



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
Product Function	
suitability for use	
• safety-related circuits	Yes
General technical data	
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
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 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1
Net Weight	0.842 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 B environments and can also be used in domestic environments.
EMC emitted interference	IEC 60947-5-1, Class B
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
stop category according to IEC 60204-1	0
proportion of dangerous failures with low demand rate according to SN 31920	40 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	3
Safety Integrity Level (SIL)	
• according to IEC 62061	SIL 3
PFHD with high demand rate according to IEC 62061	
•	1E-9 1/h
•	0.000000001 1/h
ISO 13849	
category according to EN ISO 13849-1	4
performance level (PL)	
• according to ISO 13849-1	PL e
category	
• according to ISO 13849-1	4
device type according to ISO 13849-1	1
overdimensioning according to ISO 13849-2 necessary	No
IEC 61508	
Safety Integrity Level (SIL)	
• according to IEC 61508	3
safety device type according to IEC 61508-2	Type A
PFHD with high demand rate according to IEC 61508	1E-9 1/h
PFHD with high demand rate according to IEC 61508	0.000000001 1/h
PFDavg with low demand rate according to IEC 61508	
•	1E-6
•	0.000001
Safe failure fraction (SFF)	99 %
hardware fault tolerance	
• 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: 16 A or MCB type A: 6 A or MCB type B: 4 A or MCB type C: 4 A
Inputs	
design of input	
• feedback input	No
Outputs	
number of outputs as contact-affected switching element	
• 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
mechanical service life (operating cycles) typical	10 000 000
thermal current of the switching element with contacts	10 A

maximum	
number of outputs as contact-less semiconductor switching element • for signaling function — delayed switching	0
switching capacity current of the NO contacts of the relay outputs at DC-13 • at 24 V • at 115 V • at 230 V	6 A 1.1 A 0.55 A
switching capacity current of the NO contacts of the relay outputs at AC-15 • at 24 V • at 115 V • at 230 V	10 A 10 A 10 A
total current maximum	30 A
operational current at 17 V minimum	5 mA
Times	
make time with automatic start • typical • at AC maximum	10 ms 15 ms
make time with automatic start after power failure • typical • maximum	10 ms 15 ms
backslide delay time in the event of power failure • typical • maximum	15 ms 15 ms
recovery time after power failure typical	0 s
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC • at 50 Hz rated value • at 60 Hz rated value	230 V 230 V
control supply voltage frequency • 1 rated value • 2 rated value	50 Hz 60 Hz
operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz • at 60 Hz	0.85 ... 1.1 0.85 ... 1.1
ON-delay time • at AC maximum	15 ms
OFF-delay time maximum	15 ms
Installation/ mounting/ dimensions	
mounting position	on horizontal standard DIN rail
fastening method	screw and snap-on mounting
height	100 mm
width	90 mm
depth	121.5 mm
required spacing • with side-by-side mounting at the side • for grounded parts at the side	0 mm 5 mm
Connections/ Terminals	
type of electrical connection	spring-loaded terminal (push-in)
type of connectable conductor cross-sections • 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 ²), 2x (0.5 ... 1.5 mm ²) 1x (0.5 ... 1.5 mm ²), 2x (0.5 ... 1.5 mm ²) 1x (0.5 ... 1.5 mm ²), 2x (0.5 ... 1.5 mm ²) 1x (20 ... 16), 2x (20 ... 16) 1x (20 ... 16), 2x (20 ... 16)

type of electrical connection plug-in socket	No
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Approvals Certificates

Environment	General Product Approval
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[Environmental Confirmations](#)



EMV	Functional Safety	Test Certificates	Maritime application
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[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)



Maritime application	other	Railway
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[Confirmation](#)



[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=3SK1213-2AL20>

Cax online generator

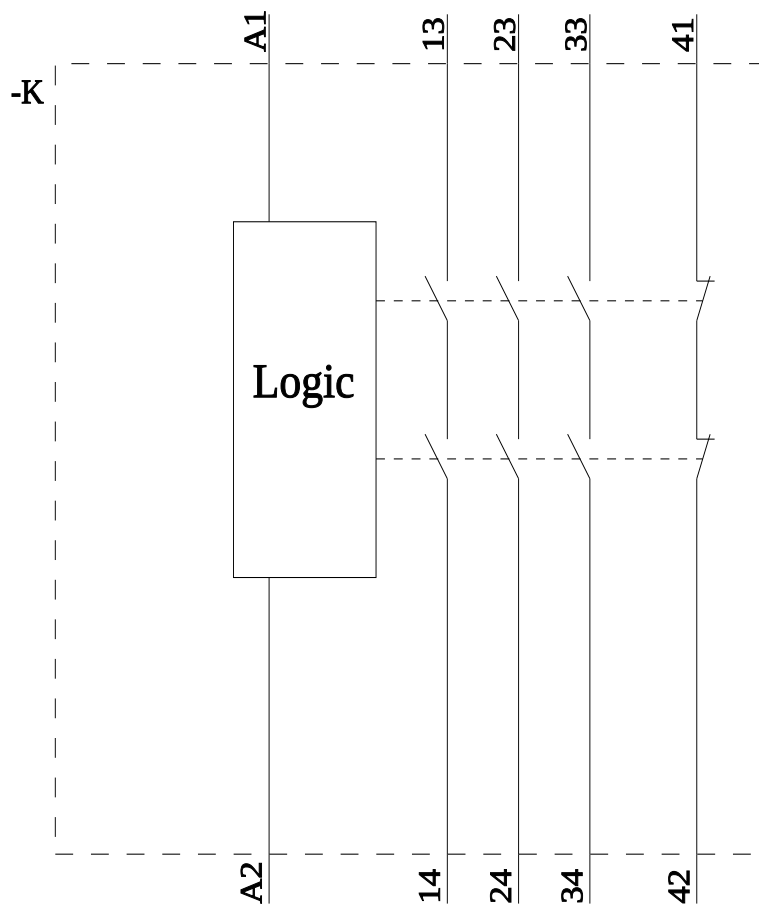
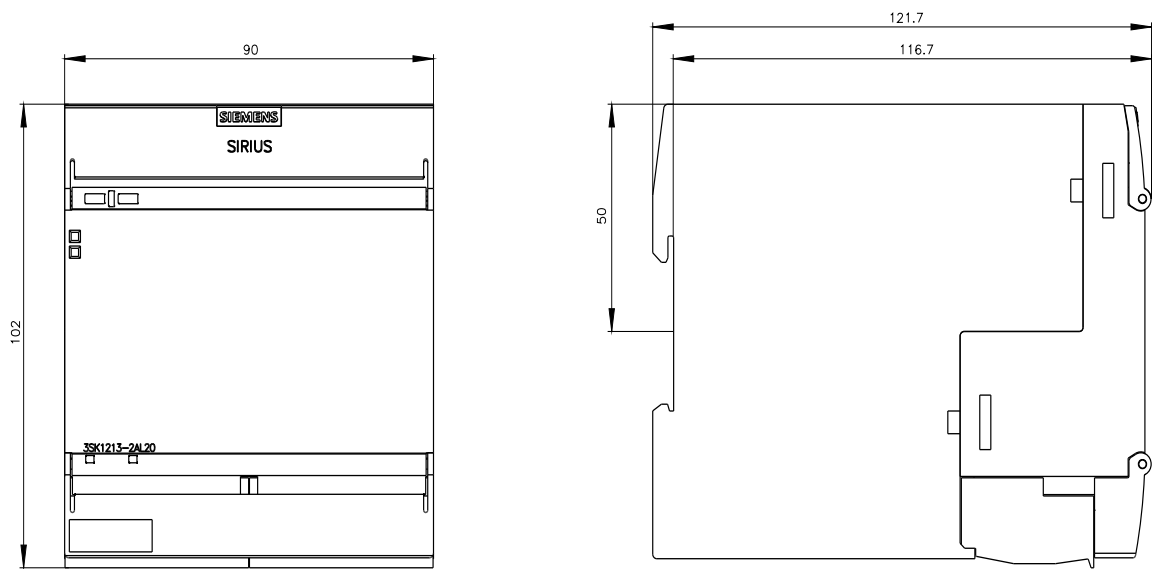
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1213-2AL20>

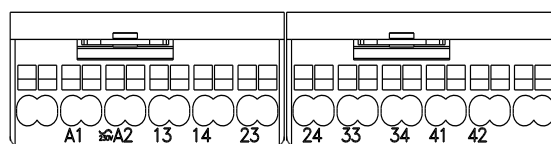
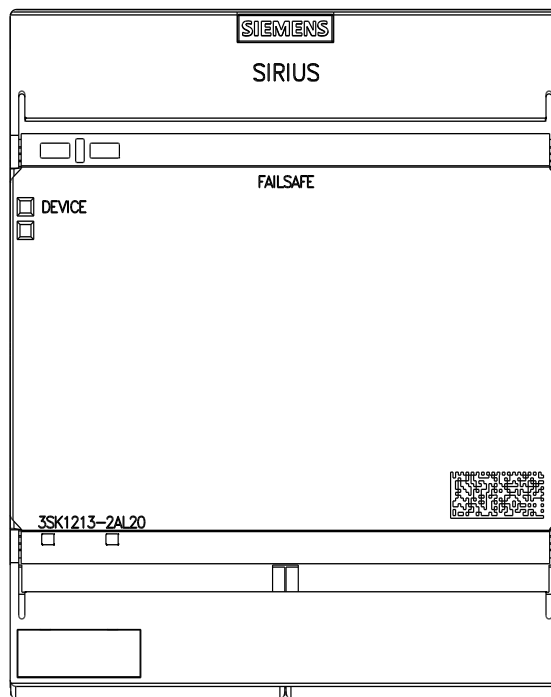
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<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





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