SIEMENS

Data sheet 3TK2810-0BA02



SIRIUS safety relay safety-oriented Standstill monitoring 24 V DC, 45 mm Spring-type terminal EC instantaneous: 3 NO + 1 NC EC delayed: 0 SC: 3 Auto-start Basic unit max. error category EN 954-1: 4 Maximum achievable PL according to EN 13849-1: Maximum achievable SIL according to IEC 61508: 3

product brand name	SIRIUS
product designation	Standstill monitor
design of the product	for safe stoppage monitoring
product type designation	3TK28
Product Function	
product function	
● automatic start	No
● light barrier monitoring	No
● standstill monitoring	Yes
● protective door monitoring	No
● magnetically operated switch monitoring NC-NO	No
● magnetically operated switch monitoring NC-NC	No
● rotation speed monitoring	No
● laser scanner monitoring	No
● light array monitoring	No
● EMERGENCY OFF function	No
● monitored start-up	No
● pressure-sensitive mat monitoring	No
product feature cross-circuit-proof	No
suitability for interaction press control	No
suitability for use	
● position switch monitoring	No
● EMERGENCY-OFF circuit monitoring	No
● valve monitoring	No
● opto-electronic protection device monitoring	No
● tactile sensor monitoring	No
● magnetically operated switch monitoring	No
● proximity switch monitoring	No
● safety-related circuits	Yes
General technical data	
certificate of suitability UL approval	Yes
insulation voltage rated value	690 V
surge voltage resistance rated value	6 000 V
protection class IP	
● of the enclosure	IP20
● of the terminal	IP20
shock resistance	8 g / 10 ms
vibration resistance according to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
operating frequency maximum	1 200 1/h

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electrical endurance (operating cycles) typical	200 000
Substance Prohibitance (day/month/year)	05/01/2012
Net Weight	0.386 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
● during operation	-25 ... +60 °C
● during storage	-40 ... +75 °C
relative humidity during operation	10 ... 95 %
air pressure according to SN 31205	90 ... 106 kPa
Electromagnetic compatibility	
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.
EMC emitted interference	IEC 61000-6-2, IEC 61000-6-3
Safety related data	
product function suitable for safety function	Yes
stop category according to IEC 60204-1	0
average diagnostic coverage level (DCavg)	99 %
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	3
Safety Integrity Level (SIL) according to IEC 62061	SIL 3
PFHD with high demand rate according to IEC 62061	1.5E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
performance level (PL)	
● **according to ISO 13849-1**	PL e
IEC 61508	
Safety Integrity Level (SIL)	
● according to IEC 61508	3
● for delayed release circuit according to IEC 61508	SIL3
safety device type according to IEC 61508-2	Type B
hardware fault tolerance according to IEC 61508	1
T1 value for proof test interval or service life according to IEC 61508	20 a
Electrical Safety	
touch protection against electrical shock	finger-safe
adjustable response value voltage for standstill detection	20 ... 400 mV
adjustable downtime	0.2 ... 6 s
Short-circuit protection	
design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required	quick: 5 A
Inputs	
design of input	
● cascading input/functional switching	No
● feedback input	Yes
● start input	No
number of sensor inputs	
● 1-channel or 2-channel	1
Outputs	
number of outputs as contact-affected switching element	
● as NC contact	
— for signaling function instantaneous contact	2
● as NO contact	
— safety-related instantaneous contact	4
— safety-related delayed switching	0
mechanical service life (operating cycles) typical	50 000 000
thermal current of the switching element with contacts maximum	5 A
number of outputs as contact-less semiconductor	

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switching element	
● for signaling function	
— delayed switching	0
— instantaneous contact	2
● safety-related	
— delayed switching	0
— instantaneous contact	0
switching capacity current of semiconductor outputs	
● for signaling function at DC-13 at 24 V	0.1 A
switching capacity current of the NO contacts of the relay outputs at DC-13	
● at 24 V	2 A
switching capacity current of the NO contacts of the relay outputs at AC-15	
● at 115 V	3 A
● at 230 V	3 A
switching capacity current of the NC contacts of the relay outputs at DC-13	
● at 24 V	2 A
switching capacity current of the NC contacts of the relay outputs at AC-15	
● at 115 V	2 A
● at 230 V	2 A
voltage measuring range at the measurement inputs at AC according to UL maximum	600 V
voltage measuring range at the measurement inputs at AC maximum	690 V
adjustable response value voltage for standstill detection	20 ... 400 mV
input resistance at the measurement inputs	500 kΩ
Times	
adjustable OFF-delay time after opening of the safety circuits	0.2 ... 6 s
adjustable downtime initial value	0.2 s
adjustable downtime full-scale value	6 s
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage 1 at DC rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
● initial value	0.9
● full-scale value	1.2
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
height	138.5 mm
width	45 mm
depth	120 mm
Connections/ Terminals	
type of electrical connection	spring-loaded terminals
type of connectable conductor cross-sections	
● solid	2x (0.25 ... 1.5 mm²)
● finely stranded with core end processing	2 x (0.25 ... 1.5 mm²)
● finely stranded without core end processing	2x (0.25 ... 1.5 mm²)
● for AWG cables solid	2x (24 ... 16)
● for AWG cables stranded	2x (20 ... 16)
connectable conductor cross-section	
● solid	0.25 ... 1.5 mm²
● finely stranded with core end processing	0.25 ... 1.5 mm²
● finely stranded without core end processing	0.25 ... 1.5 mm²
AWG number as coded connectable conductor cross section	

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● solid	24 ... 16
● stranded	24 ... 16
type of electrical connection plug-in socket	Yes

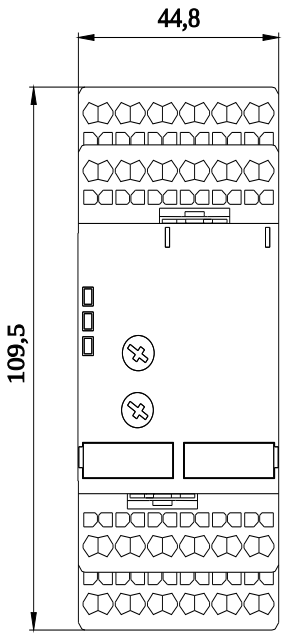
Approvals Certificates

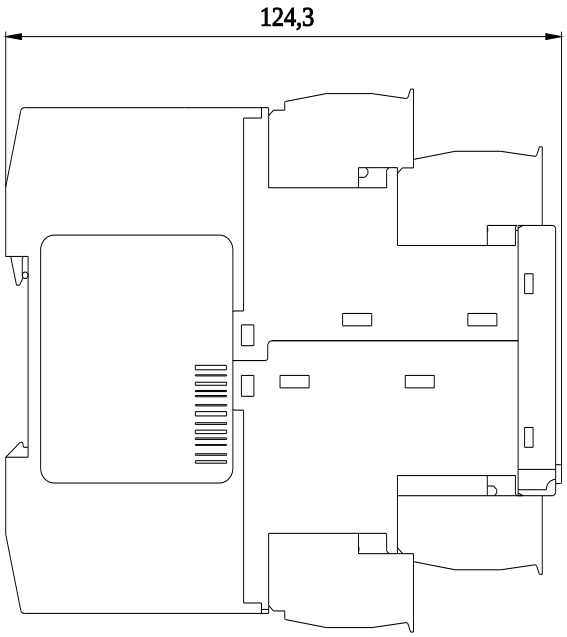
Environment	General Product Approval				
Environmental Confirmations	CCC	UL	EAC	CE EG-Konf.	UKCA

Functional Saftey	Test Certificates	other		Railway
Type Examination Certificate	Special Test Certificate	Confirmation	产品合格 QC PASS	Confirmation

Further information

Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
Information for data generation and storage
https://support.industry.siemens.com/cs/ww/en/view/109995012
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=3TK2810-0BA02
Cax online generator
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2810-0BA02
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TK2810-0BA02
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2810-0BA02&lang=en





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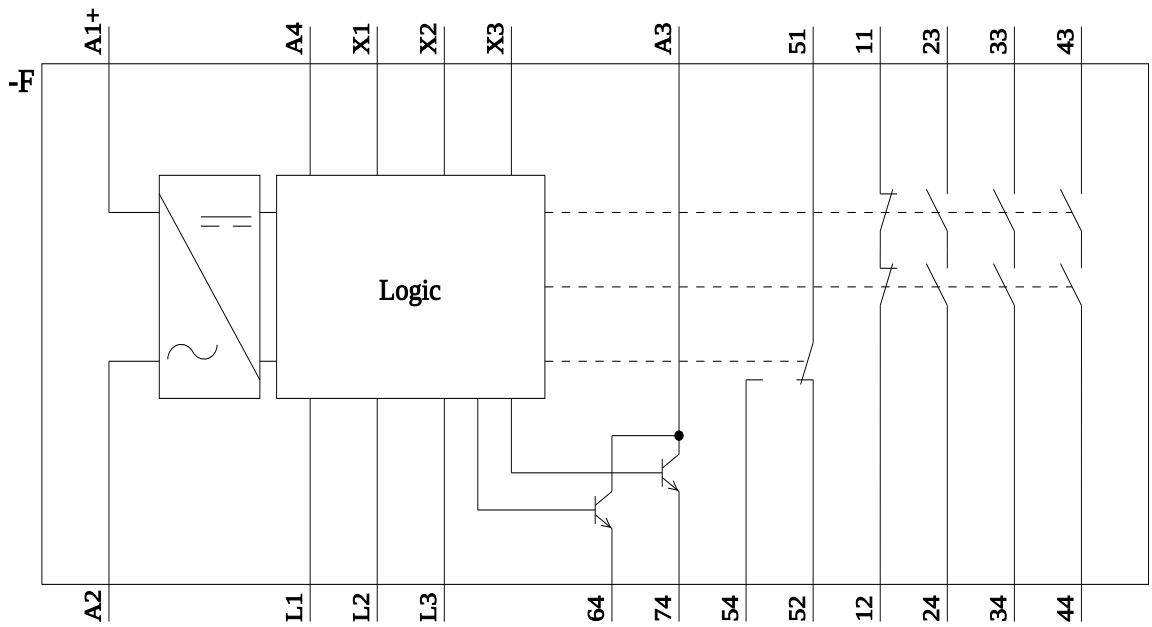

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