| <b>Switching capacity current of the NO contacts of the relay outputs</b> |         |
| • at DC-13                                                                |         |
| — at 24 V                                                                 | 6 A     |
| — at 115 V                                                                | 1.1 A   |
| — at 230 V                                                                | 0.55 A  |

|                                                                                                                                                                   |                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at AC-15 <ul style="list-style-type: none"> <li>— at 24 V</li> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> </ul> | 10 A<br>10 A<br>10 A                                                 |
| <b>Thermal current of the switching element with contacts maximum</b>                                                                                             | 10 A                                                                 |
| <b>Operating current at 17 V minimum</b>                                                                                                                          | 5 mA                                                                 |
| <b>Mechanical service life (switching cycles) typical</b>                                                                                                         | 10 000 000                                                           |
| <b>maximum permissible voltage for safe isolation between electronic evaluation device and enabling circuit acc. to EN 60947-1</b>                                | 300 V                                                                |
| <b>Design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required</b>                                                      | gL/gG: 16 A or MCB type A: 6 A or MCB type B: 4 A or MCB type C: 4 A |
| <b>Make time with automatic start</b> <ul style="list-style-type: none"> <li>• typical</li> <li>• at DC maximum</li> </ul>                                        | 50 ms<br>70 ms                                                       |
| <b>Make time with automatic start after power failure</b> <ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>                          | 50 ms<br>70 ms                                                       |
| <b>Backslide delay time in the event of power failure</b> <ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>                          | 20 ms<br>20 ms                                                       |
| <b>Recovery time after power failure typical</b>                                                                                                                  | 0 s                                                                  |

#### Control circuit/ Control

|                                                                                                                                                          |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Type of voltage of the control supply voltage</b>                                                                                                     | DC          |
| <b>Control supply voltage</b> <ul style="list-style-type: none"> <li>• at DC <ul style="list-style-type: none"> <li>— rated value</li> </ul> </li> </ul> | 24 V        |
| <b>Operating range factor control supply voltage rated value of magnet coil</b> <ul style="list-style-type: none"> <li>• at DC</li> </ul>                | 0.8 ... 1.2 |

#### Installation/ mounting/ dimensions

|                                                                |                                      |
|----------------------------------------------------------------|--------------------------------------|
| <b>Mounting position</b>                                       | on horizontal standard mounting rail |
| <b>Required spacing for grounded parts at the side</b>         | 5 mm                                 |
| <b>Required spacing with side-by-side mounting at the side</b> | 0 mm                                 |
| <b>Mounting type</b>                                           | screw and snap-on mounting           |
| <b>Width</b>                                                   | 90 mm                                |
| <b>Height</b>                                                  | 100 mm                               |
| <b>Depth</b>                                                   | 121.6 mm                             |

#### Connections/ Terminals

|                                      |                      |
|--------------------------------------|----------------------|
| <b>Type of electrical connection</b> | screw-type terminals |
|--------------------------------------|----------------------|

|                                                                |                                                 |                                                                      |
|----------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------|
| Type of connectable conductor cross-sections                   | • 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> ) |
| Type of connectable conductor cross-sections at AWG conductors |                                                 |                                                                      |
| • solid                                                        |                                                 | 1x (20 ... 12), 2x (20 ... 14)                                       |

#### Product Function

|                                                  |                                                |
|--------------------------------------------------|------------------------------------------------|
| Product function parameterizable                 | undelayed/delayed (only with system connector) |
| Suitability for operation Device connector 3ZY12 | Yes                                            |
| Suitability for use                              |                                                |
| • safety-related circuits                        | Yes                                            |

#### Certificates/ approvals

|                                                   |     |
|---------------------------------------------------|-----|
| Certificate of suitability                        |     |
| • TÜV (German technical inspectorate) certificate | Yes |
| • UL approval                                     | Yes |

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



CCC



CSA



UL



RCM

[Type Examination Certificate](#)

|                           |                   |                   |
|---------------------------|-------------------|-------------------|
| Declaration of Conformity | Test Certificates | Shipping Approval |
|---------------------------|-------------------|-------------------|



EG-Konf.

[Miscellaneous](#)

[Type Test Certificates/Test Report](#)



LRS



RINA



RMRS

|                              |                              |
|------------------------------|------------------------------|
| other                        | Railway                      |
| <a href="#">Confirmation</a> | <a href="#">Confirmation</a> |

#### 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=3SK1213-1AB40>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1213-1AB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1213-1AB40>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1213-1AB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1213-1AB40&lang=en)





