



SIRIUS safety relay Safety-oriented Speed monitoring 110-240 V AC/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	
• automatic start	Yes
• light barrier monitoring	No
• standstill monitoring	Yes
• protective door monitoring	Yes
• magnetically operated switch monitoring NC-NO	No
• magnetically operated switch monitoring NC-NC	No
• rotation speed monitoring	Yes
• laser scanner monitoring	No
• light array monitoring	No
• EMERGENCY OFF function	Yes
• monitored start-up	Yes
• pressure-sensitive mat monitoring	No
product feature cross-circuit-proof	Yes
suitability for interaction press control	No
suitability for use	
• monitoring of floating sensors	Yes
• monitoring of non-floating sensors	No
• position switch monitoring	Yes
• 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	Yes
• safety switch	Yes
• safety-related circuits	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	
• 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 Prohibitance (day/month/year)	05/01/2012
SVHC substance name	Lead monoxide (lead oxide) CAS-No. 1317-36-8
Net Weight	0.439 g
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 µs
interpulse period of NAMUR sensors minimum	75 µs
adjustment range of signal frequency of NAMUR sensors	1 Hz ... 2 kHz
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage 1 at AC	
• at 50 Hz	110 ... 240 V
• at 60 Hz	110 ... 240 V
control supply voltage frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
control supply voltage 1 at DC	110 ... 240 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8

• full-scale value	1.1
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 ... 1.1
• at 60 Hz	0.8 ... 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	
• solid	1x (0.5 ... 4 mm ²)
• finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
• for AWG cables solid	2x (20 ... 14)
• for AWG cables stranded	2x (20 ... 14)
connectable conductor cross-section	
• solid	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
AWG number as coded connectable conductor cross section	
• solid	20 ... 14
• stranded	20 ... 14

Approvals Certificates

Environment	General Product Approval
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[Environmental Confirmations](#)



Functional Safety	Test Certificates	other	Railway
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[Type Examination Certificate](#)

[Special Test Certificate](#)

[Confirmation](#)

[Confirmation](#)



[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=3TK2810-1KA41-0AA0>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2810-1KA41-0AA0>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2810-1KA41-0AA0>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2810-1KA41-0AA0&lang=en



