



SIRIUS safety relay Basic unit Standard series Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact  $U_s = 24\text{ V AC/DC}$  screw terminal

|                                                  |                                                                             |
|--------------------------------------------------|-----------------------------------------------------------------------------|
| product brand name                               | SIRIUS                                                                      |
| product category                                 | Safety relays                                                               |
| product designation                              | safety relays                                                               |
| design of the product                            | Relay enabling circuits                                                     |
| product type designation                         | 3SK1                                                                        |
| product line                                     | Standard basic unit                                                         |
| Product Function                                 |                                                                             |
| product function parameterizable                 | sensor floating / sensor non-floating, monitored start-up / automatic start |
| product function                                 |                                                                             |
| • automatic start                                | Yes                                                                         |
| • light barrier monitoring                       | Yes                                                                         |
| • protective door monitoring                     | Yes                                                                         |
| • magnetically operated switch monitoring NC-NO  | No                                                                          |
| • magnetically operated switch monitoring NC-NC  | Yes                                                                         |
| • laser scanner monitoring                       | Yes                                                                         |
| • light array monitoring                         | Yes                                                                         |
| • EMERGENCY OFF function                         | Yes                                                                         |
| • monitored start-up                             | Yes                                                                         |
| • pressure-sensitive mat monitoring              | No                                                                          |
| suitability for interaction press control        | No                                                                          |
| suitability for operation device connector 3ZY12 | No                                                                          |
| suitability for use                              |                                                                             |
| • monitoring of floating sensors                 | Yes                                                                         |
| • monitoring of non-floating sensors             | Yes                                                                         |
| • position switch monitoring                     | Yes                                                                         |
| • EMERGENCY-OFF circuit monitoring               | Yes                                                                         |
| • opto-electronic protection device monitoring   | Yes                                                                         |
| • magnetically operated switch monitoring        | Yes                                                                         |
| • safety switch                                  | Yes                                                                         |
| • safety-related circuits                        | Yes                                                                         |
| General technical data                           |                                                                             |
| certificate of suitability UL approval           | Yes                                                                         |
| product feature cross-circuit-proof              | Yes                                                                         |
| power loss [W] maximum                           | 2 W                                                                         |
| insulation voltage rated value                   | 300 V                                                                       |
| degree of pollution                              | 3                                                                           |
| overvoltage category                             | 3                                                                           |
| surge voltage resistance rated value             | 4 000 V                                                                     |
| protection class IP of the enclosure             | IP20                                                                        |
| shock resistance                                 | 10g / 11 ms                                                                 |

|                                                                                          |                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vibration resistance according to IEC 60068-2-6                                          | 5 ... 500 Hz: 0.75 mm                                                                                                                                                             |
| operating frequency maximum                                                              | 360 1/h                                                                                                                                                                           |
| mechanical service life (operating cycles) typical                                       | 10 000 000                                                                                                                                                                        |
| thermal current of the switching element with contacts maximum                           | 5 A                                                                                                                                                                               |
| reference code according to IEC 81346-2                                                  | F                                                                                                                                                                                 |
| Substance Prohibitance (Date)                                                            | 11/05/2012                                                                                                                                                                        |
| SVHC substance name                                                                      | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8<br>6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1<br>4,4'-isopropylidenediphenol (Bisphenol A, BPA) - 80-05-7 |
| Weight                                                                                   | 0.23 kg                                                                                                                                                                           |
| <b>Ambient conditions</b>                                                                |                                                                                                                                                                                   |
| installation altitude at height above sea level maximum                                  | 4 000 m; Derating, see Product Notification 109792701                                                                                                                             |
| ambient temperature                                                                      |                                                                                                                                                                                   |
| • during operation                                                                       | -25 ... +60 °C                                                                                                                                                                    |
| • during storage                                                                         | -40 ... +80 °C                                                                                                                                                                    |
| relative humidity during operation                                                       | 10 ... 95 %                                                                                                                                                                       |
| air pressure according to SN 31205                                                       | 900 ... 1 060 hPa                                                                                                                                                                 |
| <b>Electromagnetic compatibility</b>                                                     |                                                                                                                                                                                   |
| installation environment regarding EMC                                                   | This product is suitable for Class B environments and can also be used in domestic environments.                                                                                  |
| EMC emitted interference                                                                 | IEC 60947-5-1, IEC 61000                                                                                                                                                          |
| <b>Safety related data</b>                                                               |                                                                                                                                                                                   |
| product function suitable for safety function                                            | Yes                                                                                                                                                                               |
| safe state                                                                               | Safety outputs switched off                                                                                                                                                       |
| test wear-related service life necessary                                                 | Yes                                                                                                                                                                               |
| function test interval maximum                                                           | 1 a                                                                                                                                                                               |
| stop category according to IEC 60204-1                                                   | 0                                                                                                                                                                                 |
| <b>IEC 62061</b>                                                                         |                                                                                                                                                                                   |
| SIL Claim Limit (subsystem) according to EN 62061                                        | 3                                                                                                                                                                                 |
| Safety Integrity Level (SIL)                                                             |                                                                                                                                                                                   |
| • according to IEC 62061                                                                 | SIL 3                                                                                                                                                                             |
| • at 2-channel evaluation according to IEC 62061                                         | 3                                                                                                                                                                                 |
| PFHD with high demand rate according to IEC 62061                                        | 1.7E-9 1/h                                                                                                                                                                        |
| <b>ISO 13849</b>                                                                         |                                                                                                                                                                                   |
| category according to EN ISO 13849-1                                                     | 4                                                                                                                                                                                 |
| performance level (PL)                                                                   |                                                                                                                                                                                   |
| • according to ISO 13849-1                                                               | PL e                                                                                                                                                                              |
| • at 2-channel evaluation according to ISO 13849-1                                       | e                                                                                                                                                                                 |
| category                                                                                 |                                                                                                                                                                                   |
| • according to ISO 13849-1                                                               | 4                                                                                                                                                                                 |
| • at 2-channel evaluation according to ISO 13849-1                                       | 4                                                                                                                                                                                 |
| overdimensioning according to ISO 13849-2 necessary                                      | No                                                                                                                                                                                |
| <b>IEC 61508</b>                                                                         |                                                                                                                                                                                   |
| Safety Integrity Level (SIL)                                                             |                                                                                                                                                                                   |
| • according to IEC 61508                                                                 | 3                                                                                                                                                                                 |
| • at single-channel evaluation according to IEC 61508                                    | 1                                                                                                                                                                                 |
| • at 2-channel evaluation according to IEC 61508                                         | 3                                                                                                                                                                                 |
| safety device type according to IEC 61508-2                                              | Type A                                                                                                                                                                            |
| PFHD with high demand rate according to IEC 61508                                        | 1.7E-9 1/h                                                                                                                                                                        |
| Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508 | 1E-6 1/y                                                                                                                                                                          |
| PFDavg with low demand rate according to IEC 61508                                       | 1E-6                                                                                                                                                                              |
| Safe failure fraction (SFF)                                                              | 99 %                                                                                                                                                                              |
| hardware fault tolerance                                                                 |                                                                                                                                                                                   |
| • according to IEC 61508                                                                 | 1                                                                                                                                                                                 |
| • at single-channel evaluation according to IEC 61508                                    | 0                                                                                                                                                                                 |
| • at 2-channel evaluation according to IEC 61508                                         | 1                                                                                                                                                                                 |
| T1 value                                                                                 |                                                                                                                                                                                   |
| • of service life according to IEC 61508                                                 | 20 a                                                                                                                                                                              |
| • for proof test interval or service life according to IEC 61508                         | 20 a                                                                                                                                                                              |

|                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical Safety                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                    |
| touch protection against electrical shock                                                                                                                                                                                                                                                                                                                                                                           | finger-safe                                                                                                                                                                                                        |
| Short-circuit protection                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                    |
| <b>design of the fuse link</b> <ul style="list-style-type: none"> <li>for short-circuit protection of the NO contacts of the relay outputs required</li> <li>for short circuit protection of the NC contacts of the relay outputs required</li> </ul>                                                                                                                                                               | gL/gG: 6A or circuit breaker type A: 3A or circuit breaker type B: 2A or circuit breaker type C: 1A<br>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 |
| Inputs                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                    |
| <b>design of input</b> <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                                                                                                                                                                                                   |
| pulse duration of the sensor input minimum                                                                                                                                                                                                                                                                                                                                                                          | 150 ms                                                                                                                                                                                                             |
| number of sensor inputs 1-channel or 2-channel                                                                                                                                                                                                                                                                                                                                                                      | 1                                                                                                                                                                                                                  |
| Outputs                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                    |
| <b>number of outputs as contact-affected switching element</b> <ul style="list-style-type: none"> <li>as NC contact               <ul style="list-style-type: none"> <li>for signaling function instantaneous contact</li> </ul> </li> <li>as NO contact               <ul style="list-style-type: none"> <li>safety-related instantaneous contact</li> <li>safety-related delayed switching</li> </ul> </li> </ul> | 1<br>3<br>0                                                                                                                                                                                                        |
| <b>switching capacity current of the NO contacts of the relay outputs at DC-13</b> <ul style="list-style-type: none"> <li>at 24 V</li> <li>at 115 V</li> <li>at 230 V</li> </ul>                                                                                                                                                                                                                                    | 5 A<br>0.2 A<br>0.1 A                                                                                                                                                                                              |
| <b>switching capacity current of the NO contacts of the relay outputs at AC-15</b> <ul style="list-style-type: none"> <li>at 115 V</li> <li>at 230 V</li> </ul>                                                                                                                                                                                                                                                     | 5 A<br>5 A                                                                                                                                                                                                         |
| <b>switching capacity current of the NC contacts of the relay outputs at DC-13</b> <ul style="list-style-type: none"> <li>at 24 V</li> <li>at 115 V</li> <li>at 230 V</li> </ul>                                                                                                                                                                                                                                    | 1 A<br>0.2 A<br>0.1 A                                                                                                                                                                                              |
| <b>switching capacity current of the NC contacts of the relay outputs at AC-15</b> <ul style="list-style-type: none"> <li>at 24 V</li> <li>at 115 V</li> <li>at 230 V</li> </ul>                                                                                                                                                                                                                                    | 2 A<br>1.5 A<br>1.5 A                                                                                                                                                                                              |
| <b>total current maximum</b>                                                                                                                                                                                                                                                                                                                                                                                        | 12 A                                                                                                                                                                                                               |
| <b>operational current at 17 V minimum</b>                                                                                                                                                                                                                                                                                                                                                                          | 5 mA                                                                                                                                                                                                               |
| Times                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                    |
| <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>typical</li> <li>maximum</li> </ul>                                                                                                                                                                                                                                                                                                    | 15 ms<br>20 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> <ul style="list-style-type: none"> <li>typical</li> <li>maximum</li> </ul>                                                                                                                                                                                                                                                                                | 65 ms<br>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> <ul style="list-style-type: none"> <li>of the ON pushbutton input minimum</li> </ul>                                                                                                                                                                                                                                                                                                          | 0.015 s                                                                                                                                                                                                            |

| Control circuit/ Control                                                       |              |
|--------------------------------------------------------------------------------|--------------|
| type of voltage of the control supply voltage                                  | AC/DC        |
| control supply voltage at AC                                                   |              |
| • at 50 Hz rated value                                                         | 24 V         |
| • at 60 Hz rated value                                                         | 24 V         |
| control supply voltage frequency                                               |              |
| • 1 rated value                                                                | 50 Hz        |
| • 2 rated value                                                                | 60 Hz        |
| control supply voltage at DC rated value                                       | 24 V         |
| operating range factor control supply voltage rated value of magnet coil at DC |              |
| • initial value                                                                | 0.85         |
| • full-scale value                                                             | 1.2          |
| operating range factor control supply voltage rated value of magnet coil at AC |              |
| • at 50 Hz                                                                     | 0.85 ... 1.1 |
| • at 60 Hz                                                                     | 0.85 ... 1.1 |

| Installation/ mounting/ dimensions |                            |
|------------------------------------|----------------------------|
| mounting position                  | any                        |
| fastening method                   | screw and snap-on mounting |
| height                             | 100 mm                     |
| width                              | 22.5 mm                    |
| depth                              | 121.6 mm                   |
| required spacing                   |                            |
| • for grounded parts at the side   | 5 mm                       |

| Connections/ Terminals                                                   |                                            |
|--------------------------------------------------------------------------|--------------------------------------------|
| type of electrical connection                                            | screw terminal                             |
| wire length                                                              |                                            |
| • for total of all sensor circuits with Cu 1.5 mm² and 150 nF/km maximum | 2 000 m                                    |
| type of connectable conductor cross-sections                             |                                            |
| • solid                                                                  | 1x (0.5 ... 2.5 mm²), 2x (1.0 ... 1.5 mm²) |
| • finely stranded with core end processing                               | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.0 mm²) |
| • for AWG cables solid                                                   | 1x (20 ... 14), 2x (18 ... 16)             |
| • for AWG cables stranded                                                | 1x (20 ... 16), 2x (20 ... 16)             |
| type of electrical connection plug-in socket                             | No                                         |

#### Approvals Certificates

|                          |     |
|--------------------------|-----|
| General Product Approval | EMV |
|--------------------------|-----|



|                   |                   |                      |
|-------------------|-------------------|----------------------|
| Functional Safety | Test Certificates | Maritime application |
|-------------------|-------------------|----------------------|

[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)



|       |         |             |
|-------|---------|-------------|
| other | Railway | Environment |
|-------|---------|-------------|



[Confirmation](#)

[Confirmation](#)

[Environmental Confirmations](#)

#### Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

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=3SK1111-1AB30>

Cax online generator

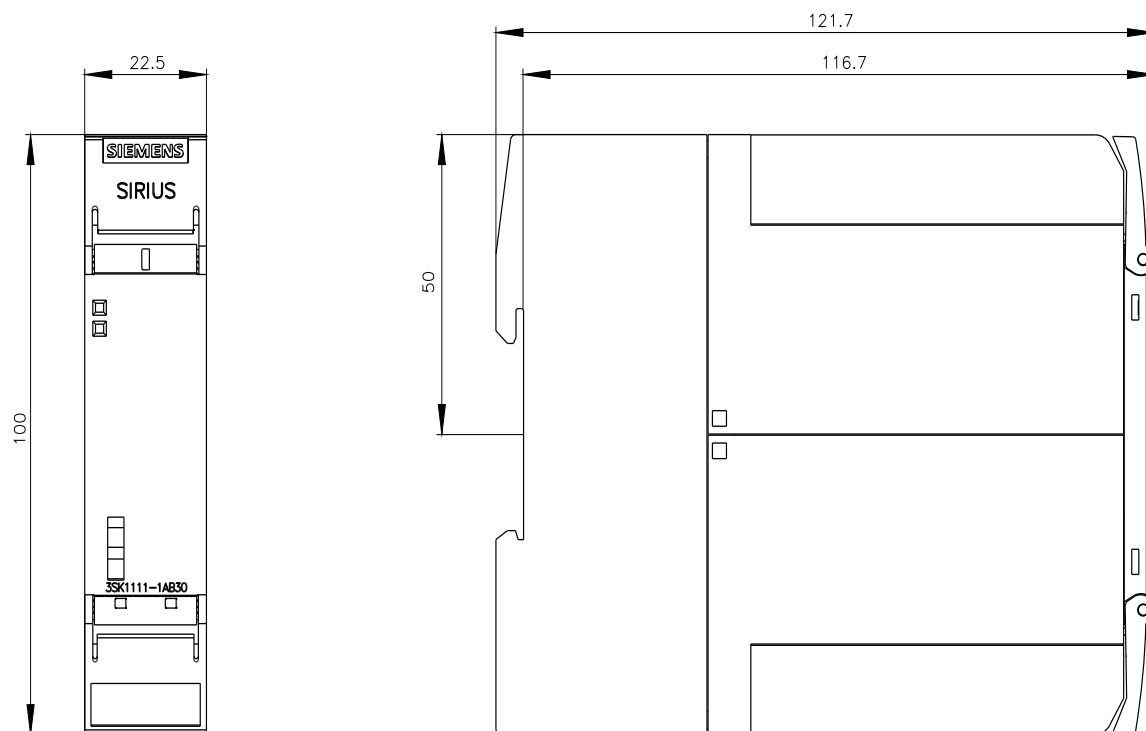
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1111-1AB30>

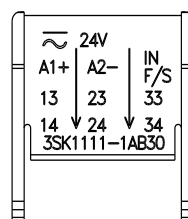
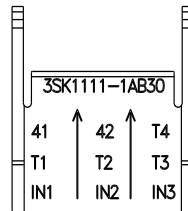
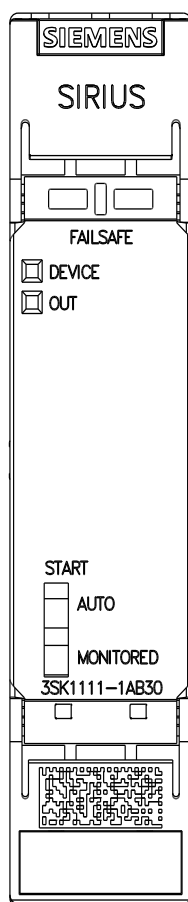
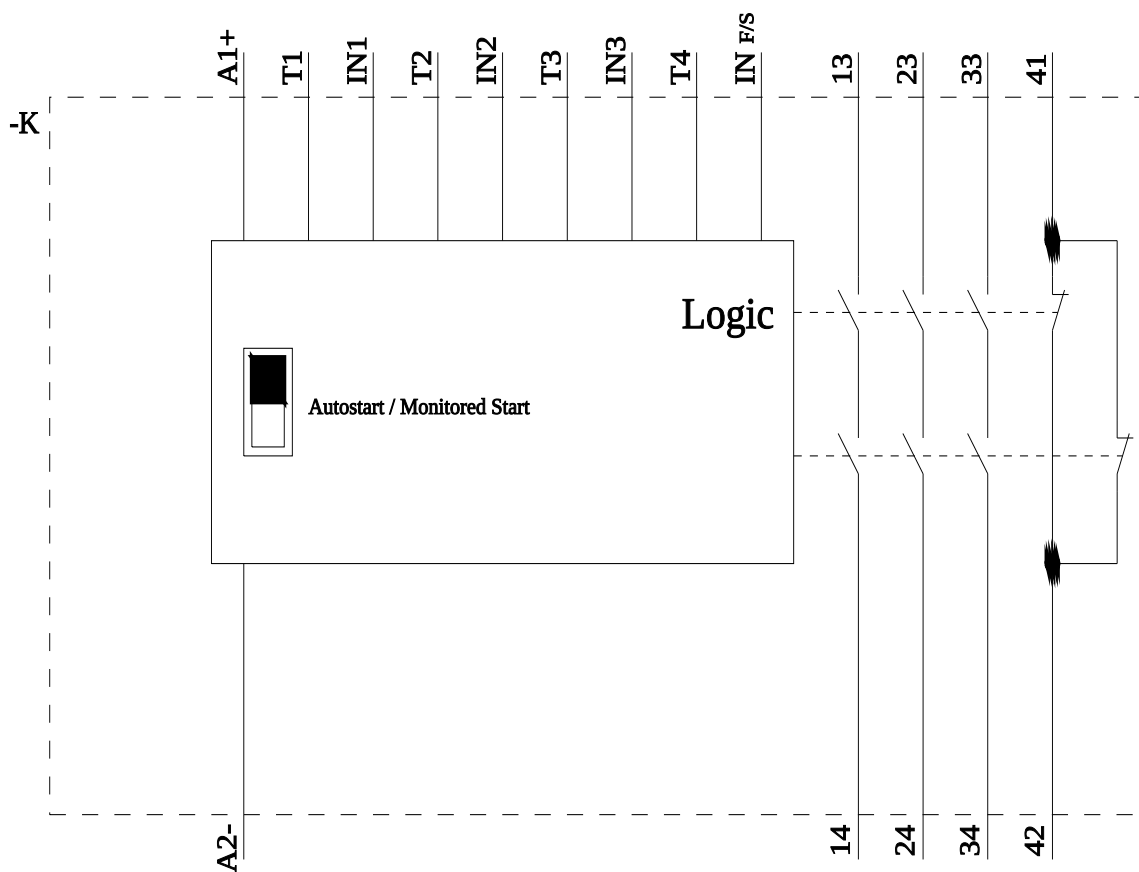
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1111-1AB30>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1111-1AB30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1111-1AB30&lang=en)





last modified:

4/18/2025