

SIRIUS safety relay Safety-oriented Speed monitoring 24 V DC, 45 mm overall width Spring-type 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 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 CAS-No. 7439-92-1
Net Weight	0.41 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
<ul style="list-style-type: none"> • note 	installation altitude: 5000 m with derating
ambient temperature	

<ul style="list-style-type: none"> during operation 	0 ... 60 °C; from an operating altitude > 2000 m, the maximum permissible temperature is reduced by 0.5 °C / 100 m
<ul style="list-style-type: none"> 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)	
<ul style="list-style-type: none"> according to ISO 13849-1 for delayed release circuit according to ISO 13849-1 	PL e e
IEC 61508	
Safety Integrity Level (SIL)	
<ul style="list-style-type: none"> according to IEC 61508 for delayed release circuit according to IEC 61508 	3 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	
<ul style="list-style-type: none"> cascading input/functional switching feedback input start input 	No Yes Yes
number of sensor inputs	
<ul style="list-style-type: none"> 1-channel or 2-channel 2-channel 	0 3

Outputs

number of outputs as contact-affected switching element	
<ul style="list-style-type: none"> as NC contact <ul style="list-style-type: none"> for signaling function instantaneous contact for signaling function delayed switching safety-related instantaneous contact safety-related delayed switching as NO contact <ul style="list-style-type: none"> for signaling function instantaneous contact for signaling function delayed switching safety-related instantaneous contact safety-related delayed switching 	0 0 0 0 0 0 0 1 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	
<ul style="list-style-type: none"> for signaling function <ul style="list-style-type: none"> 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	107.7 mm
width	45 mm
depth	124.3 mm
Connections/ Terminals	
type of electrical connection	spring-loaded terminals
type of connectable conductor cross-sections	
● solid	1x (0.5 ... 4 mm ²)
● finely stranded with core end processing	2 x (0.25 ... 1.5 mm ²)
● finely stranded without core end processing	2x (0.25 ... 1.5 mm ²)
● for AWG cables solid	2x (24 ... 16)
● for AWG cables stranded	2x (20 ... 16)

connectable conductor cross-section	
• solid	0.25 ... 1.5 mm ²
• finely stranded with core end processing	0.25 ... 1.5 mm ²
• finely stranded without core end processing	0.25 ... 1.5 mm ²
AWG number as coded connectable conductor cross section	
• solid	24 ... 16
• stranded	24 ... 16

Approvals Certificates

Environment	General Product Approval
--------------------	---------------------------------

[Environmental Con-
firmations](#)



Functional Safety	Test Certificates	other	Railway
--------------------------	--------------------------	--------------	----------------

[Type Examination Cer-
tificate](#)

[Special Test Certific-
ate](#)

[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=3TK2810-1BA42-0AA0>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2810-1BA42-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2810-1BA42-0AA0>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2810-1BA42-0AA0&lang=en

last modified:

5/5/2026