SIEMENS

## Data sheet 3SK1121-2CB41



SIRIUS safety relay Basic unit Advanced series with time delay 0.05-3 s Relay enabling circuits 2 NO instantaneous 2 NO delayed Us = 24 V DC Spring-type terminal (push-in)

| | |
|---|---|
| **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** | Advanced basic unit |
| **Product Function** | |
| **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** | |
| ● automatic start | Yes |
| ● light barrier monitoring | Yes |
| ● protective door monitoring | Yes |
| ● magnetically operated switch monitoring NC-NO | Yes |
| ● 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 |
| **product feature cross-circuit-proof** | Yes |
| **suitability for interaction press control** | Yes |
| **suitability for operation device connector 3ZY12** | Yes |
| **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-related circuits | Yes |
| **General technical data** | |
| certificate of suitability UL approval | Yes |
| **product feature protective coating on printed-circuit board** | No |
| **power loss [W] maximum** | 2.5 W |
| **insulation voltage rated value** | 300 V |
| **degree of pollution** | 3 |
| **overvoltage category** | 3 |
| **surge voltage resistance rated value** | 4 000 V |


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|---|---|
| protection class IP of the enclosure | IP20 |
| **shock resistance** | 10 g / 11 ms |
| **vibration resistance according to IEC 60068-2-6** | 5 ... 500 Hz: 0.75 mm |
| **operating frequency maximum** | 360 1/h |
| **reference code according to IEC 81346-2** | F |
| **Substance Prohibitance (day/month/year)** | 11/05/2012 |
| **SVHC substance name** | Lead CAS-No. 7439-92-1<br>Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5<br>Melamine CAS-No. 108-78-1<br>6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol CAS-No. 119-47-1<br>4,4'-isopropylidenediphenol (Bisphenol A, BPA) CAS-No. 80-05-7 |
| **Net Weight** | 0.227 kg |
| **Ambient conditions** | |
| installation altitude at height above sea level maximum | 4 000 m |
| ● note | 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 |
| **Electromagnetic compatibility** | |
| **installation environment regarding EMC** | 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. |
| **EMC emitted interference** | IEC 60947-5-1, Class A |
| **Safety related data** | |
| 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 |
| **diagnostics test interval by internal test function maximum** | 600 s |
| **stop category according to IEC 60204-1** | 0 / 1 |
| IEC 62061 | |
| SIL Claim Limit (subsystem) according to EN 62061 | 3 |
| **Safety Integrity Level (SIL)** | |
| ● **according to IEC 62061** | SIL 3 |
| ● at single-channel evaluation according to IEC 62061 | 1 |
| ● at 2-channel evaluation according to IEC 62061 | 3 |
| **PFHD with high demand rate according to IEC 62061** | 0,0000000037 |
| ISO 13849 | |
| category according to EN ISO 13849-1 | 4 |
| **performance level (PL)** | |
| ● **according to ISO 13849-1** | PL e |
| ● at single-channel evaluation according to ISO 13849-1 | c |
| ● at 2-channel evaluation according to ISO 13849-1 | e |
| ● for delayed release circuit 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 |
| IEC 61508 | |
| **Safety Integrity Level (SIL)** | |
| ● 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 |
| **safety device type according to IEC 61508-2** | Type B |
| **PFHD with high demand rate according to IEC 61508** | 0,0000000037 |
| PFDavg with low demand rate according to IEC 61508 | 0.000007 |


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| **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** | |
| **design of the fuse link** | |
| ● for short-circuit protection of the NO contacts of the relay outputs required | gL/gG: 6A or circuit breaker type A: 3A or circuit breaker type B: 2A or circuit breaker type C: 1A |
| **Inputs** | |
| **design of input** | |
| ● cascading input/functional switching | Yes |
| ● feedback input | Yes |
| ● start input | Yes |
| pulse duration of the sensor input minimum | 75 ms |
| number of sensor inputs 1-channel or 2-channel | 1 |
| **Outputs** | |
| **number of outputs as contact-affected switching element** | |
| ● as NC contact | |
| — for signaling function instantaneous contact | 0 |
| ● as NO contact | |
| — safety-related instantaneous contact | 2 |
| — safety-related delayed switching | 2 |
| **mechanical service life (operating cycles) typical** | 10 000 000 |
| **thermal current of the switching element with contacts maximum** | 5 A |
| **switching capacity current of the NO contacts of the relay outputs at DC-13** | |
| ● at 24 V | 3 A |
| ● at 115 V | 0.2 A |
| ● at 230 V | 0.1 A |
| **switching capacity current of the NO contacts of the relay outputs at AC-15** | |
| ● at 115 V | 3 A |
| ● at 230 V | 3 A |
| **total current maximum** | 12 A |
| **operational current at 17 V minimum** | 5 mA |
| **Times** | |
| **make time with automatic start** | |
| ● at DC maximum | 110 ms |
| **make time with automatic start after power failure** | |
| ● typical | 6 500 ms |
| ● maximum | 6 500 ms |
| **make time with monitored start** | |
| ● maximum | 110 ms |
| **backslide delay time after opening of the safety circuits typical** | 40 ms |
| **backslide delay time in the event of power failure** | |
| ● typical | 30 ms |
| ● maximum | 40 ms |
| **adjustable OFF-delay time after opening of the safety circuits** | 0.05 ... 3 s |
| **recovery time after opening of the safety circuits typical** | 30 ms |
| **recovery time after power failure typical** | 6.5 s |
| **pulse duration** | |


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| ● of the ON pushbutton input minimum | 0.15 s |
| **Control circuit/ Control** | |
| **type of voltage of the control supply voltage** | DC |
| **control supply voltage at DC rated value** | 24 V |
| **operating range factor control supply voltage rated value of magnet coil at DC** | |
| ● initial value | 0.8 |
| ● full-scale value | 1.2 |
| **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** | spring-loaded terminal (push-in) |
| **wire length** | |
| ● with Cu 1.5 mm² and 150 nF/km per sensor circuit maximum | 4 000 m |
| **type of connectable conductor cross-sections** | |
| ● solid | 1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²) |
| ● finely stranded with core end processing | 1x (0.5 ... 1.0 mm²), 2x (0.5 ... 1.0 mm²) |
| ● finely stranded without core end processing | 1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²) |
| ● for AWG cables solid | 1x (20 ... 16), 2x (20 ... 16) |
| ● for AWG cables stranded | 1x (20 ... 16), 2x (20 ... 16) |
| **type of electrical connection plug-in socket** | No |

**Approvals Certificates**

| Environment | General Product Approval | | | | |
|---|---|---|---|---|---|
| Environmental Confirmations | EPD | CCC | cULus | EAC | CE EG-Konf. |

| General Product Approval | EMV | | Functional Saftey | Test Certificates | Maritime application |
|---|---|---|---|---|---|
| UKCA | KC | RCM | Type Examination Certificate | Type Test Certificates/Test Report | DNV |

| Maritime application | | other | | Railway |
|---|---|---|---|---|
| LRS | RINA | Confirmation | 产品合格 QC PASS | Confirmation |

**Further information**

**Information on the packaging**
https://support.industry.siemens.com/cs/ww/en/view/109813875
**Information for data generation and storage**
https://support.industry.siemens.com/cs/ww/en/view/109995012
**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=3SK1121-2CB41
**Cax online generator**
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1121-2CB41


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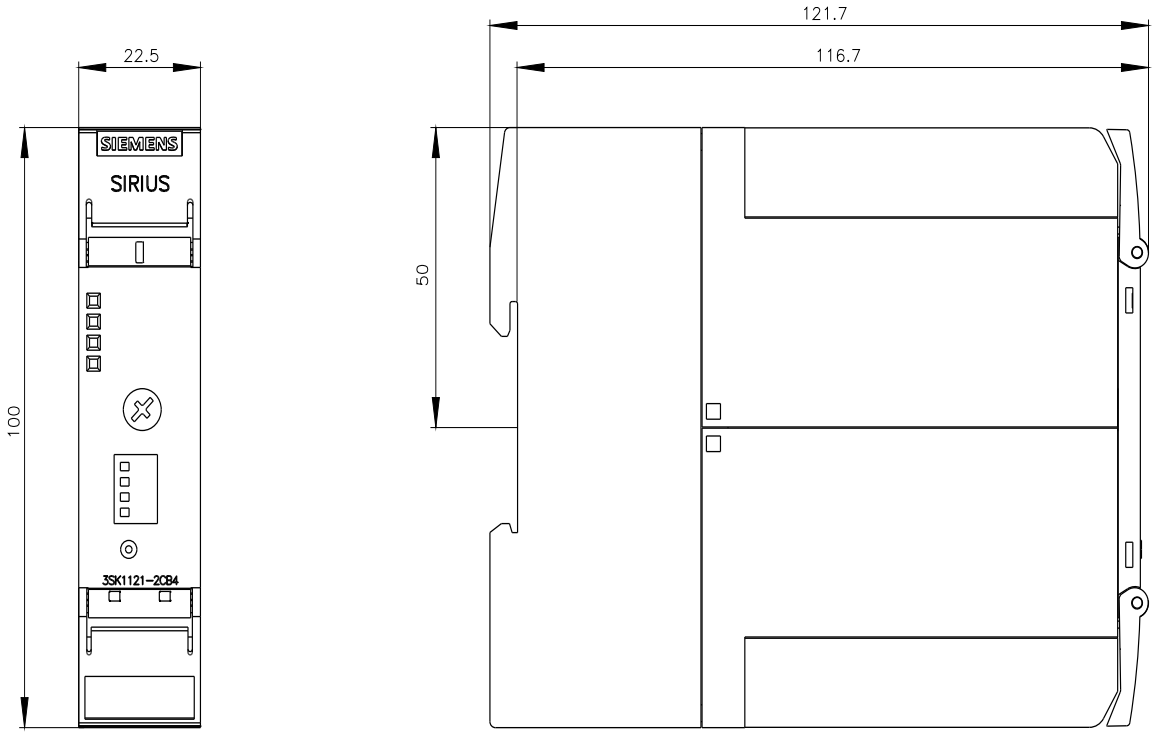
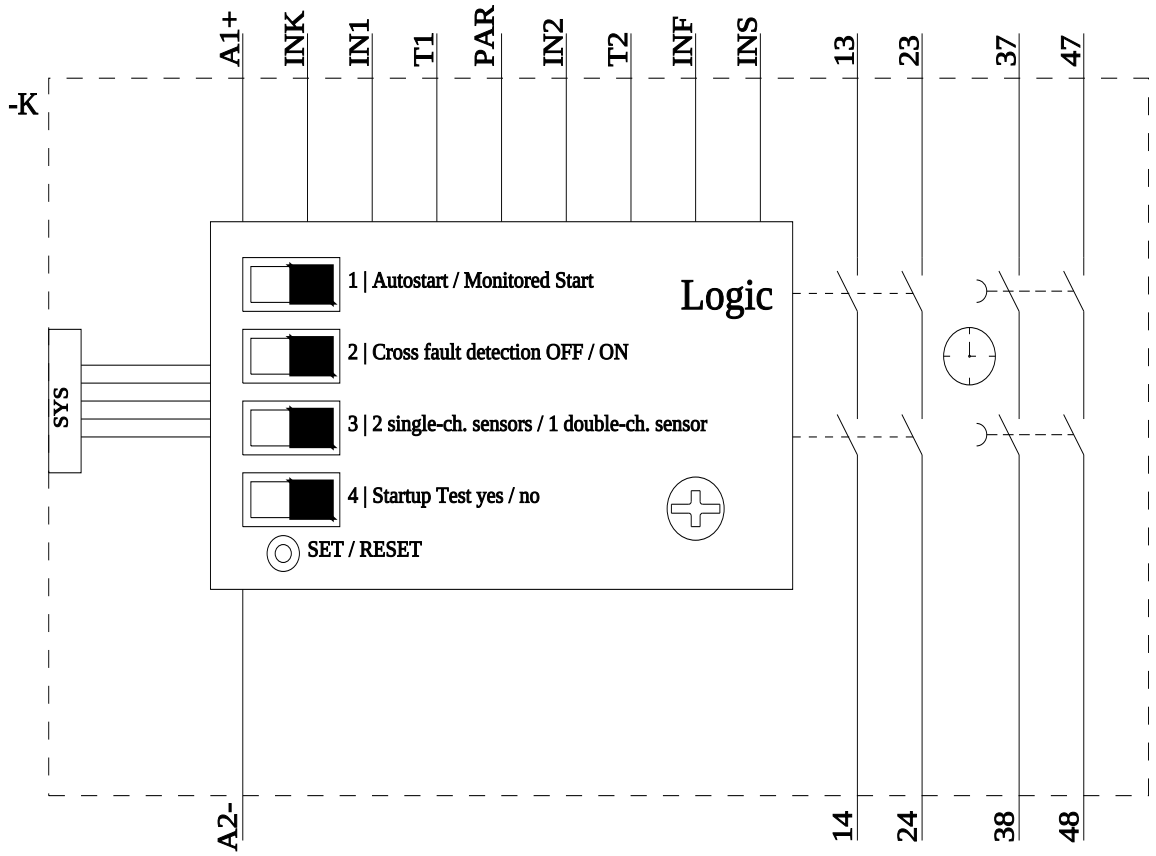
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3SK1121-2CB41
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1121-2CB41&lang=en





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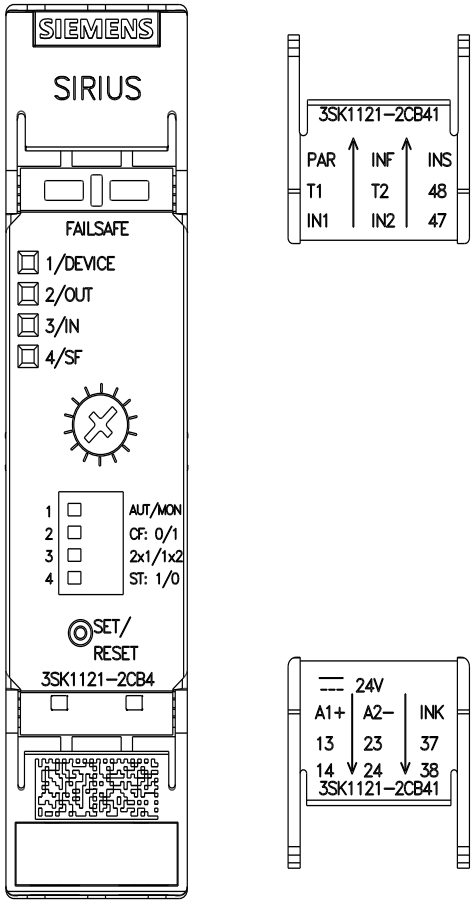


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