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Data sheet 3TK2827-1AB21

SIRIUS SAFETY RELAY WITH RELAY RELEASE CIRCUITS (RC), AC 24V, 45.0MM, SCREW TERMINAL, RC INSTANT.: 2NO, RC DELAYED: 2NO 0.05...3S, MC: 1NC, MONITORED START, BASIC DEVICE, MAX. ACHIEVABLE SIL: 3/2, PL: E/D

Figure similar

General technical data:	
product brand name	SIRIUS
Product designation	safety relays
Design of the product	for EMERGENCY-STOP units
Protection class IP of the enclosure	IP20
Protection class IP of the terminal	IP20
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 acc. to SN 31205	90 ... 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: 0,075 mm
Shock resistance	8g / 10 ms
Surge voltage resistance rated value	4 000 V

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EMC emitted interference	EN 60947-5-1
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.
Equipment marking acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	KT
Equipment marking acc. to DIN EN 61346-2	F
Number of sensor inputs	
• 1-channel or 2-channel	1
Design of the cascading	none
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	SIL3
• for delayed release circuit acc. to IEC 61508	SIL2
SIL Claim Limit (subsystem) acc. to EN 62061	3
Performance level (PL)	
• acc. to EN ISO 13849-1	e
• for delayed release circuit acc. to EN ISO 13849-1	d
Category acc. to EN 954-1	4
Category acc. to EN ISO 13849-1	4
Hardware fault tolerance acc. to IEC 61508	1
Safety device type acc. to IEC 61508-2	Type A
PFHD with high demand rate acc. to EN 62061	0.0000000027 1/h
Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	0.0000024 1/y
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Number of outputs as contact-affected switching element	
• as NC contact	
— for signaling function instantaneous contact	1
• as NO contact	
— safety-related instantaneous contact	2
— safety-related delayed switching	2
Number of outputs as contact-less semiconductor switching element	
• safety-related	
— delayed switching	0
— instantaneous contact	0
• for signaling function	

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— delayed switching	0
— instantaneous contact	0
Stop category acc. to DIN EN 60204-1	0 + 1

General technical data:	
Design of input	
• cascading input/functional switching	No
• feedback input	Yes
• Start input	Yes
Type of electrical connection Plug-in socket	Yes
Operating frequency maximum	1 000 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	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
Thermal current of the switching element with contacts maximum	5 A
Electrical endurance (switching cycles) typical	100 000
Mechanical service life (switching cycles) typical	10 000 000
Design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required	gL/gG: 6 A, or quick: 10 A
DC resistance of the cable maximum	30 Ω
Wire length between sensor and electronic evaluation device with Cu 1.5 mm² and 150 nF/km maximum	1 000 m
Make time with automatic start after power failure	
• typical	8 000 ms
• maximum	8 000 ms
Make time with monitored start	
• maximum	80 ms

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Backslide delay time in the event of power failure	
• maximum	100 ms
Adjustable OFF-delay time after opening of the safety circuits	0.05 ... 3 s
Recovery time after power failure typical	200 ms
Pulse duration	
• of the sensor input minimum	25 ms
• of the ON pushbutton input minimum	0.025 s

Control circuit/ Control:	
Type of voltage of the control supply voltage	AC
Control supply voltage frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
Control supply voltage 1 at AC	
• at 50 Hz rated value	24 V
• at 60 Hz rated value	24 V
Operating range factor control supply voltage rated value of magnet coil	
• at AC	
— at 50 Hz	0.85 ... 1.1
— at 60 Hz	0.85 ... 1.1
• at DC	0.85 ... 1.1

Installation/ mounting/ dimensions:	
Mounting position	any
Mounting type	screw and snap-on mounting
Width	44.8 mm
Height	138.5 mm
Depth	120 mm

Connections/ Terminals:	
Type of electrical connection	screw-type terminals
Type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)
• finely stranded	
— with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
Type of connectable conductor cross-sections at AWG conductors	
• solid	2x (20 ... 14)
• stranded	2x (20 ... 14)

Product Function:	
Product function	
• Light barrier monitoring	No

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• Standstill monitoring	No
• protective door monitoring	No
• Automatic start	No
• magnetically operated switch monitoring NC-NO	No
• rotation speed monitoring	No
• laser scanner monitoring	No
• monitored start-up	Yes
• Light array monitoring	No
• magnetically operated switch monitoring NC-NC	No
• EMERGENCY OFF function	Yes
• Pressure-sensitive mat monitoring	Yes
Suitability for interaction press control	No
Suitability for use	
• Monitoring of floating sensors	Yes
• Monitoring of non-floating sensors	No
• safety switch	Yes
• position switch monitoring	Yes
• EMERGENCY-OFF circuit monitoring	Yes
• valve monitoring	No
• tactile sensor monitoring	No
• magnetically operated switch monitoring	No
• safety-related circuits	Yes

Certificates/ approvals:	
Certificate of suitability	UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508
• TÜV (German technical inspectorate) certificate	Yes
• UL approval	Yes
• BG BIA certificate	Yes

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General Product Approval				EMC	Functional Safety/Safety of Machinery
CCC	CSA	UL		C-Tick	ATEX

Declaration of Conformity	Test Certificates	other	
EG-Konf.	spezielle Prüfbescheinigungen	Bestätigungen	Umweltbestätigung

Further information

Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

Industry Mall (Online ordering system)
http://www.siemens.com/industrymall

Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2827-1AB21

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TK2827-1AB21

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2827-1AB21&lang=en

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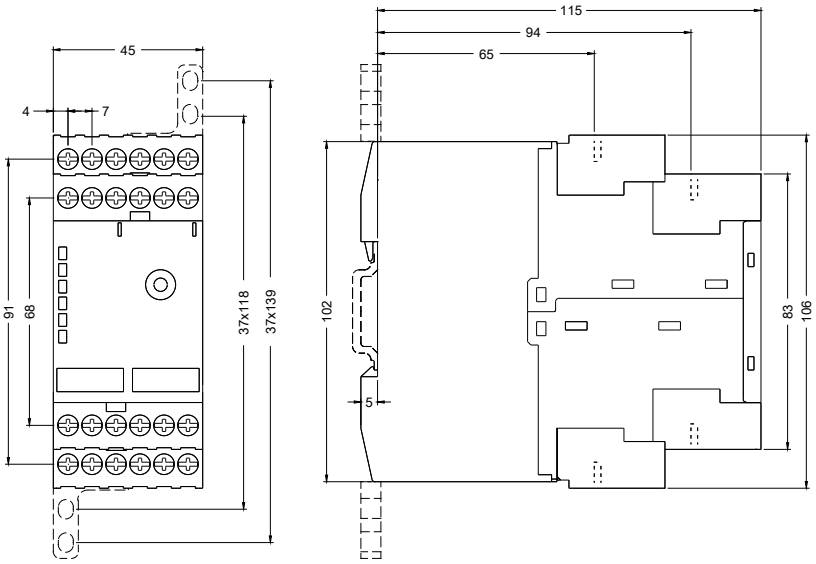

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