SIEMENS

Data sheet 3SK1120-2AB40

SIRIUS safety relay Basic unit Advanced series electronic enabling circuits 1 enabling circuit 0.5 A Us = 24 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	Advanced basic unit
Product Function	
product function parameterizable	sensor floating / sensor non-floating, monitored start-up / automatic start, 1-channel / 2-channel sensor connection, cross-circuit detection, startup testing, antivalent sensors, 2-hand switches
product function	
● automatic start	Yes
● light barrier monitoring	Yes
● protective door monitoring	Yes
● magnetically operated switch monitoring NC-NO	Yes
● magnetically operated switch monitoring NC-NC	Yes
● laser scanner monitoring	Yes
● light array monitoring	Yes
● EMERGENCY OFF function	Yes
● monitored start-up	Yes
● pressure-sensitive mat monitoring	No
suitability for interaction press control	Yes
suitability for operation device connector 3ZY12	Yes
suitability for use	
● monitoring of floating sensors	Yes
● monitoring of non-floating sensors	Yes
● position switch monitoring	Yes
● EMERGENCY-OFF circuit monitoring	Yes
● opto-electronic protection device monitoring	Yes
● magnetically operated switch monitoring	Yes
● safety switch	Yes
● safety-related circuits	Yes
General technical data	
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

shock resistance	10g / 11 ms
vibration resistance according to IEC 60068-2-6	5 ... 500 Hz: 0.75 mm
operating frequency maximum	2 000 1/h
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 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Lead titanium zirconium oxide - 12626-81-2
Weight	0.174 kg
Ambient conditions	
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	90 ... 106 kPa
Electromagnetic compatibility	
installation environment regarding EMC	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.
EMC emitted interference	IEC 60947-5-1, Class A
Safety related data	
stop category according to IEC 60204-1	0
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	1.3E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
performance level (PL)	
● **according to ISO 13849-1**	PL e
IEC 61508	
Safety Integrity Level (SIL)	
● according to IEC 61508	3
safety device type according to IEC 61508-2	Type B
Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	7E-6 1/y
PFDavg with low demand rate according to IEC 61508	7E-6
Safe failure fraction (SFF)	99 %
hardware fault tolerance according to IEC 61508	1
T1 value 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	not required
Inputs	
design of input	
● cascading input/functional switching	Yes
● feedback input	Yes
● start input	Yes
pulse duration of the sensor input minimum	60 ms
number of sensor inputs 1-channel or 2-channel	1
Outputs	
number of outputs as contact-affected switching element	
● as NO contact	
— safety-related instantaneous contact	0
— safety-related delayed switching	0
number of outputs as contact-less semiconductor switching element	

● safety-related	
— instantaneous contact	1
switching capacity current of semiconductor outputs at DC-13 at 24 V	0.5 A
Times	
make time with automatic start	
● at DC maximum	85 ms
make time with automatic start after power failure	
● typical	6 500 ms
● maximum	6 500 ms
make time with monitored start	
● maximum	85 ms
backslide delay time after opening of the safety circuits typical	40 ms
recovery time after opening of the safety circuits typical	30 ms
recovery time after power failure typical	6.5 s
pulse duration	
● of the ON pushbutton input minimum	0.15 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
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
height	100 mm
width	17.5 mm
depth	121.6 mm
required spacing	
● for grounded parts at the side	5 mm
Connections/ Terminals	
type of electrical connection	spring-loaded terminal (push-in)
wire length	
● with Cu 1.5 mm² and 150 nF/km per sensor circuit maximum	4 000 m
type of connectable conductor cross-sections	
● solid	1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²)
● finely stranded with core end processing	1x (0.5 ... 1.0 mm²), 2x (0.5 ... 1.0 mm²)
● finely stranded without core end processing	1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²)
● for AWG cables solid	1x (20 ... 16), 2x (20 ... 16)
● for AWG cables stranded	1x (20 ... 16), 2x (20 ... 16)
type of electrical connection plug-in socket	No
Approvals Certificates	
General Product Approval	

CCC EG-Konf. UKCA [Confirmation] cULus EAC

EMV	Functional Saftey	Test Certificates	Marine / Shipping		
RCM	[Type Examination Certificate]	[Type Test Certificates/Test Report]	DNV	LRS	RINA

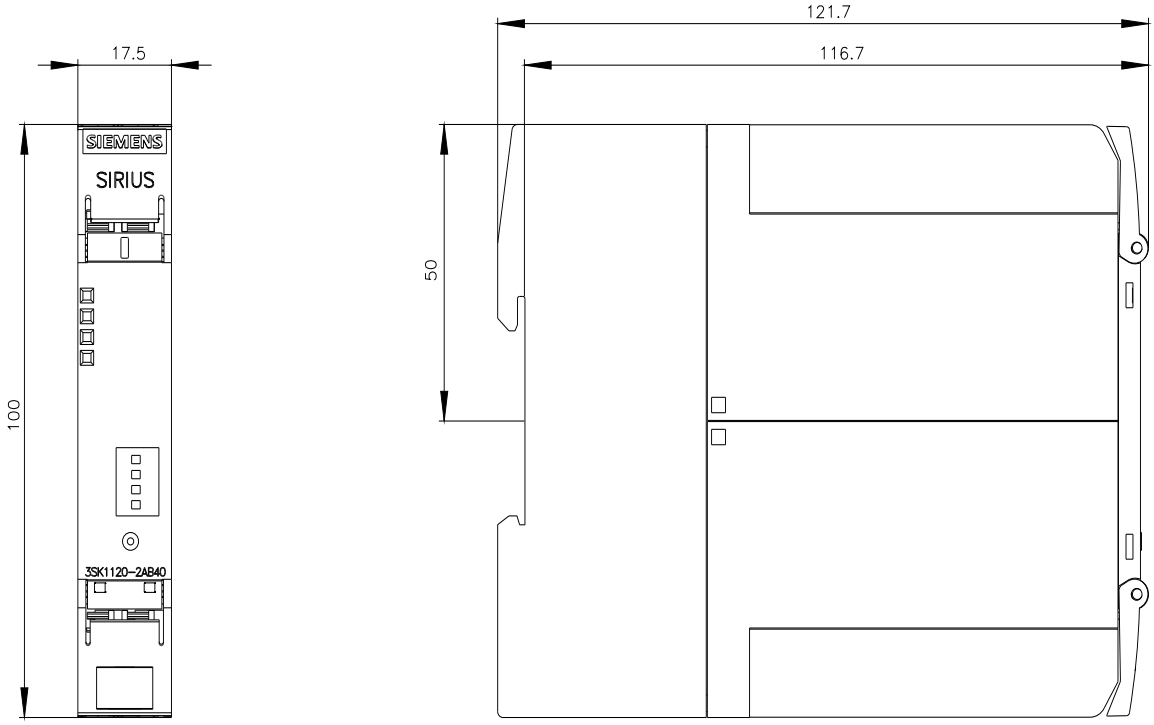
Marine / Shipping	other	Environment

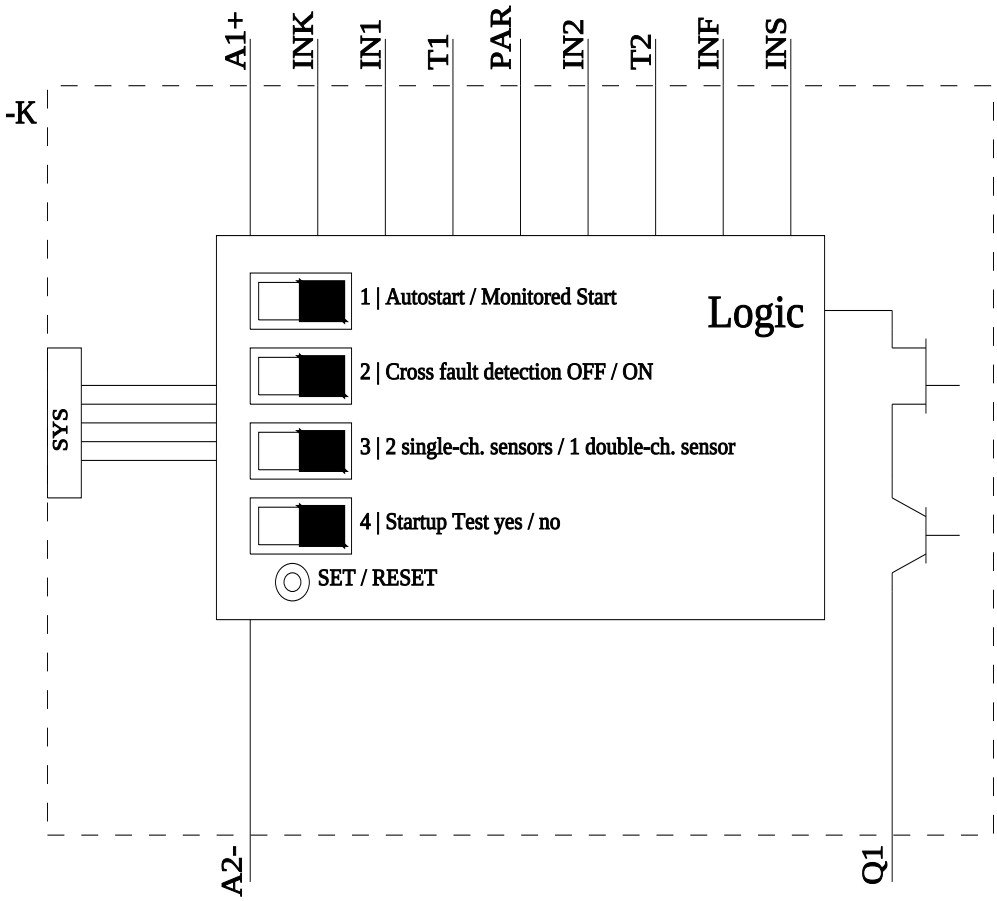
Confirmation

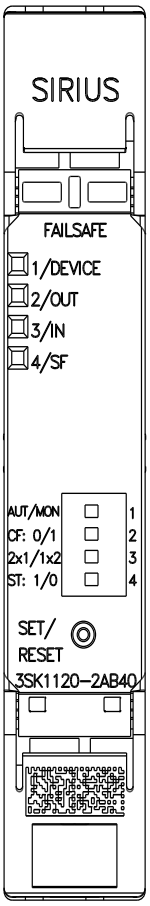
Environmental Confirmations

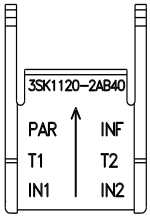
Further information

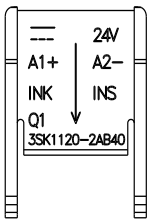
Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
Information- and Downloadcenter (Catalogs, Brochures,…)
https://www.siemens.com/ic10
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3SK1120-2AB40
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1120-2AB40
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3SK1120-2AB40
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1120-2AB40&lang=en











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