



SIRIUS safety relay Basic unit 3SK2 series 20 F-DI, 4 F-DQ, 2 DQ, 24 V DC Can be parameterized via SIRIUS Safety ES 45 mm width screw terminal up to SILCL 3 (DIN EN 62061) Up to Performance Level E (ISO 13849-1) Output expansions 3SK1 and fail-safe motor starters 3RM1 via device connector connectable

product brand name	SIRIUS
product category	Safety relay
product designation	Base-Unit
design of the product	20 F-DI, 4 F-DQ, 2 DQ
General technical data	
product function	
• EMERGENCY STOP function	Yes
• protective door monitoring	Yes
• protective door monitoring with tumbler	Yes
• muting, 2 sensor-parallel	Yes
• muting, 4 sensor-parallel	Yes
• muting, 4 sensor-sequential	Yes
• monitoring parameterizable	Yes
• evaluation: electro-sensitive protective equipment	Yes
• evaluation: selector switch	Yes
• pressure-sensitive mat monitoring	Yes
• evaluation: two-hand operator panel	Yes
• evaluation: enabling switch	Yes
• monitored start-up	Yes
• two-hand control acc. to EN 574	Yes
configuration software required	Yes; Safety ES V1.0 and higher
number of function blocks typical	50
insulation voltage rated value	50 V
degree of pollution	3
surge voltage resistance rated value	800 V
protection class IP	IP20
• of the enclosure	IP20
• of the terminal	IP20
shock resistance	15g / 11 ms
vibration resistance acc. to IEC 60068-2-6	5 ... 500 Hz: 0.75 mm
operating frequency maximum	2 000 1/h
reference code acc. to IEC 81346-2	F
Substance Prohibitance (Date)	28.05.2009 00:00:00
product function suitable for AS-i Power24V	No
product function diagnostics with CTT2 slave	No
protocol is supported ASIsafe (Safety at work) protocol	No
suitability for use	
• monitoring of floating sensors	Yes

• monitoring of non-floating sensors • position switch monitoring • EMERGENCY-OFF circuit monitoring • valve monitoring • opto-electronic protection device monitoring • magnetically operated switch monitoring • proximity switch monitoring • safety-related circuits	Yes Yes Yes Yes Yes Yes Yes Yes
suitability for use for monitoring of optoelectronic protective devices acc. to IEC 61496-1	Yes
Communication/ Protocol	
protocol optional is supported	
• PROFIBUS DP protocol • PROFINET IO protocol	Yes; when using the DP interface module; 64 bit cyclical data Yes; when using the PN interface module; 64-bit cyclic data
protocol is supported AS-Interface protocol	No
Control circuit/ Control	
type of voltage	DC
control supply voltage rated value	24 V
inrush current peak	
• at 24 V	11 A
duration of inrush current peak	
• at 24 V	1 ms
consumed current for rated value of supply voltage without semiconductor output	185 mA
operating power rated value	4.5 W
Inputs/ Outputs	
product function	
• parameterizable inputs • parameterizable outputs • at the digital outputs short-circuit protection	Yes Yes Yes
number of inputs	
• safety-related • non-safety-related	20 0
input delay time	0 ... 150 ms
type of digital inputs acc. to IEC 60947-1	Type 1
ingress acquisition time at digital input maximum	60 ms
input delay time at digital input maximum	150 ms
input voltage at digital input	
• at DC rated value • with signal <0> at DC • for signal <1> at DC	24 V -3 ... +5 V 15 ... 30
input current at digital input	
• for signal <1> typical	2.6 mA
number of outputs	
• safety-related 2-channel • for testing contact-based sensors	4 4
number of outputs as contact-affected switching element safety-related	
• single channel • 2-channel	0 0
number of outputs as contact-less semiconductor switching element	
• safety-related 2-channel • non-safety-related	4 2
design of the contactless switching element safety-related	P potential
recovery time of the safe outputs	0 ms
readback time maximum	400 ms
light test period	3 ms

dark period of the common drivers	3 ms
switching capacity current of semiconductor outputs at DC-13 at 24 V	4 A
residual current	
• maximum	0.05 mA
• at digital output with signal <0> maximum	0.1 mA
total current maximum	7 A
voltage drop maximum	0.5 V
wire length of the signal cable	
• to the inputs	
— shielded maximum	1 000 m
— unshielded maximum	600 m
• to the outputs	
— shielded maximum	1 000 m
— unshielded maximum	600 m
Installation/ mounting/ dimensions	
mounting position	any
fastening method	Snap-mounted to DIN rail or screw-mounted with additional push-in lug
height	100 mm
width	45 mm
depth	124.5 mm
Connections/ Terminals	
product function removable terminal	Yes
type of electrical connection	screw-type terminals
type of connectable conductor cross-sections	
• solid	1x (0.5 ... 2.5 mm ²), 2x (1.0 ... 1.5 mm ²)
• finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
• at AWG cables solid	1x (20 ... 14), 2x (18 ... 16)
• at AWG cables stranded	1x (20 ... 14), 2x (18 ... 16)
connectable conductor cross-section finely stranded with core end processing	0.5 ... 2.5 mm ²
AWG number as coded connectable conductor cross section	
• solid	20 ... 14
• stranded	20 ... 14
Safety related data	
Safety Integrity Level (SIL) acc. to IEC 61508	3
SIL Claim Limit (subsystem) acc. to EN 62061	3
performance level (PL) acc. to EN ISO 13849-1	e
category acc. to EN ISO 13849-1	4
stop category acc. to DIN EN 60204-1	0 / 1
diagnostics test interval by internal test function maximum	1 000 s
PFHD with high demand rate acc. to EN 62061	0.000000012 1/h
PFDavg with low demand rate acc. to IEC 61508	0.000018
hardware fault tolerance acc. to IEC 61508	1
T1 value for proof test interval or service life acc. to IEC 61508	20 y
touch protection against electrical shock	finger-safe
Electromagnetic compatibility	
EMC emitted interference acc. to IEC 60947-1	class A
conducted interference	
• due to burst acc. to IEC 61000-4-4	2 kV (power ports) / 1 kV (signal ports)
field-based interference acc. to IEC 61000-4-3	10 V/m
electrostatic discharge acc. to IEC 61000-4-2	4 kV contact discharge / 8 kV air discharge
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
• during operation	-25 ... +60 °C

- during storage
- during transport

-40 ... +80 °C

-40 ... +80 °C

relative humidity during operation

10 ... 95 %

air pressure acc. to SN 31205

90 ... 106 kPa

Certificates/ approvals

General Product Approval

Functional
Safety/Safety of
Machinery

Declaration of Conformity



[Type Examination
Certificate](#)

[Miscellaneous](#)



Test Certificates

other

[Type Test Certificates/Test Report](#)

[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=3SK2122-1AA10>

Cax online generator

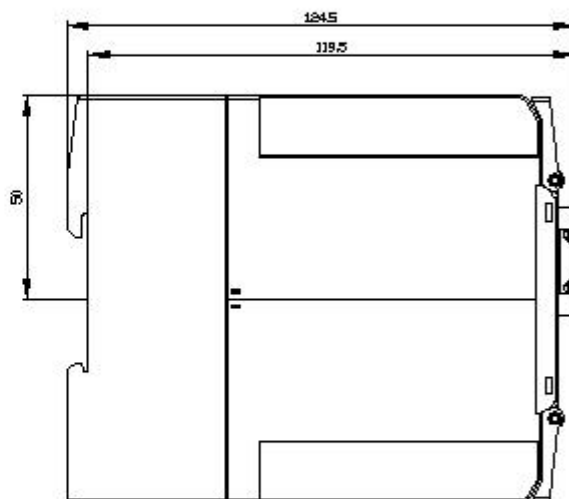
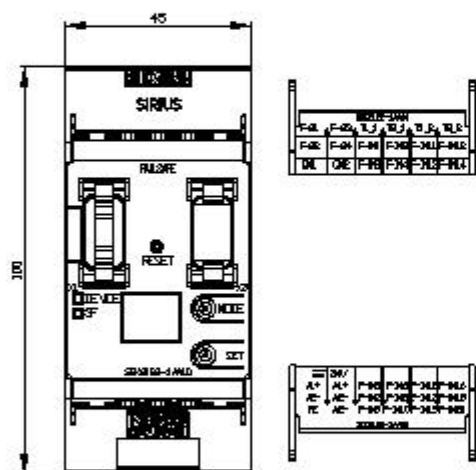
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK2122-1AA10>

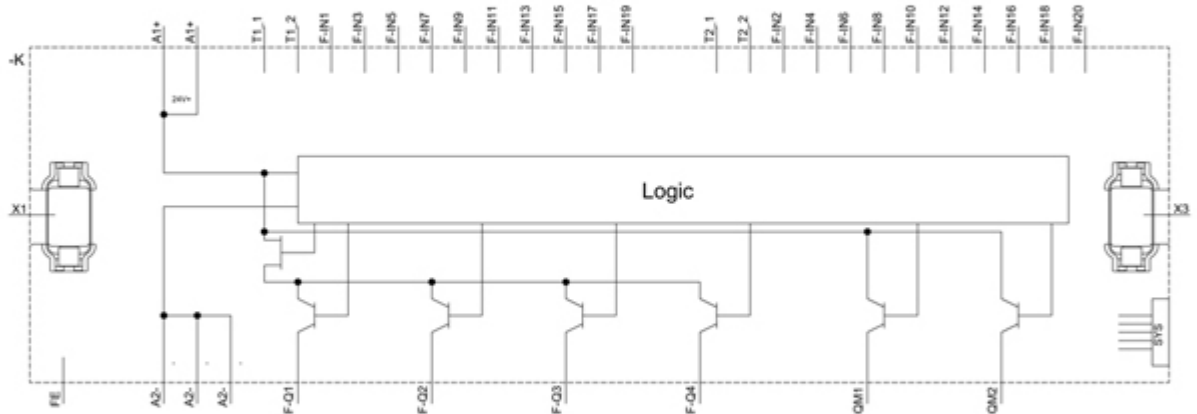
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK2122-1AA10>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK2122-1AA10&lang=en





last modified:

4/11/2021 