SIEMENS

Data sheet 3TK2810-1BA41-0AA0

SIRIUS safety relay Safety-oriented Speed monitoring 24 V DC, 45 mm overall width Screw terminal EC instantaneous: 2 NO EC delayed: 0 SC: 2 electrical NAMUR version Auto-start/manual start Basic device Maximum achievable PL according to EN 13849-1: e Maximum achievable SIL according to IEC 61508: 3

product brand name	SIRIUS
product designation	Speed monitor
design of the product	standstill and speed monitoring
General technical data	
protection class IP of the enclosure	IP20
touch protection against electrical shock	finger-safe
insulation voltage rated value	300 V
ambient temperature	
● during storage	-20 ... +70 °C
● during operation	0 ... 60 °C
air pressure according 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 according to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
shock resistance	8g / 10 ms
surge voltage resistance rated value	4 000 V
EMC emitted interference	EN 60947-5-1
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.
reference code according to DIN 40719 extended according to IEC 204-2 according to IEC 750	KT
reference code according to 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 cross-circuit-proof	Yes
Safety Integrity Level (SIL)	
● according to IEC 61508	3
● according to IEC 62061	3
● for delayed release circuit according to IEC 61508	SIL3
SIL Claim Limit (subsystem) according to EN 62061	3
performance level (PL)	
● according to ISO 13849-1	e
● for delayed release circuit according to EN ISO 13849-1	e
category according to EN ISO 13849-1	4
hardware fault tolerance according to IEC 61508	1
safety device type according to IEC 61508-2	Type B
PFHD with high demand rate according to EN 62061	3.4E-9 1/h

T1 value for proof test interval or service life according to IEC 61508	20 a
number of outputs as contact-affected switching element	
● as NC contact	
— for signaling function instantaneous contact	0
— for signaling function delayed switching	0
— safety-related instantaneous contact	0
— safety-related delayed switching	0
● as NO contact	
— for signaling function instantaneous contact	0
— for signaling function delayed switching	0
— safety-related instantaneous contact	1
— safety-related delayed switching	1
number of outputs as contact-less semiconductor switching element	
● safety-related	
— delayed switching	0
— instantaneous contact	0
● for signaling function	
— delayed switching	1
— instantaneous contact	1
stop category according to EN 60204-1	0
Inputs	
design of input	
● cascading input/functional switching	No
● feedback input	Yes
● start input	Yes
Encoder	
encoder signal evaluation	two signal tracks each with inverted signals
type of signal level of the encoder	optionally TTL, HTL or sin/cos (Ua = 1Vss)
type of failure response of the encoder	high-resistance
Proximity switch	
measuring precision	+-2 %
switching hysteresis	6.25 %
NAMUR sensors	
type of voltage of the supply voltage of NAMUR sensors	DC
supply voltage of NAMUR sensors	8.2 V; provided by the device
switching threshold for input current at input of NAMUR sensors	
● with signal <0>	1.6 mA
● for signal <1>	1.8 mA
switching threshold for input current at input of NAMUR sensors	
● for cable break maximum	0.15 mA
● on short circuit minimum	6 mA
pulse duration of NAMUR sensors minimum	75 µs
interpulse period of NAMUR sensors minimum	75 µs
adjustment range of signal frequency of NAMUR sensors	1 Hz ... 2 kHz
Outputs	
switching capacity current	
● of semiconductor outputs	
— for signaling function at DC-13 at 24 V	0.02 A
● of the NO contacts of the relay outputs at DC-13	
— at 24 V	2 A
● of the NO contacts of the relay outputs at AC-15	
— at 24 V	3 A
— at 230 V	3 A
● of the NC contacts of the relay outputs at AC-15	
— at 24 V	3 A
— at 115 V	3 A
— at 230 V	2 A
thermal current of the switching element with contacts	5 A

maximum	
electrical endurance (operating cycles) typical	100 000
mechanical service life (operating cycles) 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/ 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	0.9 ... 1.1
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
width	45 mm
height	105.9 mm
depth	124.3 mm
Connections/ Terminals	
type of electrical connection	screw-type terminals
type of connectable conductor cross-sections	
● solid	0.5 ... 4 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 for AWG cables	
● solid	2x (20 ... 14)
● stranded	2x (20 ... 14)
Product Function	
product function	
● light barrier monitoring	No
● standstill monitoring	Yes
● protective door monitoring	Yes
● automatic start	Yes
● magnetically operated switch monitoring NC-NO	No
● rotation speed monitoring	Yes
● 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	No
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	No
● valve monitoring	No
● tactile sensor monitoring	No
● magnetically operated switch monitoring	No
● safety-related circuits	Yes
Certificates/ approvals	
certificate of suitability	EN ISO 13849, EN 62061, IEC 61508
● TÜV (German technical inspectorate) certificate	Yes
● UL approval	Yes
● BG BIA approval	No

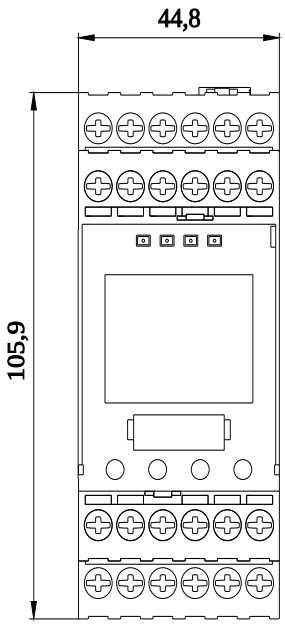
General Product Approval	**Functional Safety/Safety of Machinery**	**Declaration of Conformity**

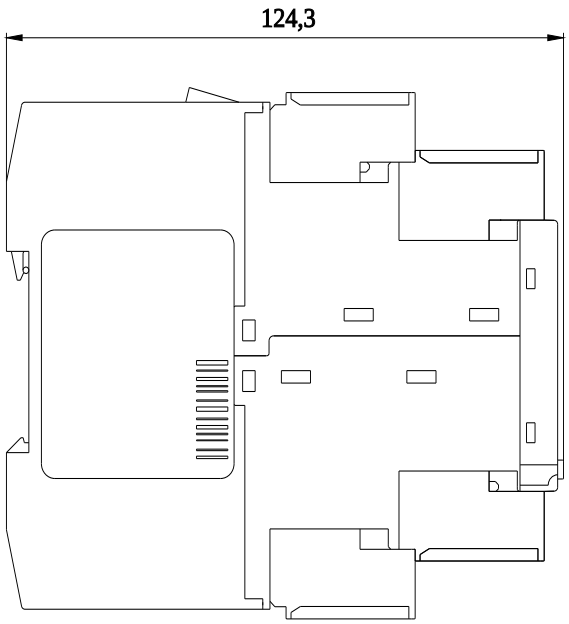
Type Examination Certificate

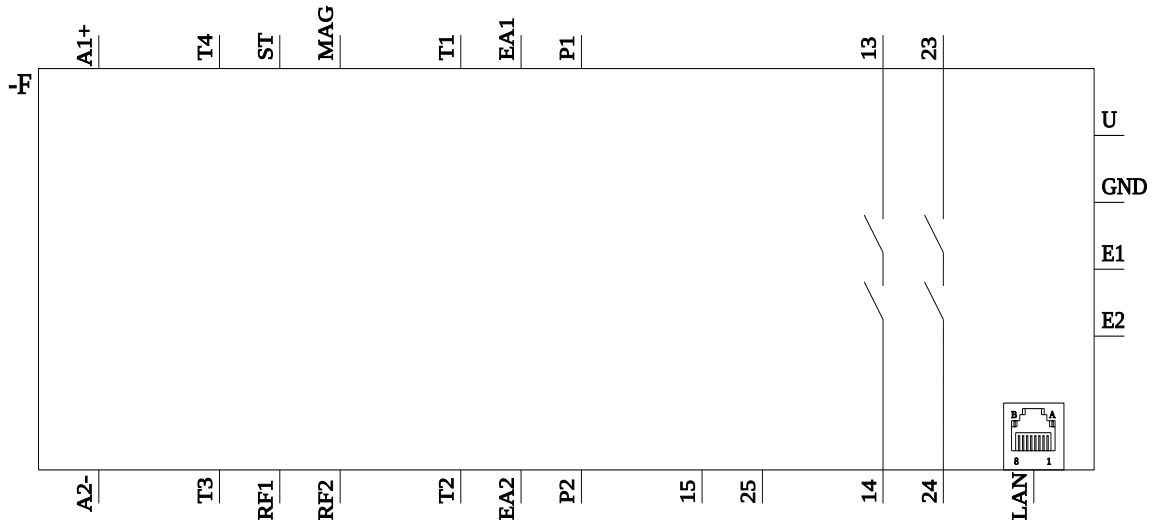
Declaration of Conformity	Test Certificates	other	Railway
UKCA	Special Test Certificate	Confirmation	Confirmation

Further information

Siemens has decided to exit the Russian market (see here).
https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business
Siemens is working on the renewal of the current EAC certificates.
Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).
Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
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=3TK2810-1BA41-0AA0
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2810-1BA41-0AA0
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TK2810-1BA41-0AA0
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2810-1BA41-0AA0&lang=en







last modified: 4/11/2022