SIEMENS

Data sheet 3SK1111-2AW20

SIRIUS safety relay Basic unit Standard series Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact Us = 110 - 240 V AC/DC 50/60 Hz Spring-type terminal (push-in)

product brand name	SIRIUS
product category	Safety relays
product designation	safety relays
design of the product	Relay enabling circuits
product type designation	3SK1
product line	Standard basic unit
Product Function	
product function parameterizable	Sensor floating / monitored start / automatic start
product function	
● automatic start	Yes
● light barrier monitoring	No
● protective door monitoring	Yes
● magnetically operated switch monitoring NC-NO	No
● magnetically operated switch monitoring NC-NC	Yes
● laser scanner monitoring	No
● light array monitoring	No
● EMERGENCY OFF function	Yes
● monitored start-up	Yes
● pressure-sensitive mat monitoring	No
suitability for interaction press control	No
suitability for operation device connector 3ZY12	No
suitability for use	
● monitoring of floating sensors	Yes
● monitoring of non-floating sensors	No
● position switch monitoring	Yes
● EMERGENCY-OFF circuit monitoring	Yes
● opto-electronic protection device monitoring	No
● magnetically operated switch monitoring	No
● 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	2.5 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 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 4,4'-isopropylidenediphenol (Bisphenol A, BPA) - 80-05-7
Weight	0.242 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	900 ... 1 060 hPa
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	
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
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	3
Safety Integrity Level (SIL)	
● **according to IEC 62061**	SIL 3
● at single-channel evaluation according to IEC 62061	1
● at 2-channel evaluation according to IEC 62061	3
PFHD with high demand rate according to IEC 62061	1.5E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
performance level (PL)	
● **according to ISO 13849-1**	PL e
● at single-channel evaluation according to ISO 13849-1	c
● at 2-channel evaluation according to ISO 13849-1	e
category	
● **according to ISO 13849-1**	4
● at 2-channel evaluation according to ISO 13849-1	4
overdimensioning according to ISO 13849-2 necessary	No
IEC 61508	
Safety Integrity Level (SIL)	
● according to IEC 61508	3
● at single-channel evaluation according to IEC 61508	1
● at 2-channel evaluation according to IEC 61508	3
safety device type according to IEC 61508-2	Type A
PFHD with high demand rate according to IEC 61508	1.5E-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
● at single-channel evaluation according to IEC 61508	0

● at 2-channel evaluation 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: 6A or circuit breaker type A: 3A or circuit breaker type B: 2A or circuit breaker type C: 1A
● for short circuit protection of the NC contacts of the relay outputs required	Diazed or Neozed fuses, operating class gL/gG: 6 A or MCB type A: 2 A or MCB type B: 2 A or MCB type C: 1 A
Inputs	
design of input	
● cascading input/functional switching	No
● feedback input	Yes
● start input	Yes
pulse duration of the sensor input minimum	150 ms
number of sensor inputs 1-channel or 2-channel	1
Outputs	
number of outputs as contact-affected switching element	
● as NC contact	
— for signaling function instantaneous contact	1
● as NO contact	
— safety-related instantaneous contact	3
— safety-related delayed switching	0
switching capacity current of the NO contacts of the relay outputs at DC-13	
● at 24 V	5 A
● at 115 V	0.2 A
● at 230 V	0.1 A
switching capacity current of the NO contacts of the relay outputs at AC-15	
● at 115 V	5 A
● at 230 V	5 A
switching capacity current of the NC contacts of the relay outputs at DC-13	
● at 24 V	1 A
● at 115 V	0.2 A
● at 230 V	0.1 A
switching capacity current of the NC contacts of the relay outputs at AC-15	
● at 24 V	2 A
● at 115 V	1.5 A
● at 230 V	1.5 A
total current maximum	12 A
operational current at 17 V minimum	5 mA
Times	
make time with automatic start	
● typical	110 ms
● at DC maximum	130 ms
● at AC maximum	130 ms
make time with automatic start after power failure	
● typical	110 ms
● maximum	130 ms
make time with monitored start	
● typical	15 ms
● maximum	15 ms
backslide delay time after opening of the safety circuits typical	10 ms
backslide delay time in the event of power failure	
● typical	200 ms

● maximum	300 ms
recovery time after opening of the safety circuits typical	10 ms
recovery time after power failure typical	0.32 s
pulse duration	
● of the ON pushbutton input minimum	0.015 s
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
● at 50 Hz rated value	110 ... 240 V
● at 60 Hz rated value	110 ... 240 V
control supply voltage frequency	
● 1 rated value	50 Hz
● 2 rated value	60 Hz
control supply voltage at DC rated value	110 ... 240 V
operating range factor control supply voltage rated value of magnet coil at DC	
● initial value	0.85
● full-scale value	1.1
operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.85 ... 1.1
● at 60 Hz	0.85 ... 1.1
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
height	100 mm
width	22.5 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	
● for total of all sensor circuits with Cu 1.5 mm² and 150 nF/km maximum	2 000 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					EMV
CCC	UKCA	CE EG-Konf.	cULus	EAC	RCM

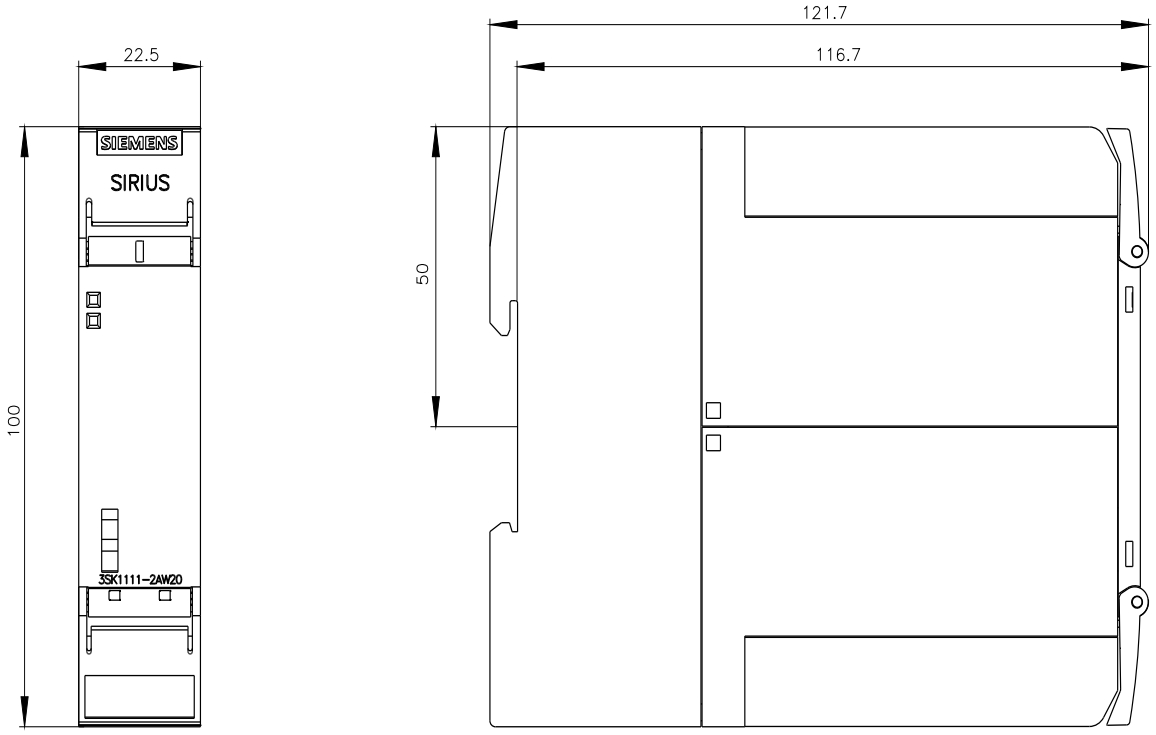
Functional Saftey	Test Certificates	Maritime application			
Type Examination Certificate	Type Test Certificates/Test Report	DNV	LRS	RINA	RMRS

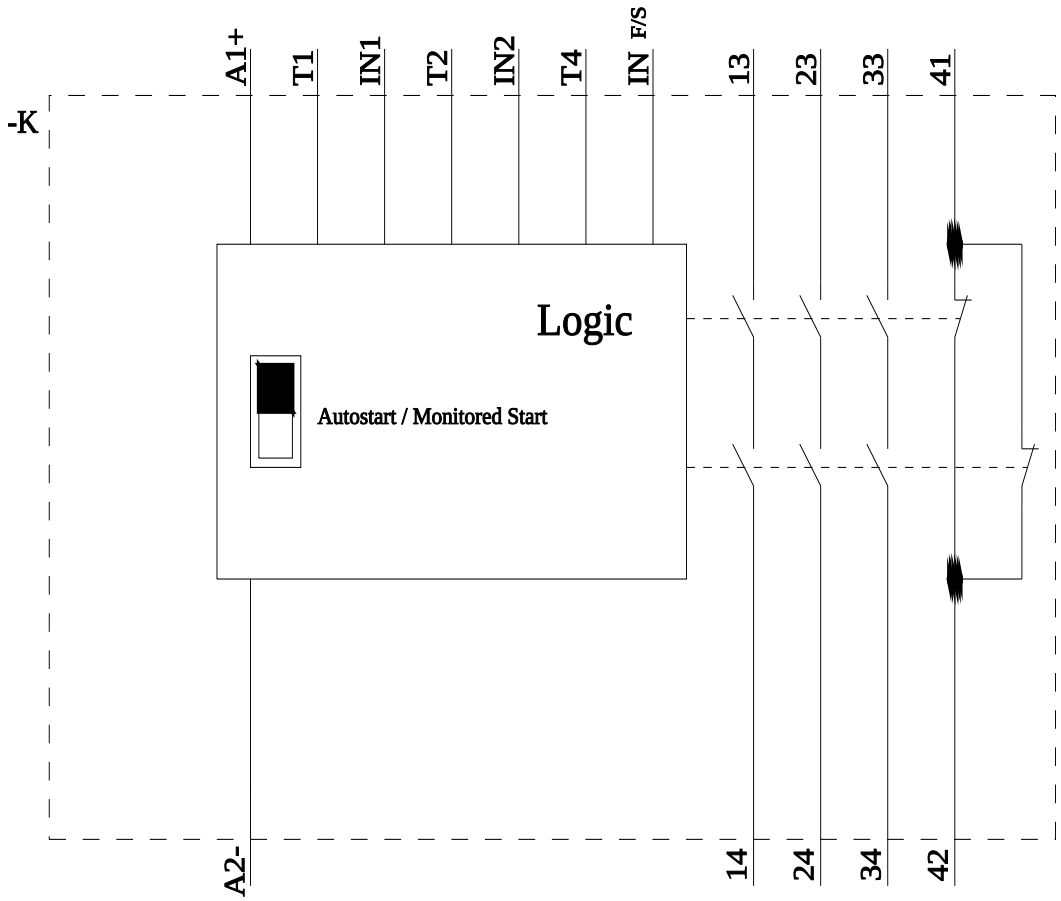
other	Railway	Environment

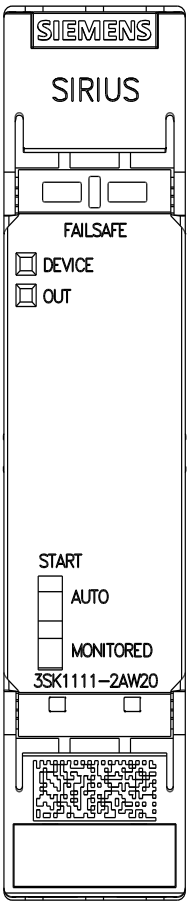
Confirmation | Confirmation | Environmental Confirmations

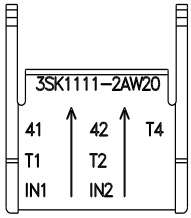
Further information

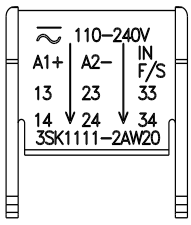
Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
Information for data generation and storage
https://support.industry.siemens.com/cs/ww/en/view/109995012
Information- and Downloadcenter (Catalogs, Brochures,…)
https://www.siemens.com/ic10
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3SK1111-2AW20
Cax online generator
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1111-2AW20
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3SK1111-2AW20
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1111-2AW20&lang=en











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