



SIRIUS safety relay Basic unit Standard series electronic enabling circuits 2 enabling circuits plus 1 signaling circuit $U_s = 24\text{ V DC}$ 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	Standard 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
product function	
<ul style="list-style-type: none"> • automatic start • light barrier monitoring • protective door monitoring • magnetically operated switch monitoring NC-NO • magnetically operated switch monitoring NC-NC • laser scanner monitoring • light array monitoring • EMERGENCY OFF function • monitored start-up • pressure-sensitive mat monitoring 	<ul style="list-style-type: none"> Yes Yes Yes No Yes Yes Yes Yes Yes No
suitability for interaction press control	No
suitability for use	
<ul style="list-style-type: none"> • monitoring of floating sensors • monitoring of non-floating sensors • position switch monitoring • EMERGENCY-OFF circuit monitoring • opto-electronic protection device monitoring • magnetically operated switch monitoring • safety switch • safety-related circuits 	<ul style="list-style-type: none"> Yes Yes Yes Yes Yes Yes Yes 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

operating frequency maximum	2 000 1/h
recovery time after opening of the safety circuits typical	30 ms
make time with automatic start	
• at DC maximum	85 ms
• after power failure typical	6 500 ms
• after power failure maximum	6 500 ms
make time with monitored start	
• maximum	85 ms
backslide delay time after opening of the safety circuits typical	40 ms
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

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
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	e
IEC 61508	
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
• of the ON pushbutton input minimum	0.15 s
number of sensor inputs 1-channel or 2-channel	1

Outputs	
number of outputs as contact-affected switching element	

<ul style="list-style-type: none"> • as NO contact <ul style="list-style-type: none"> — safety-related instantaneous contact — safety-related delayed switching 	0 0
number of outputs as contact-less semiconductor switching element <ul style="list-style-type: none"> • for signaling function <ul style="list-style-type: none"> — instantaneous contact • safety-related <ul style="list-style-type: none"> — instantaneous contact 	1 2
switching capacity current of semiconductor outputs at DC-13 at 24 V	2 A

Control circuit/ Control

type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	24 V 24 ... 24 V
operating range factor control supply voltage rated value of magnet coil at DC <ul style="list-style-type: none"> • initial value • full-scale value 	0.8 1.2
recovery time after power failure typical	6.5 s

Installation/ mounting/ dimensions

mounting position	any
fastening method	screw and snap-on mounting
height	100 mm
width	22.5 mm
depth	91.6 mm
required spacing	5 mm
<ul style="list-style-type: none"> • for grounded parts at the side 	5 mm

Connections/ Terminals

type of electrical connection	spring-loaded terminal (push-in)	
type of connectable conductor cross-sections	<ul style="list-style-type: none"> • 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 ... 1.0 mm ²), 2x (0.5 ... 1.0 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	

Approvals Certificates

General Product Approval



[Confirmation](#)



EMV	Functional Safety	Test Certificates	Marine / Shipping
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[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping	other	Railway	Environment
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[Confirmation](#)

[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=3SK1112-2BB40>

Cax online generator

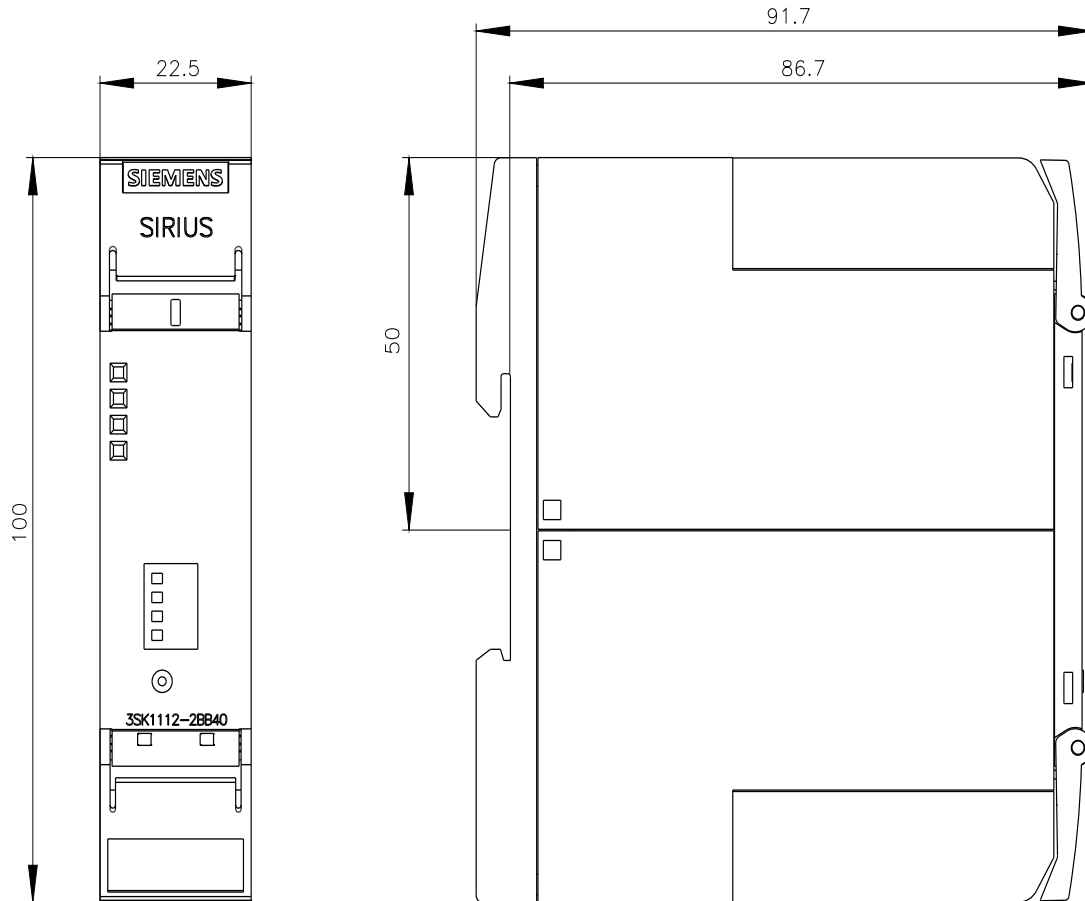
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1112-2BB40>

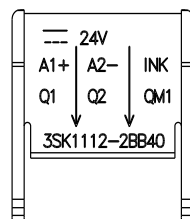
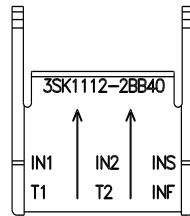
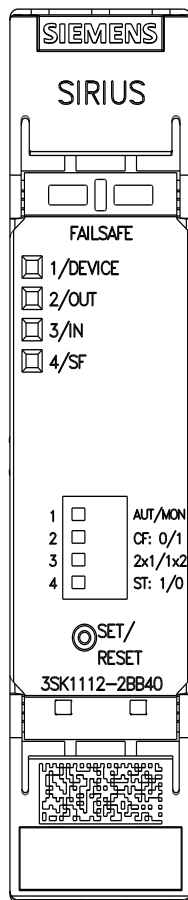
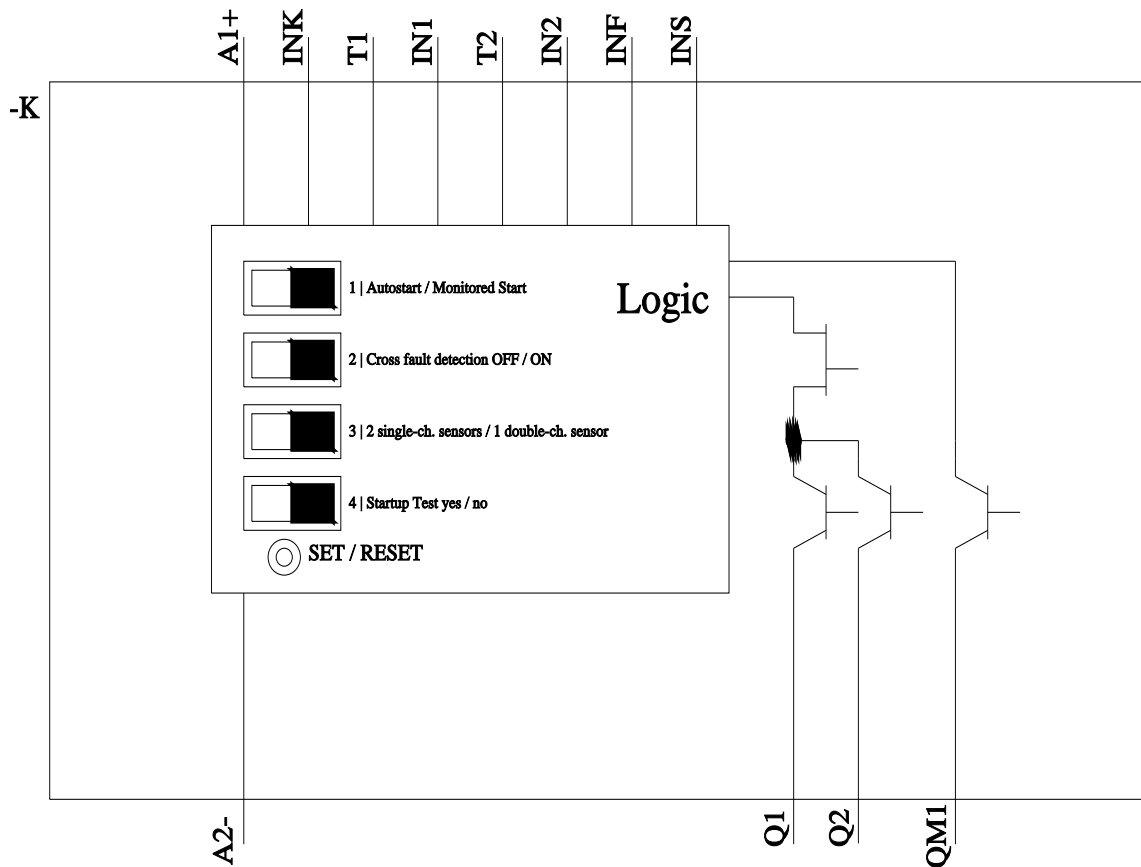
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1112-2BB40>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1112-2BB40&lang=en





last modified:

3/11/2024