SIEMENS

Data sheet



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		
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	е		
 for delayed release circuit according to EN ISO 13849-1 	е		
category according to EN ISO 13849-1	4		
hardware fault tolerance according to IEC 61508	1		
safety device type according to IEC 61508-2	Туре В		
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	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
	0
— safety-related instantaneous contact	
— 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
	0
stop category according to EN 60204-1 Inputs	·
design of input	No
cascading input/functional switching	No Yes
• 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	
Proximity switch measuring precision	+-2 %
Proximity switch measuring precision switching hysteresis	
Proximity switch measuring precision switching hysteresis NAMUR sensors	+-2 % 6.25 %
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors	+-2 % 6.25 % DC
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors	+-2 % 6.25 %
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors	+-2 % 6.25 % DC
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0>	+-2 % 6.25 % DC 8.2 V; provided by the device
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1>	+-2 % 6.25 % DC 8.2 V; provided by the device
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0>	+-2 % 6.25 % DC 8.2 V; provided by the device
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR	+-2 % 6.25 % DC 8.2 V; provided by the device
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • of or signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13 — at 24 V	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13 — at 24 V • of the NO contacts of the relay outputs at AC-15	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13 — at 24 V • of the NO contacts of the relay outputs at AC-15 — at 24 V	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13 — at 24 V • of the NO contacts of the relay outputs at AC-15 — at 24 V — at 230 V	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 μs 75 μs 1 Hz 2 kHz
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13 — at 24 V • of the NO contacts of the relay outputs at AC-15 — at 230 V • of the NC contacts of the relay outputs at AC-15	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 µs 75 µs 1 Hz 2 kHz 0.02 A 2 A 3 A 3 A
Proximity switch measuring precision switching hysteresis NAMUR sensors type of voltage of the supply voltage of NAMUR sensors supply voltage of NAMUR sensors switching threshold for input current at input of NAMUR sensors • with signal <0> • for signal <1> switching threshold for input current at input of NAMUR sensors • for cable break maximum • on short circuit minimum pulse duration of NAMUR sensors minimum interpulse period of NAMUR sensors minimum adjustment range of signal frequency of NAMUR sensors Outputs switching capacity current • of semiconductor outputs — for signaling function at DC-13 at 24 V • of the NO contacts of the relay outputs at DC-13 — at 24 V • of the NO contacts of the relay outputs at AC-15 — at 230 V • of the NC contacts of the relay outputs at AC-15 — at 24 V	+-2 % 6.25 % DC 8.2 V; provided by the device 1.6 mA 1.8 mA 0.15 mA 6 mA 75 µs 75 µs 1 Hz 2 kHz 0.02 A 2 A 3 A 3 A 3 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	107.7 mm		
depth	124.3 mm		
Connections/ Terminals			
type of electrical connection	spring-loaded terminals		
type of connectable conductor cross-sections			
• solid	0.5 4 mm²		
• finely stranded			
 — with core end processing 	2 x (0.25 1.5 mm²)		
 — without core end processing 	2x (0.25 1.5 mm²)		
type of connectable conductor cross-sections for AWG cables			
• 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		
 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 Ma- chinery	Declaration of Conformity













Declaration of Conformity

Test Certificates

other

Railway



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=3TK2810-1BA42-0AA0

Cax online generator

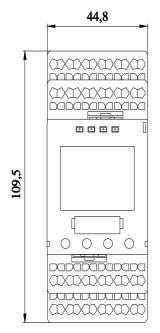
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2810-1BA42-0AA0

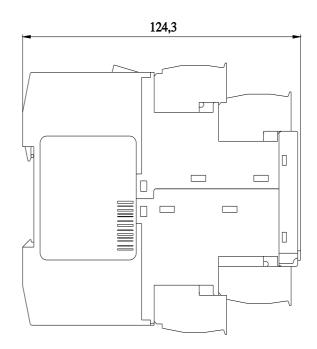
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

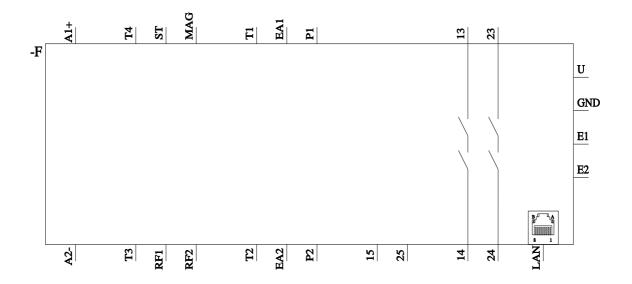
https://support.industry.siemens.com/cs/ww/en/ps/3TK2810-1BA42-0AA0

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

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







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