SIEMENS

Product data sheet 3TK2810-1BA42-0AA0

SIRIUS SAFETY RELAY SAFETY-RELATED SPEED MONITORING,
24 V DC, 45.0 MM,
SCREW-TYPE CONNECTION,
ENABLING CIRCUIT INSTANTANEOUS:2NO,
ENABLING CIRCUIT DELAYED:0,
SIGNALING CIRCUIT:2 ELECTRICAL,
NAMUR VERSION AUTO START / MANUAL START,
BASIC UNIT, MAX. ERR. PL EN13849-1: E,
MAX. ERR. SIL TO IEC61508:3,

General technical details:		
product brand name		SIRIUS
product designation		safety relays
Design of the product		standstill and speed monitoring
protection class IP / of the housing		IP20
Protection class IP / of the terminal		IP20
Protection against electrical shock		finger-safe
Insulation voltage / rated value	V	300
Ambient temperature		
• during storage	°C	-20 … +70
• during operating	°C	0 … 60
Air pressure		
• according to SN 31205	kPa	90 … 106
Relative humidity		
• during operating phase	%	10 … 95
Installation altitude / at a height over sea level / maximum	m	2,000
Resistance against vibration / according to IEC 60068-2-6		10 ... 55 Hz: 0.35 mm
Resistance against shock		8g / 10 ms
Impulse voltage resistance / rated value	V	4,000
EMC emitted interference		EN 60947-5-1

Installation environment relating to 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.
Item designation		
• according to DIN 40719 extendable after IEC 204-2 / according to IEC 750		KT
• according to DIN EN 61346-2		F
Number of sensor inputs		
• 2-channel		3
• 1-channel or 2-channel		0
Design of the cascading		none
Type of the safety-related wiring / of the inputs		single-channel or two-channel
Product feature / transverse contact-secure		Yes
Safety Integrity Level (SIL)		
• according to IEC 61508		SIL3
• for delayed release circuit / according to IEC 61508		SIL3
SIL claim limit (for a subsystem) / according to EN 62061		3
Performance Level (PL)		
• according to ISO 13849-1		e
• for delayed release circuit / according to ISO 13849-1		e
Category / according to EN 954-1		4
Category / according to ISO 13849-1		4
Hardware fault tolerance / according to IEC 61508		1
Safety device type / according to IEC 61508-2		Type B
Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061	1/h	0.34E-8
T1 value / for proof test interval or service life / according to IEC 61508	a	20
Number of outputs / as contact-affected switching element		
• as NC contact / for reporting function / instantaneous switching		0
• as NO contact / for reporting function / instantaneous switching		0
• as NC contact / for reporting function / delayed switching		0
• as NO contact / for reporting function / delayed switching		0
• as NC contact / safety-related / instantaneous switching		0
• as NO contact / safety-related / instantaneous switching		1
• as NC contact / safety-related / delayed switching		0
• as NO contact / safety-related / delayed switching		1
Number of outputs / as contact-less semiconductor switching element		
• safety-related		
• delayed switching		0

• non-delayed		0
• for reporting function		
• delayed switching		1
• non-delayed		1
Stop category / according to DIN EN 60204-1		0

General technical details:

Design of the input		
• cascading-input/functional switching		No
• feedback input		Yes
• start input		Yes
Design of the electrical connection / jumper socket		Yes
Switching capacity current		
• of semiconductor outputs		
• for signaling function / for DC-13 / at 24 V	A	0.02
• of NO contacts of relay outputs		
• at DC-13		
• at 24 V	A	2
• at AC-15		
• at 24 V	A	3
• at 230 V	A	3
• of NC contacts of relay outputs		
• at AC-15		
• at 24 V	A	3
• at 115 V	A	3
• at 230 V	A	2
Thermal current / of the contact-affected switching element / maximum	A	5
Electrical operating cycles as operating time / typical		100,000
Mechanical operating cycles as operating time / typical		50,000,000
Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required		gL/gG: 4 A

Control circuit:

Type of voltage / of the controlled supply voltage		DC
Control supply voltage / 1 / for DC / rated value	V	24
operating range factor control supply voltage rated value / of the magnet coil		
• for DC		0.9 … 1.1

Installation/mounting/dimensions:

mounting position		any
Type of mounting		screw and snap-on mounting
Width	mm	45
Height	mm	107.7
Depth	mm	124.3

Connections:

Design of the electrical connection		spring-loaded terminals
Type of the connectable conductor cross-section		
• solid		0.5 ... 4 mm²
• finely stranded		
• with wire end processing		2 x (0.25 ... 1.5 mm²)
• without wire end processing		2x (0.25 ... 1.5 mm²)
Type of the connectable conductor cross-section / for AWG conductors		
• solid		2x (24 ... 16)
• stranded		2x (20 ... 16)

Product Function:

Product function		
• light barrier monitoring		No
• standstill monitoring		Yes
• protective door monitoring		Yes
• automatic start		Yes
• magnetic switch monitoring Normally closed contact-Normally open contact		No
• rotation speed monitoring		Yes
• laser scanner monitoring		No
• monitored start-up		Yes
• light grid monitoring		No
• magnetic switch monitoring Normally closed contact-Normally closed contact		No
• emergency stop function		Yes
• step mat monitoring		No
Suitability for interaction / pressing control		No
Acceptability for application		
• monitoring of floating sensors		Yes
• monitoring of non-floating sensors		No
• safety cut-out switch		Yes
• position switch monitoring		Yes
• EMERGENCY-OFF circuit monitoring		No

• valve monitoring		No
• tactile sensor monitoring		No
• magnetically operated switches monitoring		No
• safety-related circuits		Yes

Certificates/approvals:

Verification of suitability		TÜV / IEC 61508
• TÜV (German technical inspectorate) certificate		Yes
• UL-registration		Yes
• BG BIA certificate		No

General Product Approval	**other**
GOST TÜV UL	Declaration of Conformity

Further information:

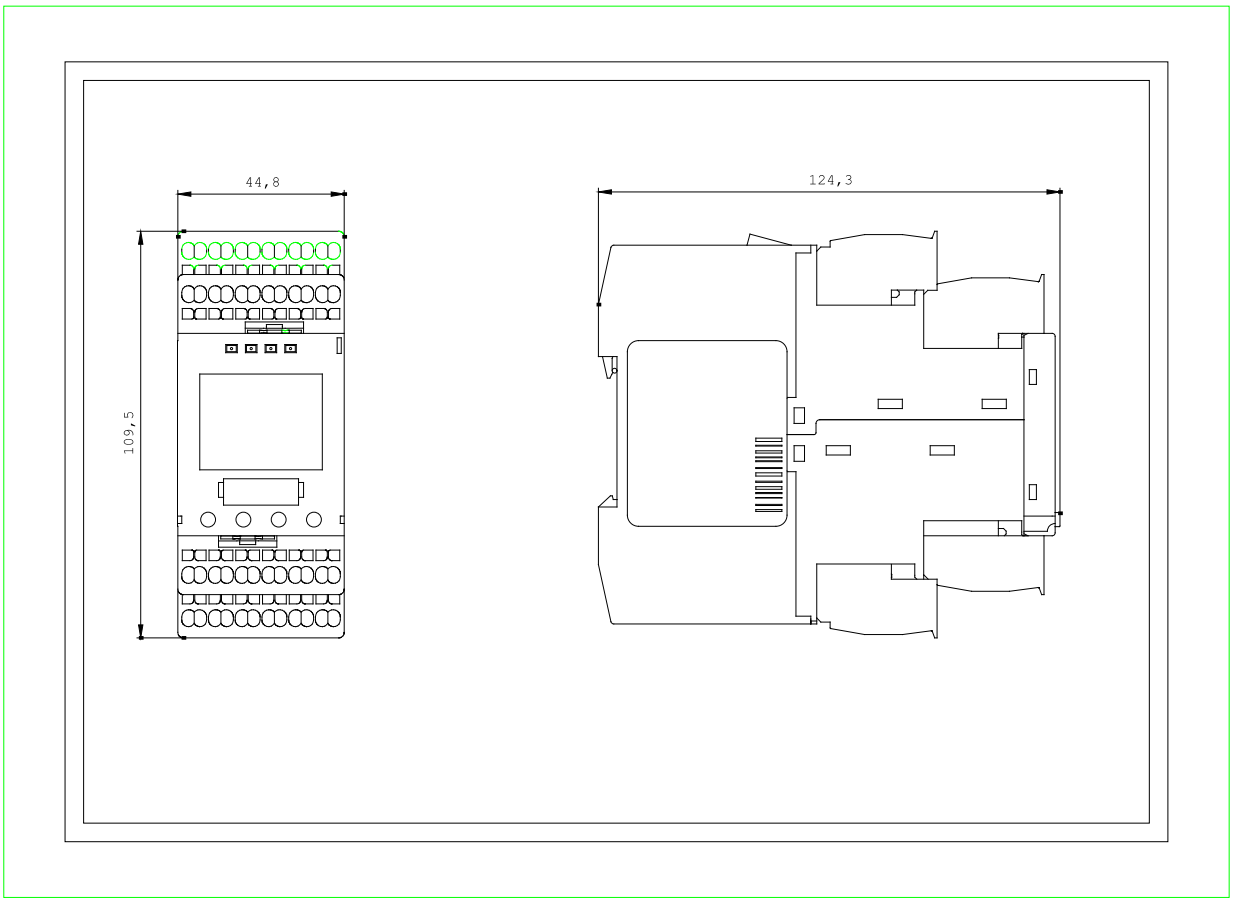
Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

Industry Mall (Online ordering system)
http://www.siemens.com/industrial-controls/mall

Cax online generator:
http://www.siemens.com/cax

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
http://support.automation.siemens.com/WW/view/en/3TK2810-1BA42-0AA0/all

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2810-1BA42-0AA0



last change: Feb 18, 2013