



SIRIUS safety relay Basic unit Standard series electronic enabling circuits 2 enabling circuits plus 1 signaling circuit  $U_s = 24\text{ V DC}$  Spring-type terminal (push-in)

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	Standard 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
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	No
suitability for operation device connector 3ZY12	No
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 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 Lead titanium zirconium oxide - 12626-81-2
<b>Weight</b>	0.16 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
<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	1E-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
<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
• 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>	1E-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>	
• of service life according to IEC 61508	20 a
• for proof test interval or service life according to IEC	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> </ul>	Yes
<ul style="list-style-type: none"> <li>feedback input</li> </ul>	Yes
<ul style="list-style-type: none"> <li>start input</li> </ul>	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</li> </ul>	
<ul style="list-style-type: none"> <li>— safety-related instantaneous contact</li> </ul>	0
<ul style="list-style-type: none"> <li>— safety-related delayed switching</li> </ul>	0
<b>number of outputs as contact-less semiconductor switching element</b>	
<ul style="list-style-type: none"> <li>for signaling function</li> </ul>	
<ul style="list-style-type: none"> <li>— instantaneous contact</li> </ul>	1
<ul style="list-style-type: none"> <li>safety-related</li> </ul>	
<ul style="list-style-type: none"> <li>— instantaneous contact</li> </ul>	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> </ul>	6 500 ms
<ul style="list-style-type: none"> <li>maximum</li> </ul>	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>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> </ul>	0.8
<ul style="list-style-type: none"> <li>full-scale value</li> </ul>	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>	91.6 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>	spring-loaded terminal (push-in)
<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>	

- solid
- finely stranded with core end processing
- finely stranded without core end processing
- for AWG cables solid
- for AWG cables stranded

1x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.5 ... 1.5 mm<sup>2</sup>)  
 1x (0.5 ... 1.0 mm<sup>2</sup>), 2x (0.5 ... 1.0 mm<sup>2</sup>)  
 1x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.5 ... 1.5 mm<sup>2</sup>)  
 1x (20 ... 16), 2x (20 ... 16)  
 1x (20 ... 16), 2x (20 ... 16)

type of electrical connection plug-in socket

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=3SK1112-2BB40>

Cax online generator

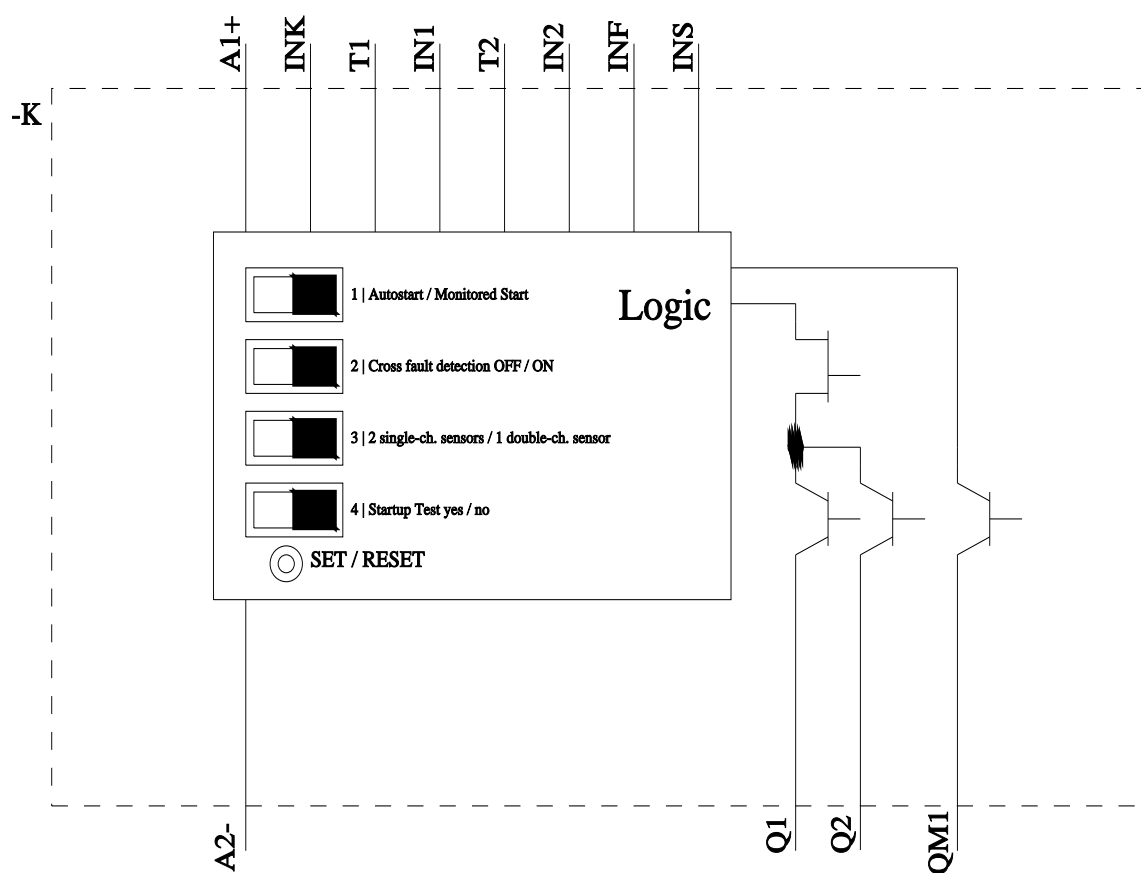
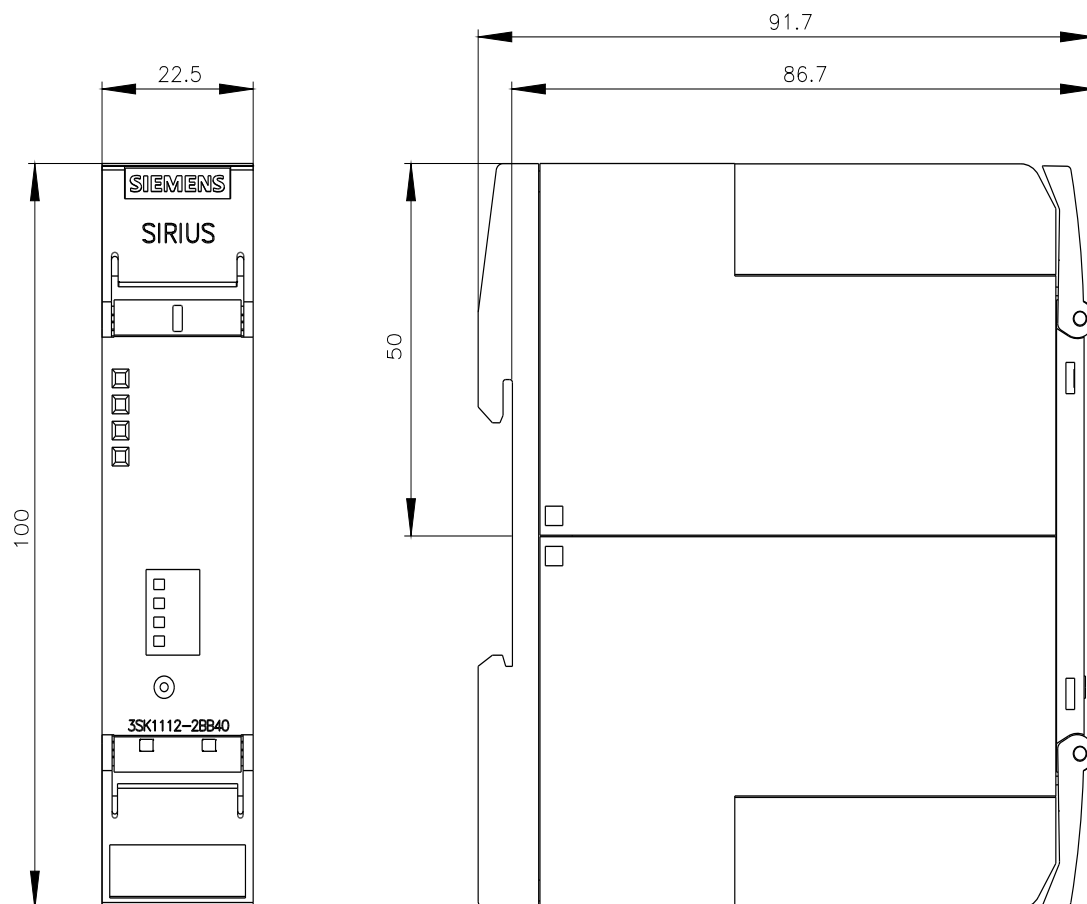
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1112-2BB40>

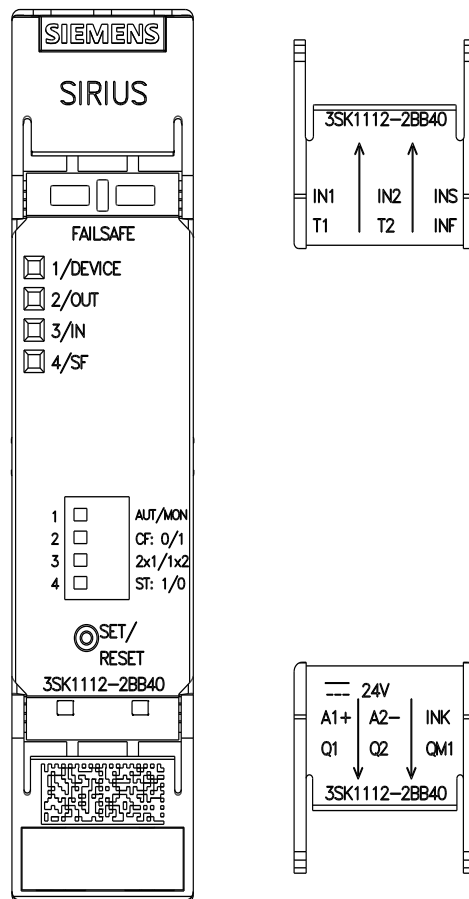
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1112-2BB40>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1112-2BB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1112-2BB40&lang=en)





last modified:

4/18/2025