

SIRIUS SAFETY RELAY STANDARD SERIES DEVICE RELAY  
ENABLING CIRCUITS 3 NO CONTACTS + RELAY SIGNALING  
CIRCUIT 1 NC CONTACT US = 24 V AC/DC SPRING-LOADED  
TERMINAL



Figure similar

| General technical data:                                 |                                    |
|---------------------------------------------------------|------------------------------------|
| product brand name                                      | SIRIUS                             |
| Product designation                                     | Standard basic units               |
| Design of the product                                   | For autonomous safety applications |
| Protection class IP of the enclosure                    | 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 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                                        | 10g / 11 ms                        |
| Surge voltage resistance rated value                    | 4 000 V                            |
| EMC emitted interference                                | IEC 60947-5-1, IEC 61000           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Installation environment regarding EMC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | This product is suitable for Class B environments and can also be used in domestic environments. |
| Overvoltage category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3                                                                                                |
| Degree of pollution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3                                                                                                |
| Number of sensor inputs 1-channel or 2-channel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1                                                                                                |
| Design of the cascading                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | none                                                                                             |
| Type of the safety-related wiring of the inputs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | single-channel and two-channel                                                                   |
| Product feature cross-circuit-proof                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Yes                                                                                              |
| Safety Integrity Level (SIL) <ul style="list-style-type: none"> <li>• acc. to IEC 61508</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SIL3                                                                                             |
| Performance level (PL) <ul style="list-style-type: none"> <li>• acc. to EN ISO 13849-1</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | e                                                                                                |
| Category acc. to EN ISO 13849-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4                                                                                                |
| Safe failure fraction (SFF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 99 %                                                                                             |
| PFHD with high demand rate acc. to EN 62061                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.0000000017 1/h                                                                                 |
| PFDavg with low demand rate acc. to IEC 61508                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.000001                                                                                         |
| T1 value for proof test interval or service life acc. to IEC 61508                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 20 y                                                                                             |
| Hardware fault tolerance acc. to IEC 61508                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1                                                                                                |
| Safety device type acc. to IEC 61508-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Type A                                                                                           |
| Number of outputs as contact-affected switching element <ul style="list-style-type: none"> <li>• as NC contact <ul style="list-style-type: none"> <li>— for signaling function instantaneous contact</li> <li>— for signaling function delayed switching</li> <li>— safety-related instantaneous contact</li> <li>— safety-related delayed switching</li> </ul> </li> <li>• as NO contact <ul style="list-style-type: none"> <li>— for signaling function instantaneous contact</li> <li>— for signaling function delayed switching</li> <li>— safety-related instantaneous contact</li> <li>— safety-related delayed switching</li> </ul> </li> </ul> | 1<br>0<br>0<br>0<br><br>0<br>0<br>3<br>0                                                         |
| Number of outputs as contact-less semiconductor switching element <ul style="list-style-type: none"> <li>• safety-related <ul style="list-style-type: none"> <li>— delayed switching</li> <li>— instantaneous contact</li> </ul> </li> <li>• for signaling function instantaneous contact</li> </ul>                                                                                                                                                                                                                                                                                                                                                   | 0<br>0<br>0                                                                                      |
| Stop category acc. to DIN EN 60204-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                                                |

#### General technical data:

Design of input

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• cascading input/functional switching</li> <li>• feedback input</li> <li>• Start input</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No<br>Yes<br>Yes                                                                                            |
| <b>Type of electrical connection Plug-in socket</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | No                                                                                                          |
| <b>Operating frequency maximum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 360 1/h                                                                                                     |
| <b>Switching capacity current</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                             |
| <ul style="list-style-type: none"> <li>• of the NO contacts of the relay outputs <ul style="list-style-type: none"> <li>— at DC-13</li> <li>— at 24 V</li> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> <li>— at AC-15 <ul style="list-style-type: none"> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> <li>• of the NC contacts of the relay outputs <ul style="list-style-type: none"> <li>— at DC-13 <ul style="list-style-type: none"> <li>— at 24 V</li> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> <li>— at AC-15 <ul style="list-style-type: none"> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> </ul> </li> </ul> | 5 A<br>0.2 A<br>0.1 A<br><br>5 A<br>5 A<br><br>1 A<br>0.2 A<br>0.1 A<br><br>1.5 A<br>1.5 A                  |
| <b>Thermal current of the switching element with contacts maximum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5 A                                                                                                         |
| <b>Operating current at 17 V minimum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5 mA                                                                                                        |
| <b>Mechanical service life (switching cycles) 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: 6A or circuit breaker type A: 3A or circuit breaker type B: 2A or circuit breaker type C: 1A         |
| <b>Design of the fuse link for short circuit protection of the NC contacts of the relay outputs required</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Diazed or Neozed fuses, operating class gL/gG: 6 A or MCB type A: 2 A or MCB type B: 2 A or MCB type C: 1 A |
| <b>Wire length</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                             |
| <ul style="list-style-type: none"> <li>• for total of all sensor circuits with Cu 1.5 mm<sup>2</sup> and 150 nF/km maximum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2 000 m                                                                                                     |
| <b>Make time with automatic start</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                             |
| <ul style="list-style-type: none"> <li>• typical</li> <li>• at DC maximum</li> <li>• at AC maximum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 200 ms<br>320 ms<br>320 ms                                                                                  |
| <b>Make time with automatic start after power failure</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                             |
| <ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 200 ms<br>320 ms                                                                                            |
| <b>Make time with monitored start</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                             |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 20 ms                                                                                                       |

|                                                                          |         |
|--------------------------------------------------------------------------|---------|
| • typical                                                                | 15 ms   |
| <b>Backslide delay time after opening of the safety circuits typical</b> | 10 ms   |
| <b>Backslide delay time in the event of power failure</b>                |         |
| • typical                                                                | 65 ms   |
| • maximum                                                                | 75 ms   |
| <b>Recovery time after opening of the safety circuits typical</b>        | 10 ms   |
| <b>Recovery time after power failure typical</b>                         | 0.09 s  |
| <b>Pulse duration</b>                                                    |         |
| • of the sensor input minimum                                            | 150 ms  |
| • of the ON pushbutton input minimum                                     | 0.015 s |

#### Control circuit/ Control:

|                                                                                 |              |
|---------------------------------------------------------------------------------|--------------|
| <b>Type of voltage of the control supply voltage</b>                            | AC/DC        |
| <b>Control supply voltage frequency</b>                                         |              |
| • 1 rated value                                                                 | 50 Hz        |
| • 2 rated value                                                                 | 60 Hz        |
| <b>Control supply voltage</b>                                                   |              |
| • at DC                                                                         |              |
| — rated value                                                                   | 24 V         |
| • at AC                                                                         |              |
| — at 50 Hz                                                                      |              |
| — rated value                                                                   | 24 V         |
| — at 60 Hz                                                                      |              |
| — rated value                                                                   | 24 V         |
| <b>Operating range factor control supply voltage rated value of magnet coil</b> |              |
| • at AC                                                                         |              |
| — at 50 Hz                                                                      | 0.85 ... 1.1 |
| — at 60 Hz                                                                      | 0.85 ... 1.1 |
| • at DC                                                                         | 0.85 ... 1.2 |
| <b>Power loss [W] typical</b>                                                   | 2 W          |

#### Installation/ mounting/ dimensions:

|                                                                |                            |
|----------------------------------------------------------------|----------------------------|
| <b>Mounting position</b>                                       | any                        |
| <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>                                                   | 22.5 mm                    |
| <b>Height</b>                                                  | 100 mm                     |
| <b>Depth</b>                                                   | 121.6 mm                   |

#### Connections/ Terminals:

|                                                                |                                                                      |
|----------------------------------------------------------------|----------------------------------------------------------------------|
| Type of electrical connection                                  | Push-in terminal                                                     |
| Type of connectable conductor cross-sections                   |                                                                      |
| • solid                                                        | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| • finely stranded                                              |                                                                      |
| — with core end processing                                     | 1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) |
| — without core end processing                                  | 1x (0.5 ... 1.5 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 ... 16), 2x (20 ... 16)                                       |
| • stranded                                                     | 1x (20 ... 16), 2x (20 ... 16)                                       |

#### Product Function:

|                                                  |                                                                    |
|--------------------------------------------------|--------------------------------------------------------------------|
| Product function parameterizable                 | Sensor floating / sensor non-floating, monitored start / autostart |
| Suitability for operation Device connector 3ZY12 | No                                                                 |
| Suitability for interaction press control        | No                                                                 |
| Suitability for use                              |                                                                    |
| • safety switch                                  | Yes                                                                |
| • Monitoring of floating sensors                 | Yes                                                                |
| • Monitoring of non-floating sensors             | Yes                                                                |
| • magnetically operated switch monitoring        | Yes                                                                |
| • safety-related circuits                        | Yes                                                                |

#### Certificates/approvals

| General Product Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                | EMC | Functional Safety/Safety of Machinery  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------|
|  CCC<br> CSA<br> UL<br> EAC<br> C-Tick |     | <a href="#">Baumusterbescheinigung</a> |

| Declaration of Conformity                                                                    | Test Certificates                                 | Shipping Approval                                                                                                                                                                   | other                         | Railway                       |
|----------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|
|  EG-Konf. | <a href="#">Typprüfbescheinigung/Werkszeugnis</a> |  LRS<br> RMRS | <a href="#">Bestätigungen</a> | <a href="#">Bestätigungen</a> |

#### Further information

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

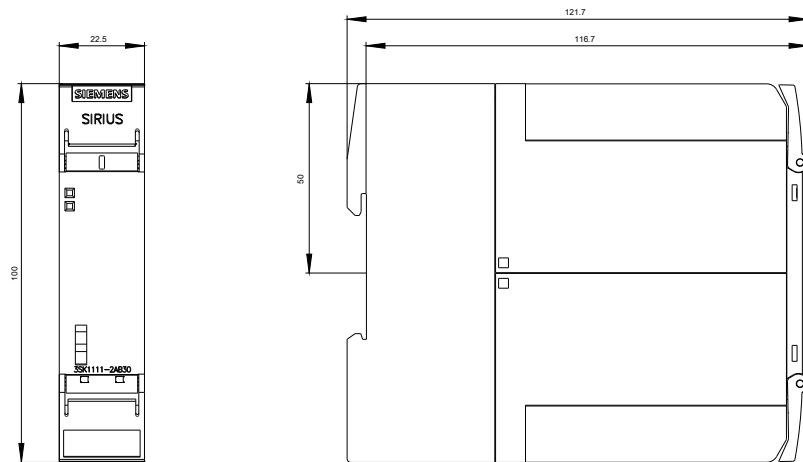
<http://www.siemens.com/industrial-controls/catalogs>

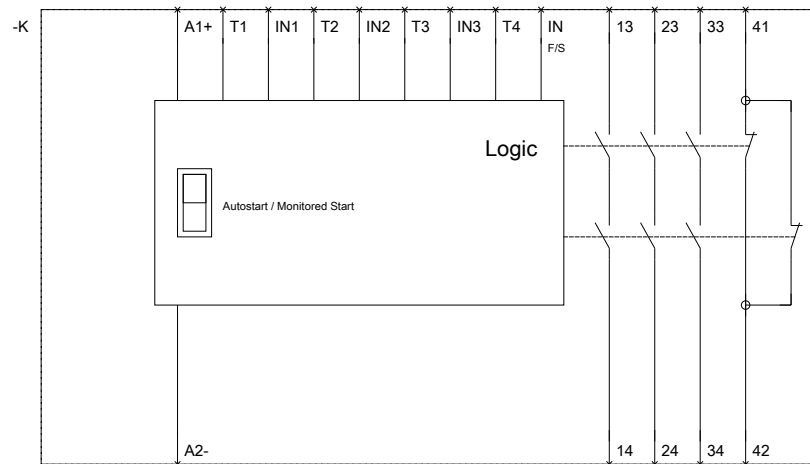
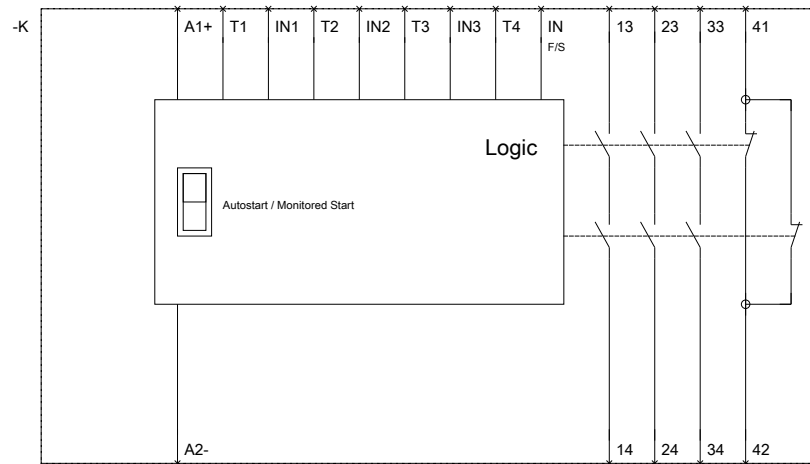
Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3SK1111-2AB30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1111-2AB30>





last modified:

10/17/2016