

SIRIUS SAFETY RELAY BASIC UNIT 3SK2 SERIES 20 F-DI, 4 F-DQ, 2 DQ, 24 V DC PARAMETERIZABLE VIA SIRIUS SAFETY ES WIDTH 45MM SCREW TERMINALS UP TO SIL3 (IEC 61508) UP TO PERFORMANCE LEVEL E (ISO 13849-1) 3SK1 OUTPUT EXPANSIONS AND 3RM1 FAIL-SAFE MOTOR STARTER CONNECTABLE VIA DEVICE CONNECTOR



Figure similar

product brand name	SIRIUS
Product designation	3SK2 safety relay

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
Surge voltage resistance Rated value	800 V
Consumed current for rated value of supply voltage	
• without semiconductor output	185 mA
Protection class IP	IP20
• of the enclosure	IP20
• of the terminal	IP20
Degree of pollution	3
Vibration resistance acc. to IEC 60068-2-6	5 ... 500 Hz: 0,75 mm
Switching capacity current of semiconductor outputs at DC-13 at 24 V	4 A
Equipment marking	
• acc. to DIN EN 61346-2	K
• acc. to DIN EN 81346-2	F
Readback time maximum	400 ms
Light test period	3 ms
Product function suitable for AS-i Power24V	No
Product function Diagnostics with CTT2 slave	No
Suitability for use for monitoring of optoelectronic protective devices acc. to IEC 61496-1	Yes

Communication/ Protocol:

Protocol	
• optional is supported PROFIBUS DP protocol	Yes
— Note	when using the DP interface module; 64 bit cyclical data
• is supported PROFINET IO protocol	No
Protocol is supported AS-interface protocol	No
Amount of data of the cyclic user data	
• for inputs with PROFIBUS DP	64 bit
• for outputs with PROFIBUS DP	64 bit

Control circuit/ Control:

Type of voltage	DC
Type of voltage of the control supply voltage	DC
Control supply voltage Rated value	24 V
Control supply voltage 1 at DC Rated value	24 V
Operating range factor control supply voltage rated value at DC	0.85 ... 1.2

Inputs/ Outputs:

Product function	
• Parameterizable inputs	Yes

<ul style="list-style-type: none"> • Parameterizable outputs 	Yes
<ul style="list-style-type: none"> • at the digital outputs Short-circuit protection 	Yes
Number of inputs	
<ul style="list-style-type: none"> • safety-related 	20
<ul style="list-style-type: none"> • non-safety-related 	0
Input delay time	0 ... 150 ms
Type of digital inputs acc. to IEC 60947-1	Type 1
Input recording time at digital input maximum	60 ms
Input voltage at digital input	
<ul style="list-style-type: none"> • at DC Rated value 	24 V
<ul style="list-style-type: none"> • with signal <0> at DC 	-3 ... +5 V
<ul style="list-style-type: none"> • for signal <1> at DC 	15 ... 30
Input current at digital input	
<ul style="list-style-type: none"> • for signal <1> typical 	2.6 mA
Number of outputs	
<ul style="list-style-type: none"> • safety-related 2-channel 	4
<ul style="list-style-type: none"> • for testing contact-based sensors 	4
Number of outputs as contact-affected switching element safety-related	
<ul style="list-style-type: none"> • 1-channel 	0
<ul style="list-style-type: none"> • 2-channel 	0
Number of outputs as contact-less semiconductor switching element	
<ul style="list-style-type: none"> • safety-related 2-channel 	4
Design of the contactless switching element safety-related	P potential
Recovery time of the safe outputs	0 ms
Residual current	
<ul style="list-style-type: none"> • maximum 	0.05 mA
<ul style="list-style-type: none"> • at digital output with signal <0> maximum 	0.1 mA
Total current maximum	7 A
Voltage drop maximum	0.5 V
Cable length of the signal cable	
<ul style="list-style-type: none"> • to the inputs <ul style="list-style-type: none"> — shielded maximum — unshielded maximum 	1 000 m 600 m
<ul style="list-style-type: none"> • to the outputs <ul style="list-style-type: none"> — shielded maximum — unshielded maximum 	1 000 m 600 m
Installation/ mounting/ dimensions:	
mounting position	any

Mounting type	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
• removable terminal for control circuit	Yes
• removable terminal for auxiliary and control circuit	Yes
Type of electrical connection	
• for auxiliary and control current circuit	screw-type terminals
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
AWG number as coded connectable conductor cross section stranded	20 ... 14

Safety related data:

Safety Integrity Level (SIL) acc. to IEC 61508	SIL3
SIL Claim Limit (subsystem) acc. to EN 62061	3
Performance level (PL) acc. to EN ISO 13849-1	e
Stop category acc. to DIN EN 60204-1	0 / 1
Diagnostics test interval by internal test function maximum	1 000 000 ms
Failure rate [FIT]	
• at rate of recognizable hazardous failures (λ_{dd})	1 200 1/s
• at rate of non-recognizable hazardous failures (λ_{du})	13 1/s
MTBF	90 y
Hardware fault tolerance acc. to IEC 61508	1
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe
Category acc. to EN ISO 13849-1	4

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-bound parasitic coupling 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 <ul style="list-style-type: none"> during operation during storage during transport 	-25 ... +60 °C -40 ... +80 °C -40 ... +80 °C
Air pressure acc. to SN 31205	90 ... 106 kPa

Certificates/ approvals:

General Product Approval	Functional Safety/Safety of Machinery	Declaration of Conformity
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Baumusterprüfbescheinigung



Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3SK21221AA10>

Cax online generator

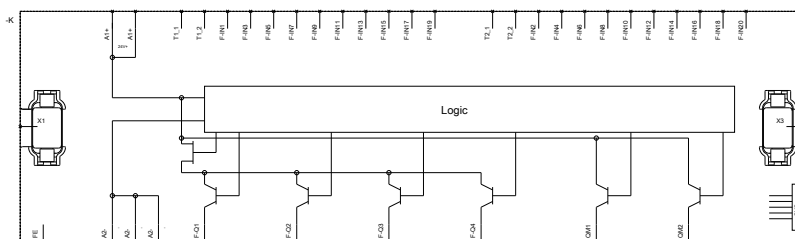
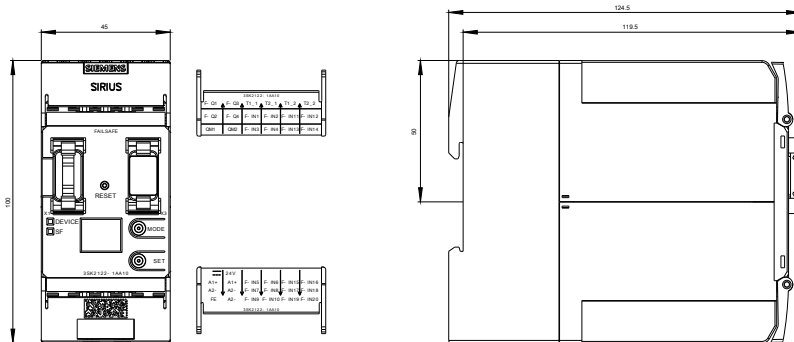
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK21221AA10>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3SK21221AA10>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK21221AA10&lang=en



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