

SIRIUS safety relay Input expansion Advanced Input expansion for an additional 2-channel or two 1-channel sensors $U_s = 24\text{ V DC}$ screw terminal



General technical data	
Product brand name	SIRIUS
Product category	Safety relays
Product designation	Sensor extension
Protection class IP of the enclosure	IP20
Protection against electrical shock	finger-safe
Insulation voltage rated value	50 V
Ambient temperature	
• during storage	-40 ... +80 °C
• during operation	-25 ... +60 °C
Air pressure acc. to SN 31205	90 kPa ... 106 kPa
Relative humidity during operation	10 ... 95 %
Installation altitude at height above sea level maximum	2 000 m
Vibration resistance acc. to IEC 60068-2-6	5 ... 500 Hz: 0.75 mm
Shock resistance	10g / 11 ms
Surge voltage resistance rated value	800 V
EMC emitted interference	IEC 60947-5-1, Class A

Installation environment regarding EMC	This product is suitable for Class A environments only. It can cause undesired radio-frequency interference in residential environments. If this is the case, the user must take appropriate measures.
Overvoltage category	3
Degree of pollution	3
Reference code acc. to DIN EN 61346-2	F
Reference code acc. to DIN EN 81346-2	F
Power loss [W] maximum	1.2 W
Number of sensor inputs 1-channel or 2-channel	1
Type of the safety-related wiring of the inputs	single-channel and two-channel
Product feature cross-circuit-proof	Yes
Safety Integrity Level (SIL) acc. to IEC 61508	3
Performance level (PL) acc. to EN ISO 13849-1	e
Category acc. to EN ISO 13849-1	4
PFHD with high demand rate acc. to EN 62061	0.000000001 1/h
PFDavg with low demand rate acc. to IEC 61508	0.000007
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Hardware fault tolerance acc. to IEC 61508	1
Safety device type acc. to IEC 61508-2	Type B
Number of outputs as contact-affected switching element	
• as NC contact	
— for signaling function instantaneous contact	0
— 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	0
— safety-related delayed switching	0
Number of outputs as contact-less semiconductor switching element	
• for signaling function	
— delayed switching	0
Stop category acc. to DIN EN 60204-1	0
General technical data	
Design of input Start input	Yes
Type of electrical connection Plug-in socket	No

Wire length between sensor and electronic evaluation device with Cu 1.5 mm ² and 150 nF/km maximum	4 000 m
Make time with automatic start • typical • at DC maximum	60 ms 60 ms
Make time with automatic start after power failure • typical • maximum	6 500 ms 6 500 ms
Make time with monitored start • maximum • typical	60 ms 60 ms
Backslide delay time after opening of the safety circuits typical	40 ms
Recovery time after opening of the safety circuits typical	30 ms
Pulse duration • of the sensor input minimum • of the ON pushbutton input minimum	60 ms 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	0.8 ... 1.2

Installation/ mounting/ dimensions

Mounting position	any
Required spacing for grounded parts at the side	5 mm
Required spacing with side-by-side mounting at the side	0 mm
Mounting type	screw and snap-on mounting
Width	17.5 mm
Height	100 mm
Depth	121.6 mm

Connections/ Terminals

Type of electrical connection	screw-type terminals
Type of connectable conductor cross-sections • solid • finely stranded — with core end processing	1x (0.5 ... 2.5 mm ²), 2x (1.0 ... 1.5 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)

Type of connectable conductor cross-sections at AWG conductors	
solid	1x (20 ... 14), 2x (18 ... 16)

Product Function	
Product function parameterizable	Sensor floating / sensor non-floating, monitored start / autostart, 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	No
Suitability for use	
safety switch	Yes
Monitoring of floating sensors	Yes
Monitoring of non-floating sensors	Yes
magnetically operated switch monitoring	Yes
safety-related circuits	Yes

Certificates/ approvals		
Certificate of suitability		
TÜV (German technical inspectorate) certificate	Yes	
UL approval	Yes	
General Product Approval	EMC	Functional Safety/Safety of Machinery



[Type Examination Certificate](#)

Declaration of Conformity	Test Certificates	Shipping Approval
EG-Konf. Miscellaneous	Type Test Certificates/Test Report LRS	RINA RMRS

other	Railway
Confirmation	Confirmation

Further information

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=3SK1220-1AB40>

Cax online generator

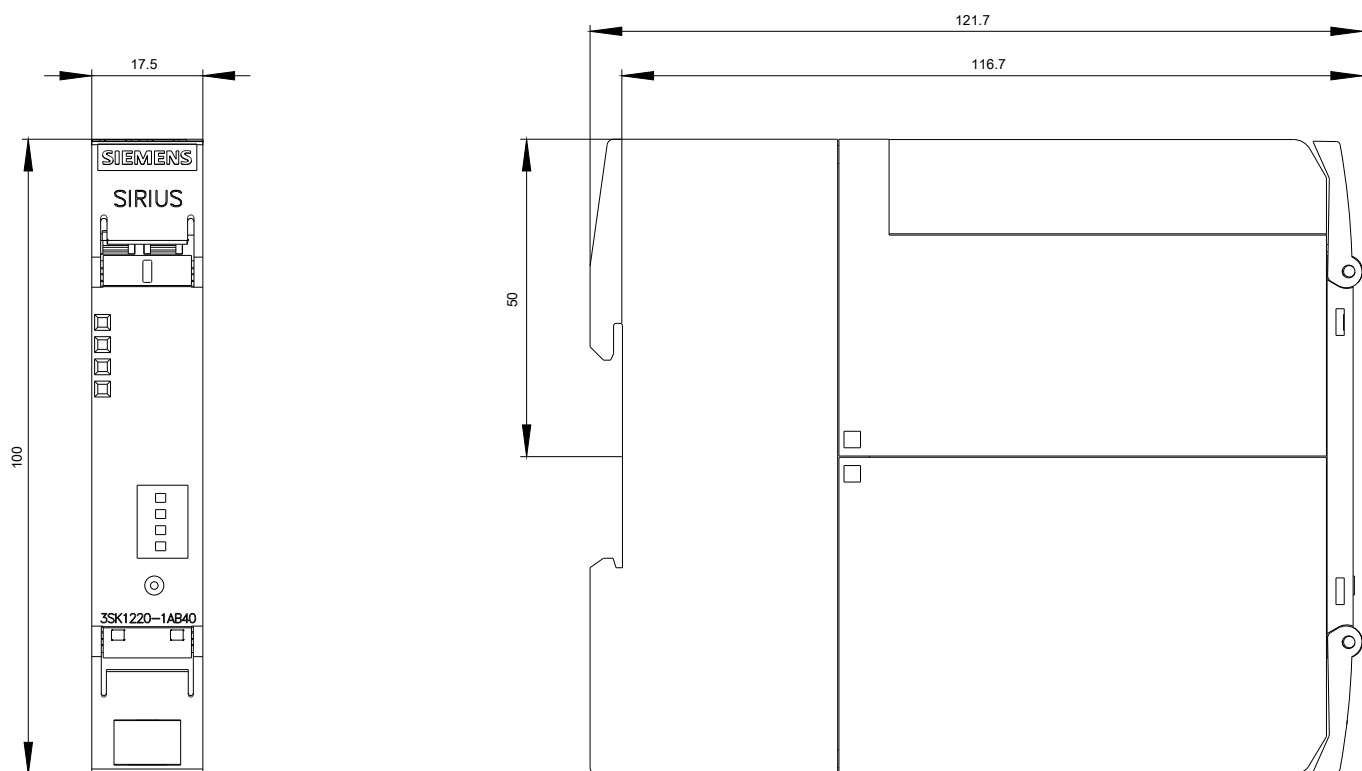
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1220-1AB40>

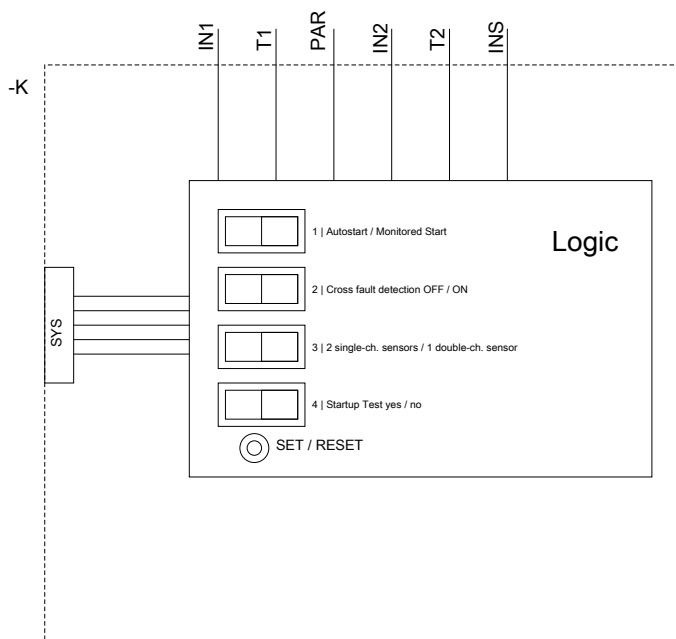
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

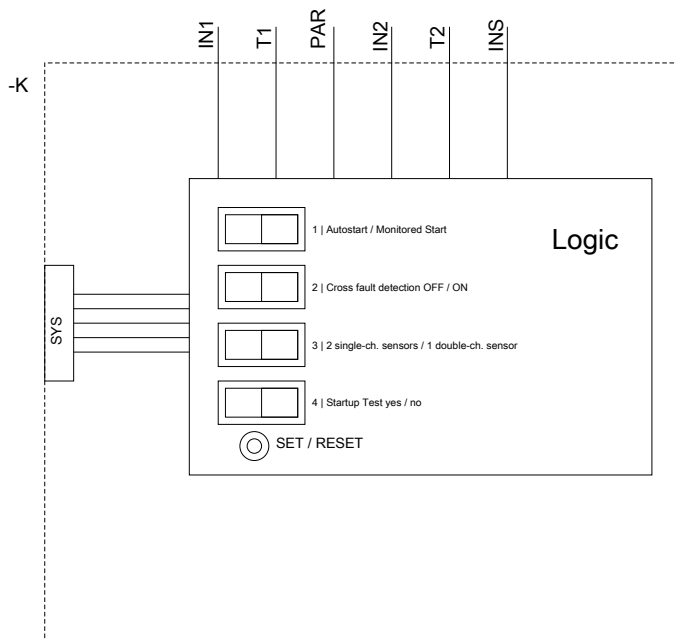
<https://support.industry.siemens.com/cs/ww/en/ps/3SK1220-1AB40>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1220-1AB40&lang=en







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04/04/2020