



SIRIUS safety relay Output expansion 3RO Power, with Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact  $U_s = 230\text{ V AC}$  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>	
suitability for use	Yes
<ul style="list-style-type: none"> <li>• safety-related circuits</li> </ul>	Yes
<b>General technical data</b>	
certificate of suitability UL approval	Yes
power loss [W] maximum	3.5 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	5 g / 10 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	10 A
reference code according to IEC 81346-2	F
Substance Prohibition (Date)	11/05/2012
SVHC substance name	Lead - 7439-92-1
Weight	0.842 kg
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	4 000 m; Derating, see Product Notification 109792701
ambient temperature	
<ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> </ul>	-25 ... +60 °C -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	40 %
<b>failure rate [FIT] with low demand rate according to SN 31920</b>	100 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	0 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>	0 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: 16 A or MCB type A: 6 A or MCB type B: 4 A or MCB type C: 4 A
<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	3
— 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>	

<ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	6 A 1.1 A 0.55 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>	10 A 10 A 10 A
<b>total current maximum</b>	30 A
<b>operational current at 17 V minimum</b>	5 mA
<b>Times</b>	
<b>make time with automatic start</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• at AC maximum</li> </ul>	10 ms 15 ms
<b>make time with automatic start after power failure</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>	10 ms 15 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>	15 ms 15 ms
<b>recovery time after power failure typical</b>	0 s
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> <li>• at 60 Hz rated value</li> </ul>	230 V 230 V
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>• 1 rated value</li> <li>• 2 rated value</li> </ul>	50 Hz 60 Hz
<b>operating range factor control supply voltage rated value of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	0.85 ... 1.1 0.85 ... 1.1
<b>ON-delay time</b>	
<ul style="list-style-type: none"> <li>• at AC maximum</li> </ul>	15 ms
<b>OFF-delay time maximum</b>	15 ms
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	on horizontal standard DIN rail
<b>fastening method</b>	screw and snap-on mounting
<b>height</b>	100 mm
<b>width</b>	90 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
<b>Connections/ Terminals</b>	
<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 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 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
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	EMV



Functional Safety

Test Certificates

Maritime application

[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 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=3SK1213-2AL20>

Cax online generator

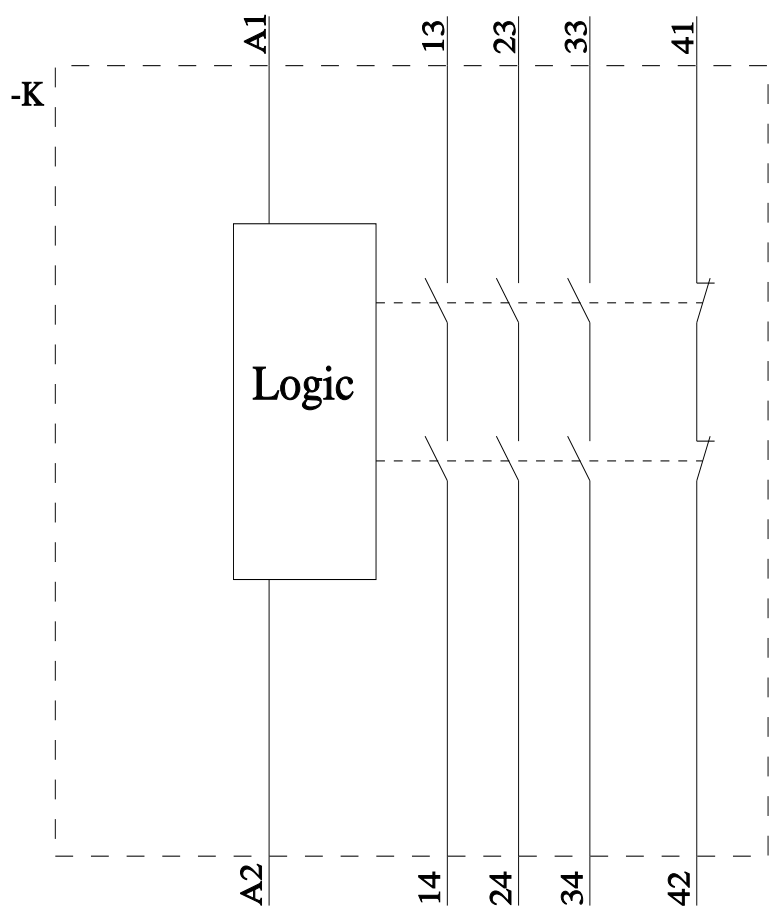
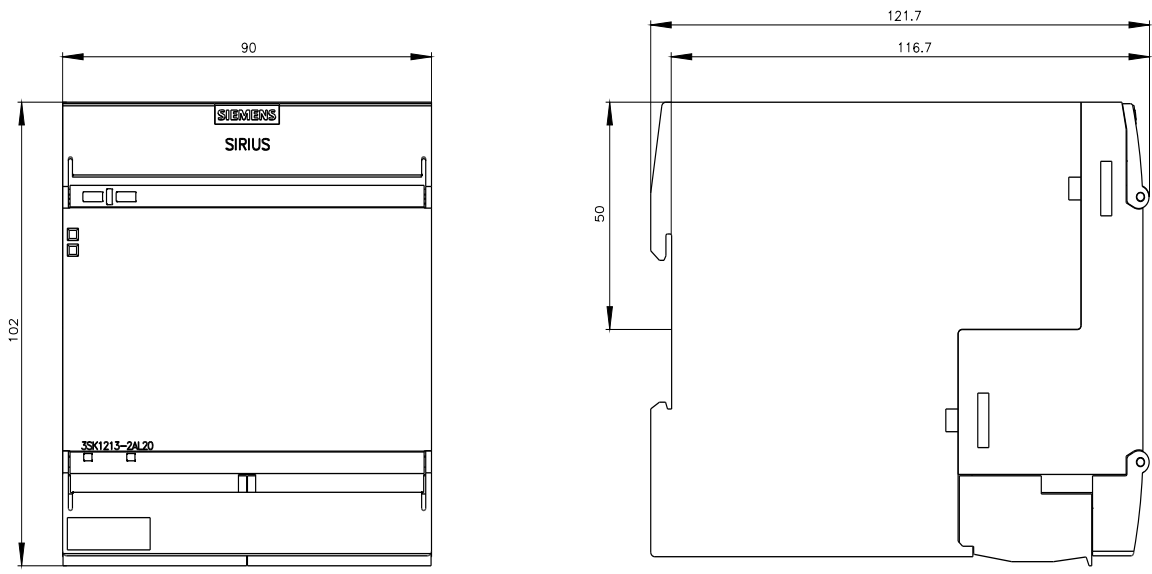
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1213-2AL20>

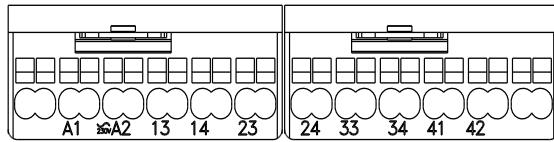
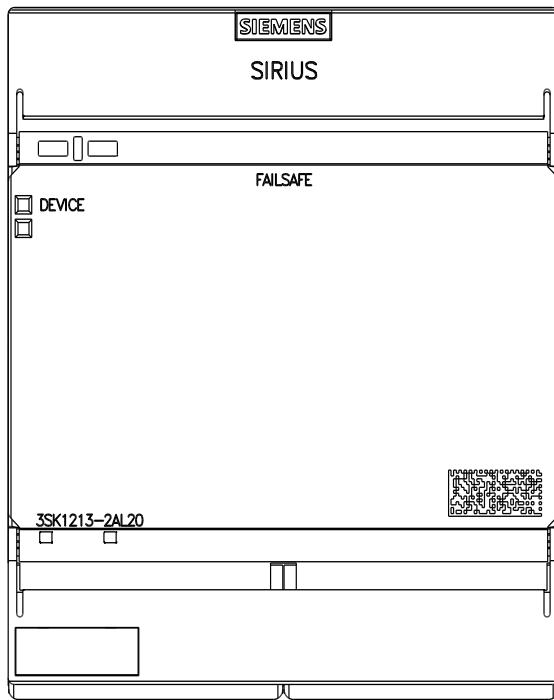
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1213-2AL20>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1213-2AL20&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1213-2AL20&lang=en)





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