SIEMENS

Data sheet 3SK1121-2AB40



SIRIUS safety relay Basic unit Advanced series Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact 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	Relay enabling circuits
General technical data	The state of the s
protection class IP of the enclosure	IP20
touch protection against electrical shock	finger-safe
insulation voltage rated value	300 V
ambient temperature	
during storage	-40 +80 °C
during operation	-25 +60 °C
air pressure according to SN 31205	90 106 kPa
relative humidity during operation	10 95 %
installation altitude at height above sea level maximum	4 000 m; Derating, see Product Notification 109792701
vibration resistance according to IEC 60068-2-6	5 500 Hz: 0.75 mm
shock resistance	10g / 11 ms
surge voltage resistance rated value	4 000 V
EMC emitted interference	IEC 60947-5-1, Class A
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.
overvoltage category	3
degree of pollution	3
reference code according to IEC 81346-2	F
power loss [W] maximum	2 W
number of sensor inputs 1-channel or 2-channel	1
design of the cascading	yes
type of the safety-related wiring of the inputs	single-channel and two-channel
product feature cross-circuit-proof	Yes
Safety Integrity Level (SIL)	
 according to IEC 62061 	3
according to IEC 61508	3
performance level (PL)	
according to ISO 13849-1	e
category according to EN ISO 13849-1	4
Safe failure fraction (SFF)	99 %
PFHD with high demand rate according to IEC 62061	3.7E-9 1/h
PFDavg with low demand rate according to IEC 61508	7E-6
T1 value for proof test interval or service life according to IEC 61508	20 a
hardware fault tolerance according to IEC 61508	1

safety device type according to IEC 61508-2	Туре В
Inputs/ 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
stop category according to IEC 60204-1	0
design of input	
cascading input/functional switching	Yes
feedback input	Yes
start input	Yes
type of electrical connection plug-in socket	No
operating frequency maximum	360 1/h
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
— at AC-15	
— at 115 V	5 A
— at 230 V	5 A
 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
— at AC-15	
— at 115 V	1.5 A
— at 230 V	1.5 A
thermal current of the switching element with contacts maximum	5 A
total current maximum	12 A
operational current at 17 V minimum	5 mA
mechanical service life (operating cycles) typical	10 000 000
design of the fuse link for short-circuit protection of the NO	gL/gG: 6A or circuit breaker type A: 3A or circuit breaker type B: 2A or circuit
contacts of the relay outputs required	breaker type C: 1A
design of the fuse link 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
wire length	
with Cu 1.5 mm² and 150 nF/km per sensor circuit	4 000 m
maximum	
make time with automatic start	
at DC maximum	110 ms
make time with automatic start after power failure	
• typical	6 500 ms
maximum	6 500 ms
make time with monitored start	
maximum	110 ms
backslide delay time after opening of the safety circuits typical	40 ms
backslide delay time in the event of power failure	
• typical	30 ms
• maximum	50 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 sensor input minimum	75 ms
of the ON pushbutton input minimum	0.15 s
Control circuit/ Control	

mounting position any required spacing for grounded parts at the side 5 mm fastening method screw and snap-on mounting width 22.5 mm height 100 mm depth 121.6 mm ***Type of electrical connection** - with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end proces			
• at DC rated value — 24 V Operating range factor control supply voltage rated value of magnet coil • at DC	type of voltage of the control supply voltage	DC	
operating range factor control supply voltage rated value of magnet coll	control supply voltage		
operating range factor control supply voltage rated value of magnet coil at DC 0.81.2 Installation/ mounting/ dimensions mounting position required spacing for grounded parts at the side fastening method width 22.5 mm festening method width 22.5 mm depth 100 mm depth 31.6 mm Connections/ Terminals type of electrical connection type of connectable conductor cross-sections a with core end processing without core end processing without core end processing solid stranded 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) type of connectable conductor cross-sections (x)	at DC rated value		
magnet coil		24 V	
mounting position any mounting for grounded parts at the side 5 mm fastening method screw and snap-on mounting width 222.5 mm height 100 mm depth 121.6 mm Connections/ Terminals Pype of electrical connection spring-loaded terminal (push-in) type of connectable conductor cross-sections • solid 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) — with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) — without core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) * solid 1x (20 16), 2x (20 16) • stranded 1x (
mounting position any required spacing for grounded parts at the side 5 mm fastening method screw and snap-on mounting width 22.5 mm height 100 mm depth 121.6 mm ***Type of electrical connection** - with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end processing 2x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - without ore end proces	• at DC	0.8 1.2	
required spacing for grounded parts at the side fastening method width 22.5 mm height depth 100 mm connections/ Terminals type of electrical connection type of connectable conductor cross-sections	Installation/ mounting/ dimensions		
fastening method screw and snap-on mounting width 22.5 mm height 100 mm depth 121.6 mm connections/ Torminals type of electrical connection spring-loaded terminal (push-in) type of connectable conductor cross-sections in x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) e solid 1x (0.5 1.5 mm²), 2x (0.5 1.0 mm²) — with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.0 mm²) — with our oen end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) type of connectable conductor cross-sections for AWG cables cables • solid 1x (20 16), 2x (20 16) • stranded 1x (20 16), 2x (20 16) * rowspan="2">**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 suitability for operation device connector 3ZY12 Yes suitability for use *** • safety switch Yes • monitoring of floating sensors Yes • mangetically operated s	mounting position	any	
width 22.5 mm height 100 mm depth 121.6 mm Connections/ Terminals type of electrical connection type of connectable conductor cross-sections	required spacing for grounded parts at the side	5 mm	
height 100 mm depth 121.6 mm Connections/ Terminals type of electrical connection 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) - without core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) type of connectable conductor cross-sections for AWG cables 1x (20 16), 2x (20 16) • solid 1x (20 16), 2x (20 16) • stranded 1x (20 16), 2x (20 16) 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 Yes suitability for interaction press control Yes • safety switch Yes • monitoring of floating sensors Yes • magnetically operated switch monitoring Yes • magnetically operated switch monitoring Yes • safety-related circuits Yes	fastening method	screw and snap-on mounting	
depth 121.6 mm Connections/ Terminals type of electrical connection spring-loaded terminal (push-in) type of connectable conductor cross-sections solid efinely stranded — with core end processing — without core end processing 1 x (0.5 1.5 mm²), 2x (0.5 1.0 mm²) 1 x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) type of connectable conductor cross-sections for AWG cables solid • stranded 1 x (20 16), 2x (20 16) • x (20 16) roduct 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 suitability for operation device connector 3ZY12 Yes suitability for interaction press control safety switch • monitoring of floating sensors • monitoring of floating sensors • monitoring of floating sensors • magnetically operated switch monitoring • yes • safety-related circuits Yes	width	22.5 mm	
type of electrical connection type of connectable conductor cross-sections • solid • finely stranded — with core end processing — without core end processing • solid • stranded * stranded * product Function * product function parameterizable suitability for operation device connector 3ZY12 suitability for use • safety switch • monitoring of floating sensors • magnetically operated switch monitoring • safety-related circuits * yes • magnetically operated switch monitoring • safety-related circuits * spring-loaded terminal (push-in) * tx (0.5 1.5 mm²), 2x (0.5 1.0 mm²) 1x (0.5 1.0 mm²), 2x (0.5 1.0 m	height	100 mm	
type of electrical connection spring-loaded terminal (push-in) type of connectable conductor cross-sections	depth	121.6 mm	
type of connectable conductor cross-sections • solid • finely stranded — with core end processing — without core end processing — without core end processing — without core end processing — type of connectable conductor cross-sections for AWG cables • solid • stranded • stranded • stranded 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 suitability for operation device connector 3ZY12 suitability for use • safety switch • monitoring of floating sensors • magnetically operated switch monitoring • safety-related circuits Yes • safety-related circuits **Ves	Connections/ Terminals		
* solid * finely stranded - with core end processing - without core end processing **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Stranded **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Type of connectable conductor cross-sections for AWG cables **Solid **Stranded **Type of connectable conductor cross-sections for AWG cables **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 **Suitability for operation device connector 3ZY12 **Yes **Suitability for use **Safety switch **Monitoring of floating sensors **Yes **Monitoring of non-floating sensors **Yes **Monitoring of non-floating sensors **Yes **Monitoring of non-floating sensors **Yes **Safety-related circuits **Type of connectable conductor cross-sections of the connectable conductor cross-section cross-sect	type of electrical connection	spring-loaded terminal (push-in)	
finely stranded — with core end processing — without core end processing — x (0.5 1.0 mm²), 2x (0.5 1.5 mm²) — x (0.5 1.5 mm²) — x (0.5 1.5	type of connectable conductor cross-sections		
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type of connectable conductor cross-sections for AWG cables • solid • stranded roduct 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 suitability for operation device connector 3ZY12 suitability for interaction press control • safety switch • monitoring of floating sensors • magnetically operated switch monitoring • safety-related circuits 1x (20 16), 2x (20 16) 1x (20 16), 2x (20 16) 1x (20 16), 2x (20 16) 1x (20 16) 2x (20 16) 1x (20 16) 2x (20 16) 1x (20 16) 2x	• finely stranded		
type of connectable conductor cross-sections for AWG cables • solid • stranded 1x (20 16), 2x (20 16) • stranded 1x (20 16), 2x (20 16) 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 suitability for operation device connector 3ZY12 Yes suitability for interaction press control yes safety switch • monitoring of floating sensors • monitoring of non-floating sensors • magnetically operated switch monitoring • safety-related circuits Yes	 — with core end processing 	1x (0.5 1.0 mm²), 2x (0.5 1.0 mm²)	
e solid e stranded 1x (20 16), 2x (20 16) 1x (20 16), 2x (20 16) 1x (20 16), 2x (20 16) 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 suitability for operation device connector 3ZY12 Yes suitability for use e safety switch e monitoring of floating sensors e monitoring of non-floating sensors e magnetically operated switch monitoring e safety-related circuits Yes	 — without core end processing 	1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)	
stranded 1x (20 16), 2x (20 16) 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 suitability for operation device connector 3ZY12 Yes suitability for interaction press control Yes safety switch monitoring of floating sensors monitoring of non-floating sensors magnetically operated switch monitoring safety-related circuits Yes			
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 suitability for operation device connector 3ZY12 Yes suitability for interaction press control yes safety switch monitoring of floating sensors monitoring of non-floating sensors magnetically operated switch monitoring safety-related circuits yes	• solid	1x (20 16), 2x (20 16)	
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 Yes suitability for interaction press control Yes suitability for use safety switch monitoring of floating sensors monitoring of non-floating sensors magnetically operated switch monitoring safety-related circuits yes 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 Yes	• stranded	1x (20 16), 2x (20 16)	
channel / 2-channel sensor connection, cross-circuit detection, startup testing, antivalent sensors, 2-hand switches suitability for operation device connector 3ZY12 Yes suitability for interaction press control suitability for use • safety switch • monitoring of floating sensors • monitoring of non-floating sensors • magnetically operated switch monitoring • safety-related circuits channel / 2-channel sensor connection, cross-circuit detection, startup testing, antivalent sensors, 2-hand switches Yes	Product Function		
suitability for interaction press control Suitability for use Suitability for use Suitability for use Suitability for use Suitability for use Suitability for use Suitability for use Suitability for use Suitability for interaction press control Yes Yes Suitability for interaction press control Yes Suitability for interaction press control Yes Yes Suitability for interaction press control Yes Suitability for use Suitability for	product function parameterizable	channel / 2-channel sensor connection, cross-circuit detection, startup testing,	
suitability for use	suitability for operation device connector 3ZY12	Yes	
 safety switch monitoring of floating sensors monitoring of non-floating sensors magnetically operated switch monitoring safety-related circuits Yes 	suitability for interaction press control	Yes	
 monitoring of floating sensors monitoring of non-floating sensors magnetically operated switch monitoring safety-related circuits Yes Yes	suitability for use		
 monitoring of non-floating sensors magnetically operated switch monitoring safety-related circuits Yes 	 safety switch 	Yes	
 magnetically operated switch monitoring safety-related circuits Yes 	 monitoring of floating sensors 	Yes	
• safety-related circuits Yes	 monitoring of non-floating sensors 	Yes	
	 magnetically operated switch monitoring 	Yes	
Certificates/ approvals	 safety-related circuits 	Yes	
	Certificates/ approvals		

General Product Approval



Confirmation









General Product Approval

EMV

Functional Saftey

Test Certificates

Marine / Shipping





Type Examination Certificate Type Test Certificates/Test Report





Marine / Shipping

other

Railway

Environment





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=3SK1121-2AB40

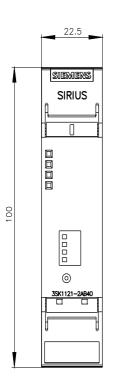
Cax online generator

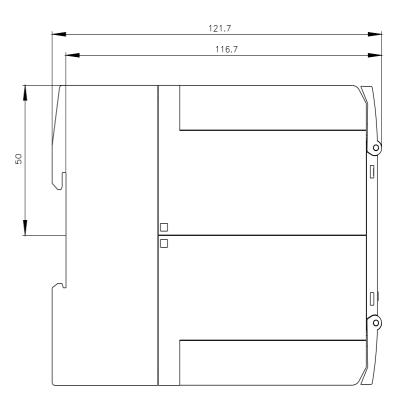
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1121-2AB40

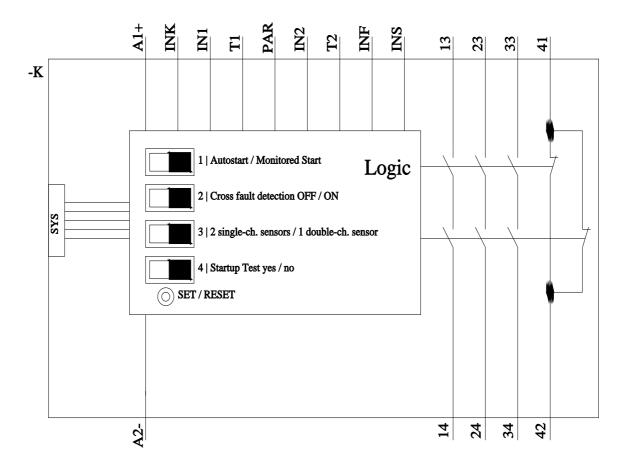
 $Service \& Support \ (Manuals, \ Certificates, \ Characteristics, \ FAQs, ...)$

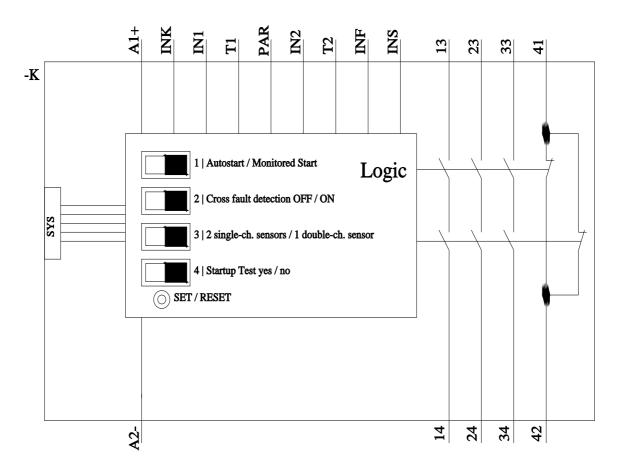
https://support.industry.siemens.com/cs/ww/en/ps/3SK1121-2AB40

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1121-2AB40&lang=en









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