



SIRIUS safety relay Output expansion 3RO Power, with Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact $U_s = 24\text{ V DC}$ screw terminal

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	
product function parameterizable	undelayed/delayed (only with system connector)
suitability for use	
<ul style="list-style-type: none"> • safety-related circuits 	Yes
General technical data	
certificate of suitability UL approval	Yes
power loss [W] maximum	5.5 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 Prohibitance (Date)	11/05/2012
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	1.058 kg
Ambient conditions	
installation altitude at height above sea level maximum	4 000 m; Derating, see Product Notification 109792701
ambient temperature	
<ul style="list-style-type: none"> • during operation • during storage 	-25 ... +60 °C -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
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
Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	1E-6 1/y
PFDavg with low demand rate according to IEC 61508	1E-6
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
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	6 A
• at 115 V	1.1 A

• at 230 V	0.55 A
switching capacity current of the NO contacts of the relay outputs at AC-15	
• at 24 V	10 A
• at 115 V	10 A
• at 230 V	10 A
total current maximum	30 A
operational current at 17 V minimum	5 mA

Times

make time with automatic start	
• typical	50 ms
• at DC maximum	70 ms
make time with automatic start after power failure	
• typical	50 ms
• maximum	70 ms
backslide delay time in the event of power failure	
• typical	20 ms
• maximum	20 ms
recovery time after power failure typical	0 s

Control circuit/ Control

type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8
• full-scale value	1.2
ON-delay time	
• at DC maximum	70 ms
OFF-delay time maximum	20 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	121.6 mm
required spacing	
• with side-by-side mounting at the side	0 mm
• for grounded parts at the side	5 mm

Connections/ Terminals

type of electrical connection	screw terminal
type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0mm ²), 2x (0.5 ... 2.5 mm ²)
• finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
• for AWG cables solid	1x (20 ... 12), 2x (20 ... 14)
type of electrical connection plug-in socket	No

Approvals Certificates

General Product Approval	EMV
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Functional Safety	Test Certificates	Maritime application
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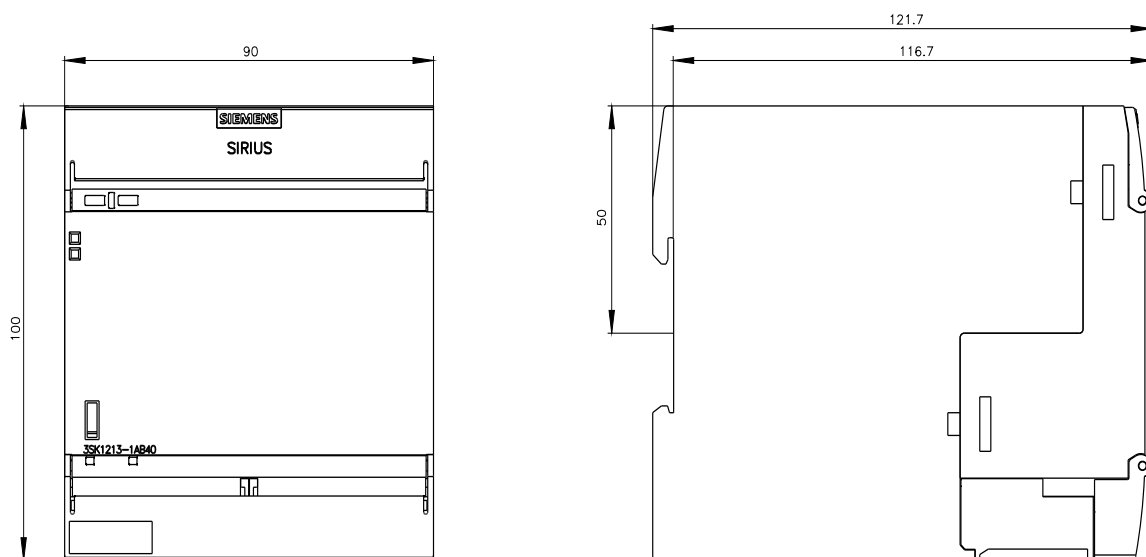
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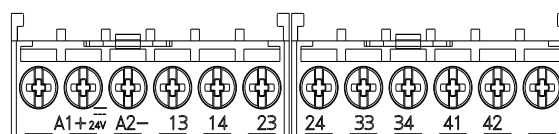
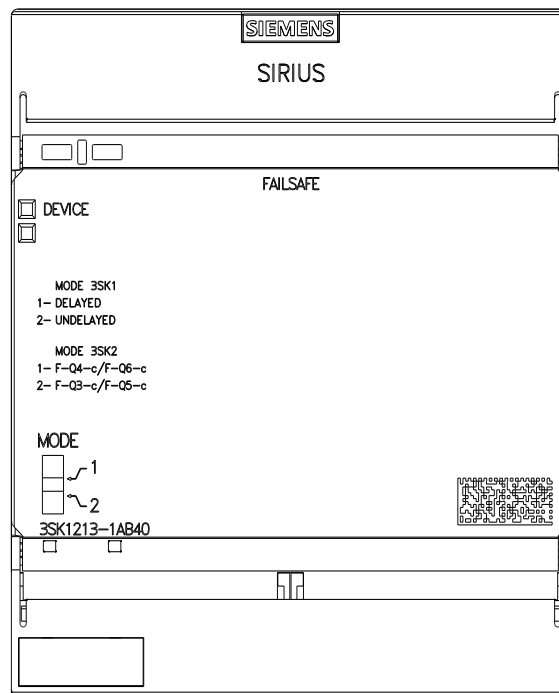
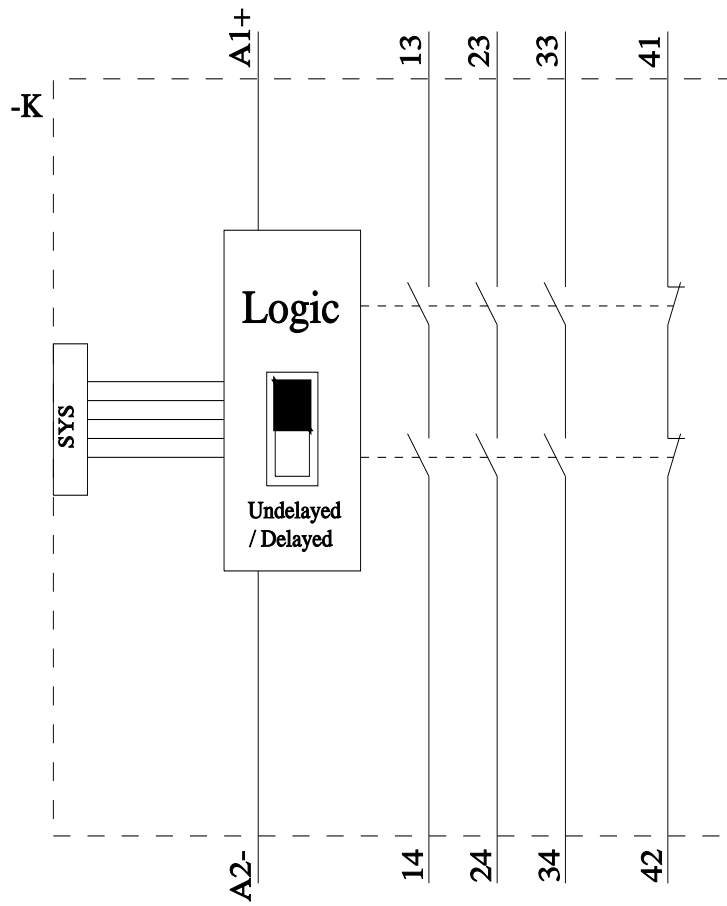
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Further information

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=3SK1213-1AB40>**Cax online generator**<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1213-1AB40>**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**<https://support.industry.siemens.com/cs/ww/en/ps/3SK1213-1AB40>**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1213-1AB40&lang=en



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