



SIRIUS safety relay Basic unit Advanced series with time delay 0.5-30 s electronic enabling circuits 2 NO instantaneous 2 NO delayed  $U_s = 24\text{ V DC}$  screw terminal

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                               | SIRIUS                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| product category                                 | Safety relays                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| product designation                              | safety relays                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| design of the product                            | Solid-state enabling circuits                                                                                                                                                                                                                                                                                                                                                                                                                      |
| product type designation                         | 3SK1                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| product line                                     | Advanced basic unit                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Product Function</b>                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| product function parameterizable                 | sensor floating / sensor non-floating, monitored start-up / automatic start, 1-channel / 2-channel sensor connection, cross-circuit detection, startup testing, antivalent sensors, 2-hand switches, time delay                                                                                                                                                                                                                                    |
| product function                                 | <ul style="list-style-type: none"> <li>• automatic start</li> <li>• light barrier monitoring</li> <li>• protective door monitoring</li> <li>• magnetically operated switch monitoring NC-NO</li> <li>• magnetically operated switch monitoring NC-NC</li> <li>• laser scanner monitoring</li> <li>• light array monitoring</li> <li>• EMERGENCY OFF function</li> <li>• monitored start-up</li> <li>• pressure-sensitive mat monitoring</li> </ul> |
| suitability for interaction press control        | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| suitability for operation device connector 3ZY12 | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| suitability for use                              | <ul style="list-style-type: none"> <li>• monitoring of floating sensors</li> <li>• monitoring of non-floating sensors</li> <li>• position switch monitoring</li> <li>• EMERGENCY-OFF circuit monitoring</li> <li>• opto-electronic protection device monitoring</li> <li>• magnetically operated switch monitoring</li> <li>• safety switch</li> <li>• safety-related circuits</li> </ul>                                                          |
| <b>General technical data</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| certificate of suitability UL approval           | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| product feature cross-circuit-proof              | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| power loss [W] maximum                           | 2 W                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| insulation voltage rated value                   | 50 V                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| degree of pollution                              | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| overvoltage category                             | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| surge voltage resistance rated value             | 800 V                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| protection class IP of the enclosure             | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|                                                                                                 |                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>shock resistance</b>                                                                         | 10g / 11 ms                                                                                                                                                                                                                                                                                                |
| <b>vibration resistance according to IEC 60068-2-6</b>                                          | 5 ... 500 Hz: 0.75 mm                                                                                                                                                                                                                                                                                      |
| <b>operating frequency maximum</b>                                                              | 2 000 1/h                                                                                                                                                                                                                                                                                                  |
| <b>reference code according to IEC 81346-2</b>                                                  | F                                                                                                                                                                                                                                                                                                          |
| <b>Substance Prohibitance (Date)</b>                                                            | 11/05/2012                                                                                                                                                                                                                                                                                                 |
| <b>SVHC substance name</b>                                                                      | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8<br>2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5<br>6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1<br>Lead titanium zirconium oxide - 12626-81-2 |
| <b>Weight</b>                                                                                   | 0.199 kg                                                                                                                                                                                                                                                                                                   |
| <b>Ambient conditions</b>                                                                       |                                                                                                                                                                                                                                                                                                            |
| installation altitude at height above sea level maximum                                         | 4 000 m; Derating, see Product Notification 109792701                                                                                                                                                                                                                                                      |
| <b>ambient temperature</b>                                                                      |                                                                                                                                                                                                                                                                                                            |
| • 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>                                                            |                                                                                                                                                                                                                                                                                                            |
| <b>installation environment regarding EMC</b>                                                   | This product is suitable for Class A environments only. In household environments, this device can cause unwanted radio interference. The user is required to implement appropriate measures in this case.                                                                                                 |
| <b>EMC emitted interference</b>                                                                 | IEC 60947-5-1, Class A                                                                                                                                                                                                                                                                                     |
| <b>Safety related data</b>                                                                      |                                                                                                                                                                                                                                                                                                            |
| product function suitable for safety function                                                   | Yes                                                                                                                                                                                                                                                                                                        |
| <b>safe state</b>                                                                               | Safety outputs switched off                                                                                                                                                                                                                                                                                |
| <b>test wear-related service life necessary</b>                                                 | No                                                                                                                                                                                                                                                                                                         |
| <b>diagnostics test interval by internal test function maximum</b>                              | 600 s                                                                                                                                                                                                                                                                                                      |
| <b>stop category according to IEC 60204-1</b>                                                   | 0 / 1                                                                                                                                                                                                                                                                                                      |
| <b>IEC 62061</b>                                                                                |                                                                                                                                                                                                                                                                                                            |
| SIL Claim Limit (subsystem) according to EN 62061                                               | 3                                                                                                                                                                                                                                                                                                          |
| <b>Safety Integrity Level (SIL)</b>                                                             |                                                                                                                                                                                                                                                                                                            |
| • according to IEC 62061                                                                        | SIL 3                                                                                                                                                                                                                                                                                                      |
| • at 2-channel evaluation according to IEC 62061                                                | 3                                                                                                                                                                                                                                                                                                          |
| PFHD with high demand rate according to IEC 62061                                               | 1.5E-9 1/h                                                                                                                                                                                                                                                                                                 |
| <b>ISO 13849</b>                                                                                |                                                                                                                                                                                                                                                                                                            |
| category according to EN ISO 13849-1                                                            | 4                                                                                                                                                                                                                                                                                                          |
| <b>performance level (PL)</b>                                                                   |                                                                                                                                                                                                                                                                                                            |
| • according to ISO 13849-1                                                                      | PL e                                                                                                                                                                                                                                                                                                       |
| • at 2-channel evaluation according to ISO 13849-1                                              | e                                                                                                                                                                                                                                                                                                          |
| • for delayed release circuit according to ISO 13849-1                                          | e                                                                                                                                                                                                                                                                                                          |
| <b>category</b>                                                                                 |                                                                                                                                                                                                                                                                                                            |
| • according to ISO 13849-1                                                                      | 4                                                                                                                                                                                                                                                                                                          |
| • at 2-channel evaluation according to ISO 13849-1                                              | 4                                                                                                                                                                                                                                                                                                          |
| <b>overdimensioning according to ISO 13849-2 necessary</b>                                      | No                                                                                                                                                                                                                                                                                                         |
| <b>IEC 61508</b>                                                                                |                                                                                                                                                                                                                                                                                                            |
| <b>Safety Integrity Level (SIL)</b>                                                             |                                                                                                                                                                                                                                                                                                            |
| • according to IEC 61508                                                                        | 3                                                                                                                                                                                                                                                                                                          |
| • for delayed release circuit according to IEC 61508                                            | SIL3                                                                                                                                                                                                                                                                                                       |
| • at single-channel evaluation according to IEC 61508                                           | 1                                                                                                                                                                                                                                                                                                          |
| • at 2-channel evaluation according to IEC 61508                                                | 3                                                                                                                                                                                                                                                                                                          |
| <b>safety device type according to IEC 61508-2</b>                                              | Type B                                                                                                                                                                                                                                                                                                     |
| <b>PFHD with high demand rate according to IEC 61508</b>                                        | 1.5E-9 1/h                                                                                                                                                                                                                                                                                                 |
| <b>Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508</b> | 7E-6 1/y                                                                                                                                                                                                                                                                                                   |
| PFDavg with low demand rate according to IEC 61508                                              | 7E-6                                                                                                                                                                                                                                                                                                       |
| <b>Safe failure fraction (SFF)</b>                                                              | 99 %                                                                                                                                                                                                                                                                                                       |
| <b>hardware fault tolerance</b>                                                                 |                                                                                                                                                                                                                                                                                                            |
| • according to IEC 61508                                                                        | 1                                                                                                                                                                                                                                                                                                          |
| • at single-channel evaluation according to IEC 61508                                           | 0                                                                                                                                                                                                                                                                                                          |
| • at 2-channel evaluation according to IEC 61508                                                | 1                                                                                                                                                                                                                                                                                                          |
| <b>T1 value</b>                                                                                 |                                                                                                                                                                                                                                                                                                            |

|                                                                                                                                                                                                                                                                        |                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <ul style="list-style-type: none"> <li>• of service life according to IEC 61508</li> <li>• for proof test interval or service life according to IEC 61508</li> </ul>                                                                                                   | 20 a<br>20 a               |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                               |                            |
| <b>touch protection against electrical shock</b>                                                                                                                                                                                                                       | finger-safe                |
| <b>Short-circuit protection</b>                                                                                                                                                                                                                                        |                            |
| <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> </ul>                                                                                                       | not required               |
| <b>Inputs</b>                                                                                                                                                                                                                                                          |                            |
| <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>                                                                                                       | Yes<br>Yes<br>Yes          |
| pulse duration of the sensor input minimum                                                                                                                                                                                                                             | 60 ms                      |
| number of sensor inputs 1-channel or 2-channel                                                                                                                                                                                                                         | 1                          |
| <b>Outputs</b>                                                                                                                                                                                                                                                         |                            |
| <b>number of outputs as contact-affected switching element</b> <ul style="list-style-type: none"> <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> | 0<br>0                     |
| <b>number of outputs as contact-less semiconductor switching element</b> <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> </ul>                    | 2<br>2                     |
| switching capacity current of semiconductor outputs at DC-13 at 24 V                                                                                                                                                                                                   | 2 A                        |
| <b>Times</b>                                                                                                                                                                                                                                                           |                            |
| <b>make time with automatic start</b> <ul style="list-style-type: none"> <li>• at DC maximum</li> </ul>                                                                                                                                                                | 85 ms                      |
| <b>make time with automatic start after power failure</b> <ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>                                                                                                                               | 6 500 ms<br>6 500 ms       |
| <b>make time with monitored start</b> <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                                                                                                                                      | 85 ms                      |
| <b>backslide delay time after opening of the safety circuits typical</b>                                                                                                                                                                                               | 40 ms                      |
| <b>adjustable OFF-delay time after opening of the safety circuits</b>                                                                                                                                                                                                  | 0.5 ... 30 s               |
| <b>recovery time after opening of the safety circuits typical</b>                                                                                                                                                                                                      | 30 ms                      |
| <b>recovery time after power failure typical</b>                                                                                                                                                                                                                       | 6.5 s                      |
| <b>pulse duration</b> <ul style="list-style-type: none"> <li>• of the ON pushbutton input minimum</li> </ul>                                                                                                                                                           | 0.15 s                     |
| <b>Control circuit/ Control</b>                                                                                                                                                                                                                                        |                            |
| <b>type of voltage of the control supply voltage</b>                                                                                                                                                                                                                   | DC                         |
| <b>control supply voltage at DC rated value</b>                                                                                                                                                                                                                        | 24 V                       |
| <b>operating range factor control supply voltage rated value of magnet coil at DC</b> <ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>                                                                                    | 0.8<br>1.2                 |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                                                              |                            |
| <b>mounting position</b>                                                                                                                                                                                                                                               | any                        |
| <b>fastening method</b>                                                                                                                                                                                                                                                | screw and snap-on mounting |
| <b>height</b>                                                                                                                                                                                                                                                          | 100 mm                     |
| <b>width</b>                                                                                                                                                                                                                                                           | 22.5 mm                    |
| <b>depth</b>                                                                                                                                                                                                                                                           | 121.6 mm                   |
| <b>required spacing</b> <ul style="list-style-type: none"> <li>• for grounded parts at the side</li> </ul>                                                                                                                                                             | 5 mm                       |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                          |                            |
| <b>type of electrical connection</b>                                                                                                                                                                                                                                   | screw terminal             |
| <b>wire length</b>                                                                                                                                                                                                                                                     |                            |

|                                                                                                                                                                                                                                      |                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• with Cu 1.5 mm<sup>2</sup> and 150 nF/km per sensor circuit maximum</li> </ul>                                                                                                              | 4 000 m                                                                                                                                                                                                          |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> <li>• for AWG cables solid</li> <li>• for AWG cables stranded</li> </ul> | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (1.0 ... 1.5 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (20 ... 14), 2x (18 ... 16)<br>1x (20 ... 16), 2x (20 ... 16) |
| <b>type of electrical connection plug-in socket</b>                                                                                                                                                                                  | No                                                                                                                                                                                                               |

#### Approvals Certificates

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



|                   |                   |                   |
|-------------------|-------------------|-------------------|
| Functional Safety | Test Certificates | Marine / Shipping |
|-------------------|-------------------|-------------------|

[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=3SK1122-1CB42>

Cax online generator

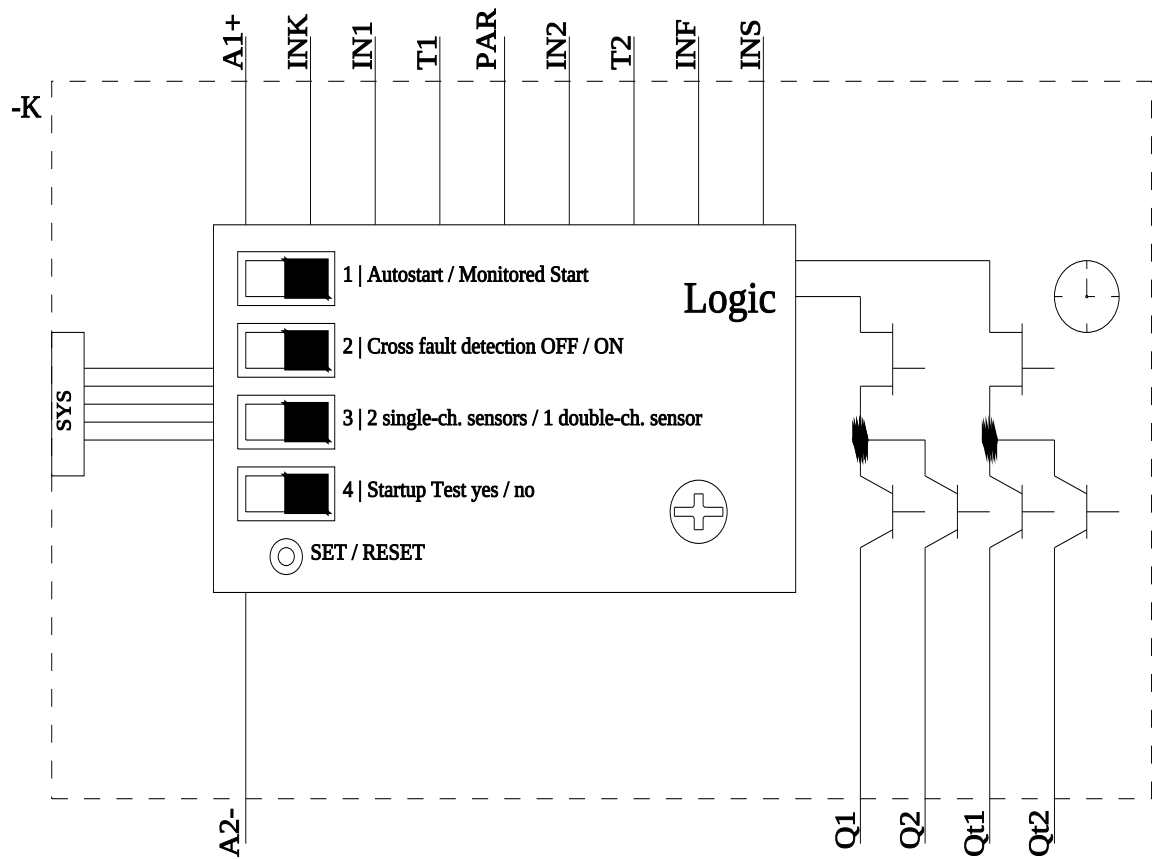
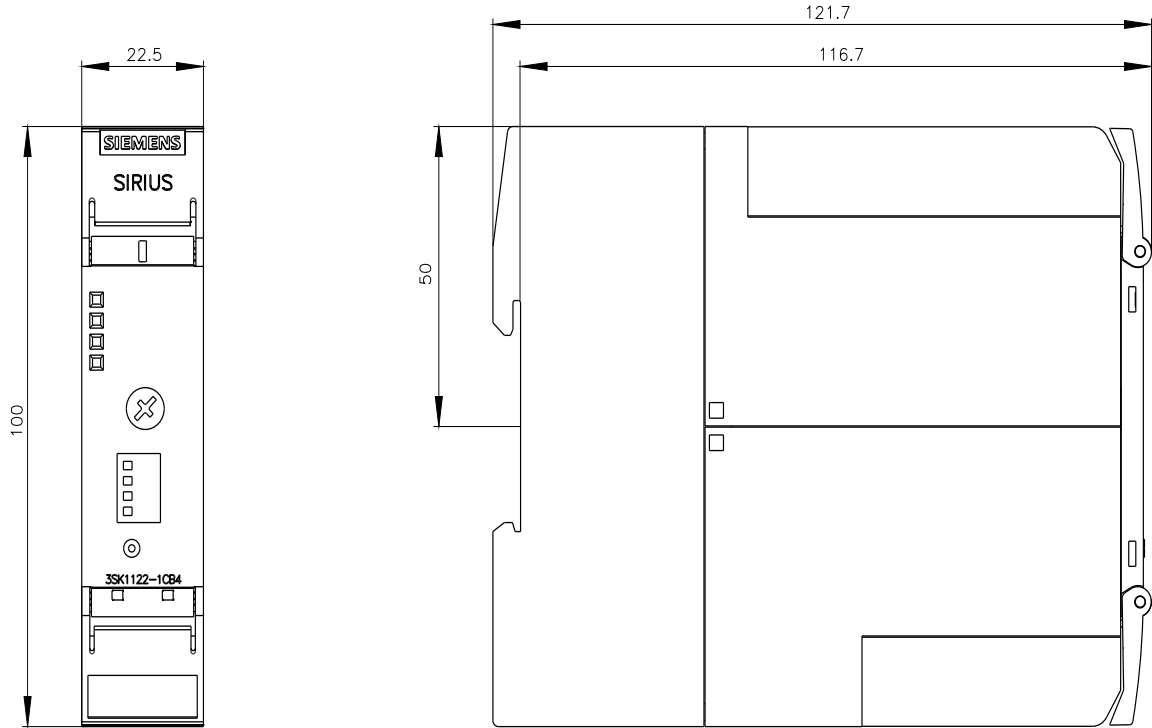
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1122-1CB42>

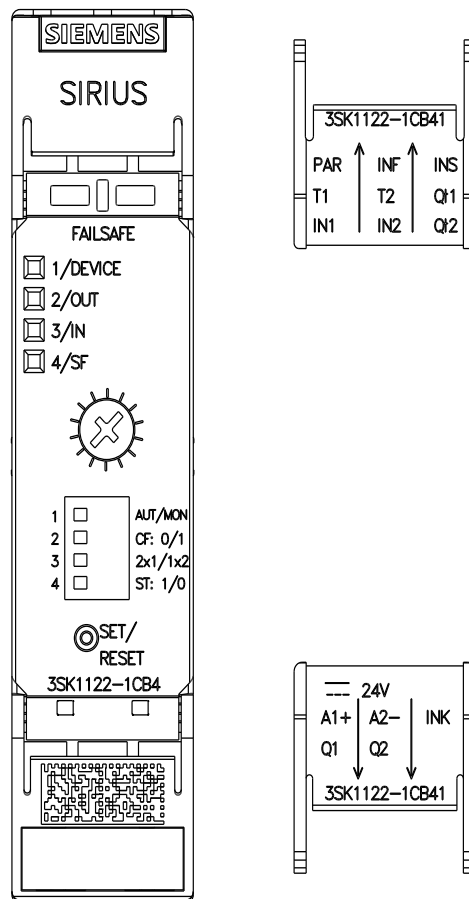
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1122-1CB42>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1122-1CB42&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1122-1CB42&lang=en)





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