



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
product type designation	3TK28
Product Function	
product function	
<ul style="list-style-type: none"> • automatic start • light barrier monitoring • standstill monitoring • protective door monitoring • magnetically operated switch monitoring NC-NO • magnetically operated switch monitoring NC-NC • rotation speed monitoring • laser scanner monitoring • light array monitoring • EMERGENCY OFF function • monitored start-up • pressure-sensitive mat monitoring 	<ul style="list-style-type: none"> Yes No Yes Yes No No Yes No No Yes Yes No
product feature cross-circuit-proof	Yes
suitability for interaction press control	No
suitability for use	
<ul style="list-style-type: none"> • monitoring of floating sensors • monitoring of non-floating sensors • position switch monitoring • EMERGENCY-OFF circuit monitoring • valve monitoring • opto-electronic protection device monitoring • tactile sensor monitoring • magnetically operated switch monitoring • proximity switch monitoring • safety switch • safety-related circuits 	<ul style="list-style-type: none"> Yes No Yes No No No No No No Yes Yes Yes
General technical data	
certificate of suitability UL approval	Yes
insulation voltage rated value	300 V
surge voltage resistance rated value	4 000 V
protection class IP	
<ul style="list-style-type: none"> • of the enclosure 	IP20
shock resistance	8 g / 10 ms

vibration resistance according to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
electrical endurance (operating cycles) typical	100 000
Substance Prohibition (day/month/year)	05/01/2012
SVHC substance name	Lead monoxide (lead oxide) CAS-No. 1317-36-8
Net Weight	0.5 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
• note	installation altitude: 5000 m with derating
ambient temperature	
• during operation	0 ... 60 °C; from an operating altitude > 2000 m, the maximum permissible temperature is reduced by 0.5 °C / 100 m
• during storage	-20 ... +70 °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	EN 60947-5-1
Safety related data	
stop category according to IEC 60204-1	0
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	3.4E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
performance level (PL)	
• according to ISO 13849-1	PL e
• for delayed release circuit according to ISO 13849-1	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
Short-circuit protection	
design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required	gL/gG: 4 A
Inputs	
design of input	
• cascading input/functional switching	No
• feedback input	Yes
• start input	Yes
number of sensor inputs	
• 1-channel or 2-channel	0
• 2-channel	3
Outputs	
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
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 switching element	
• for signaling function	
— delayed switching	1
— instantaneous contact	1
• safety-related	
— delayed switching	0
— instantaneous contact	0
switching capacity current of semiconductor outputs	
• for signaling function at DC-13 at 24 V	0.02 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 24 V	3 A
• at 230 V	3 A
switching capacity current 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
Encoder	
encoder signal evaluation	two signal tracks each with inverted signals
type of signal level of the encoder	optionally TTL, HTL or sin/cos ($U_a = 1V_{ss}$)
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 μ s
interpulse period of NAMUR sensors minimum	75 μ s
adjustment range of signal frequency of NAMUR sensors	1 Hz ... 2 kHz
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	1.1
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
height	105.9 mm
width	45 mm

depth	124.3 mm
Connections/ Terminals	
type of electrical connection	screw terminal
type of connectable conductor cross-sections	<ul style="list-style-type: none"> • solid • finely stranded with core end processing • for AWG cables solid • for AWG cables stranded
connectable conductor cross-section	<ul style="list-style-type: none"> • solid • finely stranded with core end processing
AWG number as coded connectable conductor cross section	<ul style="list-style-type: none"> • solid • stranded

Approvals Certificates

Environment	General Product Approval				
Environmental Con- firmations					

Functional Safety	Test Certificates	other	Railway
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Type Examination Cer- tificate	Special Test Certifi- cate	Confirmation	Confirmation		Confirmation
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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=3TK2810-1BA41-0AA0>
- Cax online generator
<https://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, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2810-1BA41-0AA0&lang=en

