



SIRIUS safety relay Basic unit Advanced series with time delay 5-300 s Relay enabling circuits 2 NO instantaneous 2 NO delayed  $U_s = 24\text{ V DC}$  Spring-type terminal (push-in)

<b>product brand name</b>	SIRIUS
<b>product category</b>	Safety relays
<b>product designation</b>	safety relays
<b>design of the product</b>	Relay enabling circuits
<b>product type designation</b>	3SK1
<b>product line</b>	Advanced basic unit
<b>Product Function</b>	
<b>product function parameterizable</b>	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
<b>product function</b>	
<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>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>No</li> </ul>
<b>suitability for interaction press control</b>	Yes
<b>suitability for use</b>	
<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>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>
<b>General technical data</b>	
certificate of suitability UL approval	Yes
<b>product feature cross-circuit-proof</b>	Yes
<b>power loss [W] maximum</b>	2.5 W
<b>insulation voltage rated value</b>	300 V
<b>degree of pollution</b>	3
<b>overvoltage category</b>	3
<b>surge voltage resistance rated value</b>	4 000 V
protection class IP of the enclosure	IP20
<b>shock resistance</b>	10g / 11 ms

<b>operating frequency maximum</b>	360 1/h
<b>mechanical service life (operating cycles) typical</b>	10 000 000
<b>thermal current of the switching element with contacts maximum</b>	5 A
recovery time after opening of the safety circuits typical	30 ms
<b>make time with automatic start</b>	
• at DC maximum	110 ms
• after power failure typical	6 500 ms
• after power failure maximum	6 500 ms
<b>make time with monitored start</b>	
• maximum	110 ms
<b>backslide delay time after opening of the safety circuits typical</b>	40 ms
<b>backslide delay time in the event of power failure</b>	
• typical	30 ms
• maximum	40 ms
<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 Lead monoxide (lead oxide) - 1317-36-8 Lead titanium zirconium oxide - 12626-81-2 4,4'-isopropylidenediphenol (Bisphenol A, BPA) - 80-05-7

<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	90 ... 106 kPa

<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>	
<b>stop category according to IEC 60204-1</b>	0 / 1
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	3
PFHD with high demand rate according to IEC 62061	3.7E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
<b>performance level (PL)</b>	
• according to ISO 13849-1	e
• for delayed release circuit according to ISO 13849-1	e
IEC 61508	
Safety Integrity Level (SIL) for delayed release circuit according to IEC 61508	SIL3
<b>safety device type according to IEC 61508-2</b>	Type B
<b>Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508</b>	7E-6 1/y
<b>PFDavg with low demand rate according to IEC 61508</b>	7E-6
<b>Safe failure fraction (SFF)</b>	99 %
hardware fault tolerance according to IEC 61508	1
T1 value for proof test interval or service life according to IEC 61508	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>	
• 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

<b>Inputs</b>	
<b>design of input</b>	
• cascading input/functional switching	Yes

• feedback input	Yes
• start input	Yes
<b>pulse duration</b>	
• of the sensor input minimum	75 ms
• of the ON pushbutton input minimum	0.15 s
number of sensor inputs 1-channel or 2-channel	1

### Outputs

<b>number of outputs as contact-affected switching element</b>	
• as NO contact	
— safety-related instantaneous contact	2
— safety-related delayed switching	2
<b>switching capacity current of the NO contacts of the relay outputs at DC-13</b>	
• at 24 V	3 A
• at 115 V	0.2 A
• at 230 V	0.1 A
<b>switching capacity current of the NO contacts of the relay outputs at AC-15</b>	
• at 115 V	3 A
• at 230 V	3 A
<b>total current maximum</b>	12 A

### Control circuit/ Control

<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>	
• initial value	0.8
• full-scale value	1.2
<b>recovery time after power failure typical</b>	6.5 s

### Installation/ mounting/ dimensions

<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>	
• for grounded parts at the side	5 mm

### Connections/ Terminals

<b>type of electrical connection</b>	spring-loaded terminal (push-in)
<b>type of connectable conductor cross-sections</b>	
• solid	1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
• finely stranded with core end processing	1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
• finely stranded without core end processing	1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
• for AWG cables solid	1x (20 ... 16), 2x (20 ... 16)
• for AWG cables stranded	1x (20 ... 16), 2x (20 ... 16)
<b>type of electrical connection plug-in socket</b>	No

### Approvals Certificates

General Product Approval	EMV
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[Confirmation](#)



Functional Safety	Test Certificates	Marine / Shipping	other	Environment
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[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)



[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=3SK1121-2CB44>

### Cax online generator

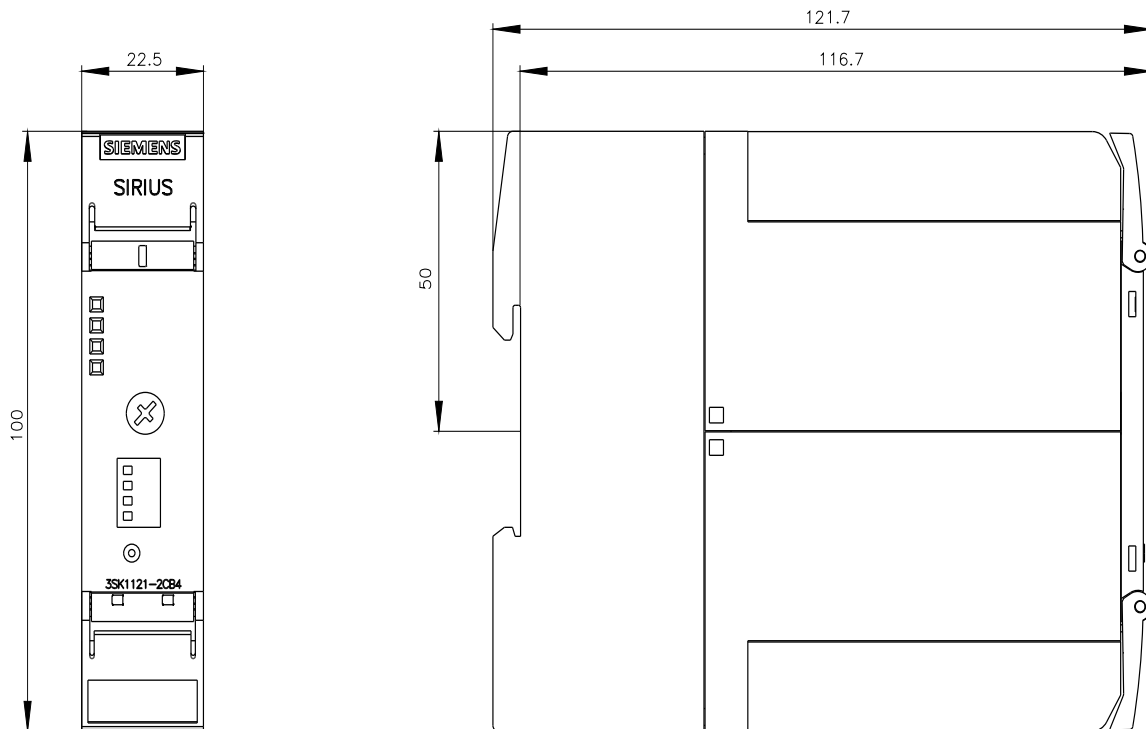
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1121-2CB44>

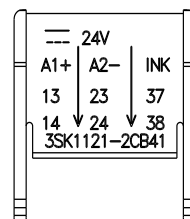
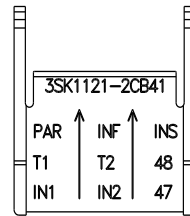
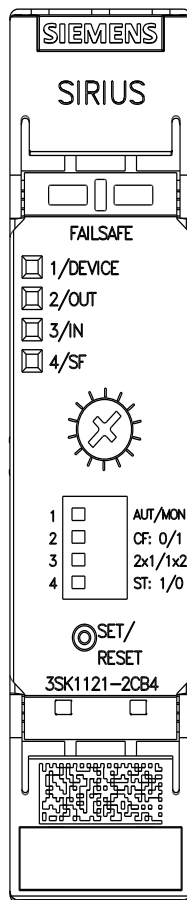
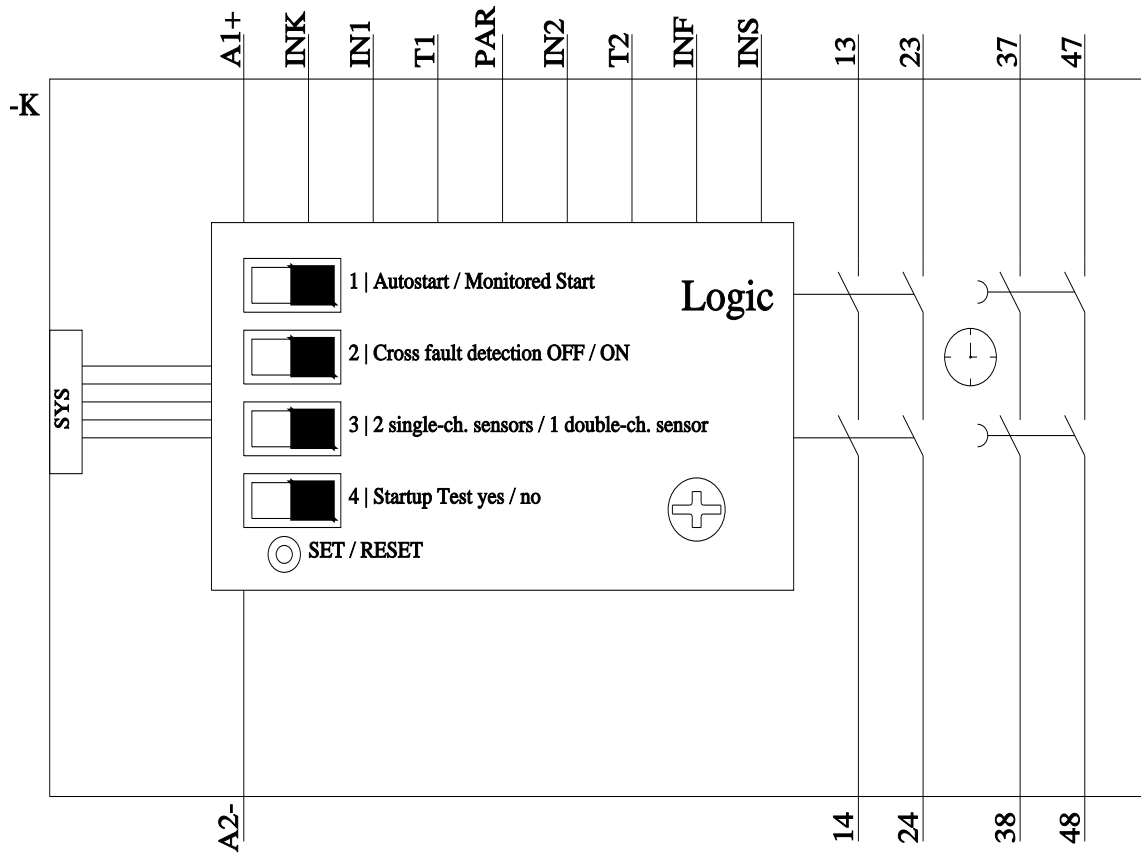
### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1121-2CB44>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1121-2CB44&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1121-2CB44&lang=en)





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