



SIRIUS safety relay Output expansion 4RO with relay enabling circuits 4 NO contacts plus Relay signaling circuit 1 NC contact  $U_s = 24 \text{ V DC}$  Spring-type terminal (push-in)

product brand name	SIRIUS
product category	Safety relays
product designation	Output expansion
design of the product	Relay enabling circuits
product type designation	3SK1
<b>Product Function</b>	
product function parameterizable	undelayed/delayed (only with system connector)
suitability for use	
• safety-related circuits	Yes
<b>General technical data</b>	
certificate of suitability UL approval	Yes
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
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 Lead monoxide (lead oxide) - 1317-36-8 4,4'-isopropylidenediphenol (Bisphenol A, BPA) - 80-05-7
Weight	0.208 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, Class B
<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>	Yes
<b>function test interval maximum</b>	1 a
<b>stop category according to IEC 60204-1</b>	0
proportion of dangerous failures with low demand rate according to SN 31920	15 %
<b>failure rate [FIT] with low demand rate according to SN 31920</b>	130 FIT
<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
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
<b>performance level (PL)</b>	
• according to ISO 13849-1	PL e
<b>category</b>	
• according to ISO 13849-1	4
<b>device type according to ISO 13849-1</b>	1
<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
<b>safety device type according to IEC 61508-2</b>	Type A
<b>PFHD with high demand rate according to IEC 61508</b>	1.7E-9 1/h
<b>Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508</b>	1E-6 1/y
PFDavg with low demand rate according to IEC 61508	1E-6
<b>Safe failure fraction (SFF)</b>	99 %
<b>hardware fault tolerance</b>	
• 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 61508	20 a
<b>Electrical Safety</b>	
<b>touch protection against electrical shock</b>	finger-safe
<b>Short-circuit protection</b>	
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
<b>Inputs</b>	
<b>design of input</b>	
• feedback input	No
<b>Outputs</b>	
<b>number of outputs as contact-affected switching element</b>	
• as NC contact	
— for signaling function delayed switching	0
— safety-related instantaneous contact	0
— safety-related delayed switching	0
• as NO contact	
— for signaling function instantaneous contact	0
— for signaling function delayed switching	0
— safety-related instantaneous contact	4
— safety-related delayed switching	0
<b>number of outputs as contact-less semiconductor switching element</b>	
• for signaling function	
— delayed switching	0
<b>switching capacity current of the NO contacts of the relay outputs at DC-13</b>	
• at 24 V	5 A

<ul style="list-style-type: none"> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	0.2 A 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 24 V</li> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	5 A 5 A 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> </ul>	15 ms 30 ms
<b>make time with automatic start after power failure</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>	15 ms 30 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>	10 ms 15 ms
<b>recovery time after power failure typical</b>	0.015 s

#### 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>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.8 1.2
<b>ON-delay time</b>	
<ul style="list-style-type: none"> <li>• at DC maximum</li> </ul>	30 ms
<b>OFF-delay time maximum</b>	15 ms

#### 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>	
<ul style="list-style-type: none"> <li>• with side-by-side mounting at the side</li> <li>• for grounded parts at the side</li> </ul>	0 mm 5 mm

#### Connections/ Terminals

<b>type of electrical connection</b>	spring-loaded terminal (push-in)
<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>• finely stranded without core end processing</li> <li>• for AWG cables solid</li> <li>• for AWG cables stranded</li> </ul>	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)
<b>type of electrical connection plug-in socket</b>	No

#### Approvals Certificates

General Product Approval	EMV
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Functional Safety	Test Certificates	Maritime application
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other	Railway	Environment
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[Confirmation](#)

[Confirmation](#)

[Environmental Confirmations](#)

**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=3SK1211-2BB40>

Cax online generator

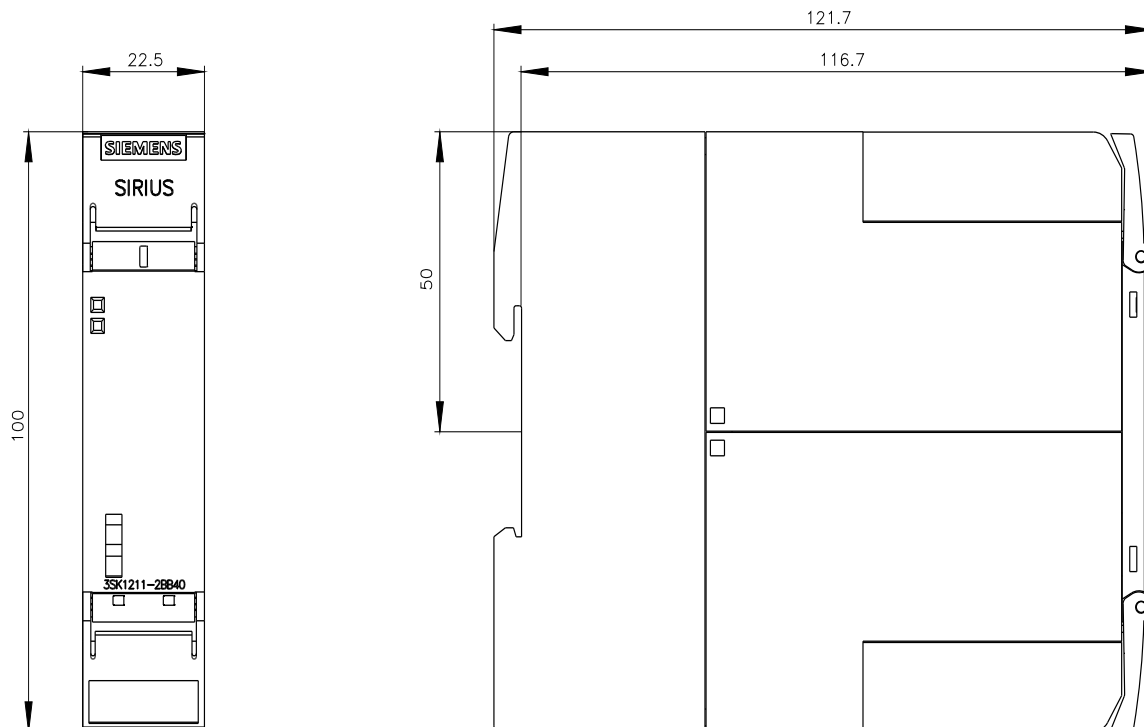
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1211-2BB40>

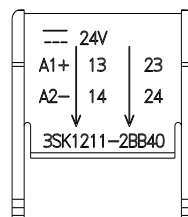
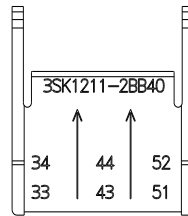
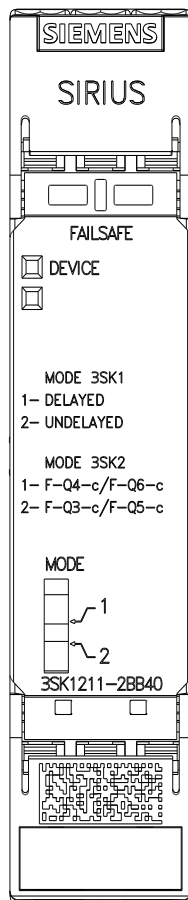
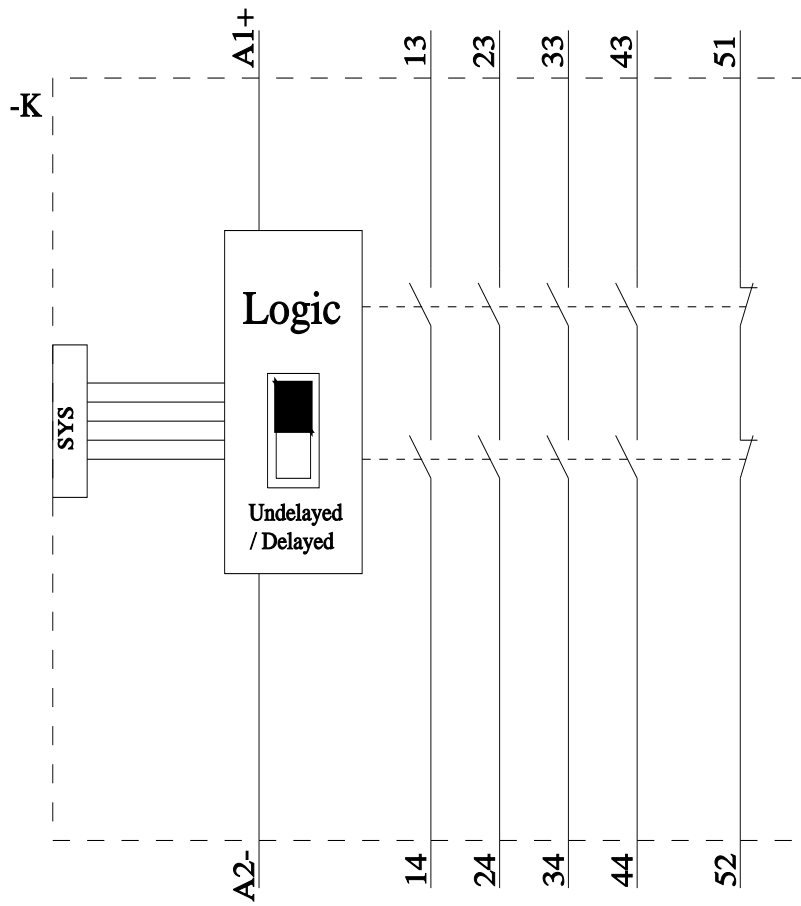
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1211-2BB40>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1211-2BB40&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1211-2BB40&lang=en)





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