



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 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
<b>General technical data</b>	
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	KT
according to IEC 204-2 according to IEC 750	
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	0.0000000034 1/h

<b>T1 value for proof test interval or service life according to IEC 61508</b>	20 y
<b>number of outputs as contact-affected switching element</b>	
• 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
<b>number of outputs as contact-less semiconductor switching element</b>	
• safety-related	
— delayed switching	0
— instantaneous contact	0
• for signaling function	
— delayed switching	1
— instantaneous contact	1
<b>stop category according to EN 60204-1</b>	0

### Inputs

<b>design of input</b>	
• cascading input/functional switching	No
• feedback input	Yes
• start input	Yes

### Encoder

<b>encoder signal evaluation</b>	two signal tracks each with inverted signals
<b>type of signal level of the encoder</b>	optionally TTL, HTL or sin/cos ( $U_a = 1V_{ss}$ )
<b>type of failure response of the encoder</b>	high-resistance

### Proximity switch

<b>type of voltage of the supply voltage of proximity switches</b>	DC
<b>supply voltage of proximity switches</b>	24 V; provided by the device
<b>current consumption of proximity switches maximum</b>	30 mA
<b>type of switching output</b>	optionally PNP or NPN
<b>input voltage for proximity switch minimum</b>	10 V
<b>pulse duration of proximity switches minimum</b>	75 $\mu$ s
<b>interpulse period of proximity switches minimum</b>	75 $\mu$ s
<b>adjustment range of signal frequency of proximity switches</b>	1 Hz ... 2 kHz
<b>measuring precision</b>	+2 %
<b>switching hysteresis</b>	6.25 %

### Outputs

<b>switching capacity current</b>	
• 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
— at 115 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
<b>thermal current of the switching element with contacts maximum</b>	5 A
<b>electrical endurance (operating cycles) typical</b>	100 000
<b>mechanical service life (operating cycles) typical</b>	50 000 000
<b>design of the fuse link for short-circuit protection of</b>	gL/gG: 4 A

the NO contacts of the relay outputs required

**Control circuit/ Control**

<b>type of voltage of the control supply voltage</b>	DC
<b>control supply voltage 1</b>	24 V
<ul style="list-style-type: none"> <li>• at DC rated value</li> </ul>	
<b>operating range factor control supply voltage rated value of magnet coil</b>	0.9 ... 1.1
<ul style="list-style-type: none"> <li>• at DC</li> </ul>	

**Installation/ mounting/ dimensions**

<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting
<b>width</b>	45 mm
<b>height</b>	107.7 mm
<b>depth</b>	124.3 mm

**Connections/ Terminals**

<b>type of electrical connection</b>	spring-loaded terminals
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• solid</li> </ul>	0.5 ... 4 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>• finely stranded</li> </ul>	
<ul style="list-style-type: none"> <li>— with core end processing</li> </ul>	2 x (0.25 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>— without core end processing</li> </ul>	2x (0.25 ... 1.5 mm <sup>2</sup> )
<b>type of connectable conductor cross-sections at AWG cables</b>	
<ul style="list-style-type: none"> <li>• solid</li> </ul>	2x (24 ... 16)
<ul style="list-style-type: none"> <li>• stranded</li> </ul>	2x (20 ... 16)

**Product Function**

<b>product function</b>	
<ul style="list-style-type: none"> <li>• light barrier monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• standstill monitoring</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• protective door monitoring</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• automatic start</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• magnetically operated switch monitoring NC-NO</li> </ul>	No
<ul style="list-style-type: none"> <li>• rotation speed monitoring</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• laser scanner monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• monitored start-up</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• light array monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• magnetically operated switch monitoring NC-NC</li> </ul>	No
<ul style="list-style-type: none"> <li>• EMERGENCY OFF function</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• pressure-sensitive mat monitoring</li> </ul>	No
<b>suitability for interaction press control</b>	No
<b>suitability for use</b>	
<ul style="list-style-type: none"> <li>• monitoring of floating sensors</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• monitoring of non-floating sensors</li> </ul>	No
<ul style="list-style-type: none"> <li>• safety switch</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• position switch monitoring</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• EMERGENCY-OFF circuit monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• valve monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• tactile sensor monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• magnetically operated switch monitoring</li> </ul>	No
<ul style="list-style-type: none"> <li>• safety-related circuits</li> </ul>	Yes

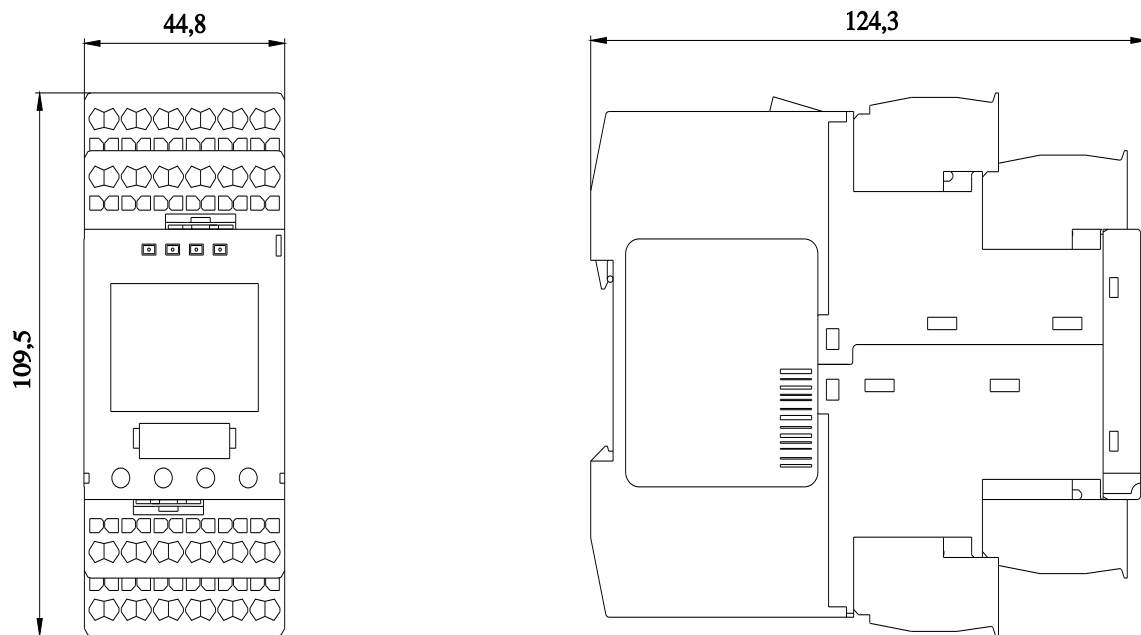
**Certificates/ approvals**

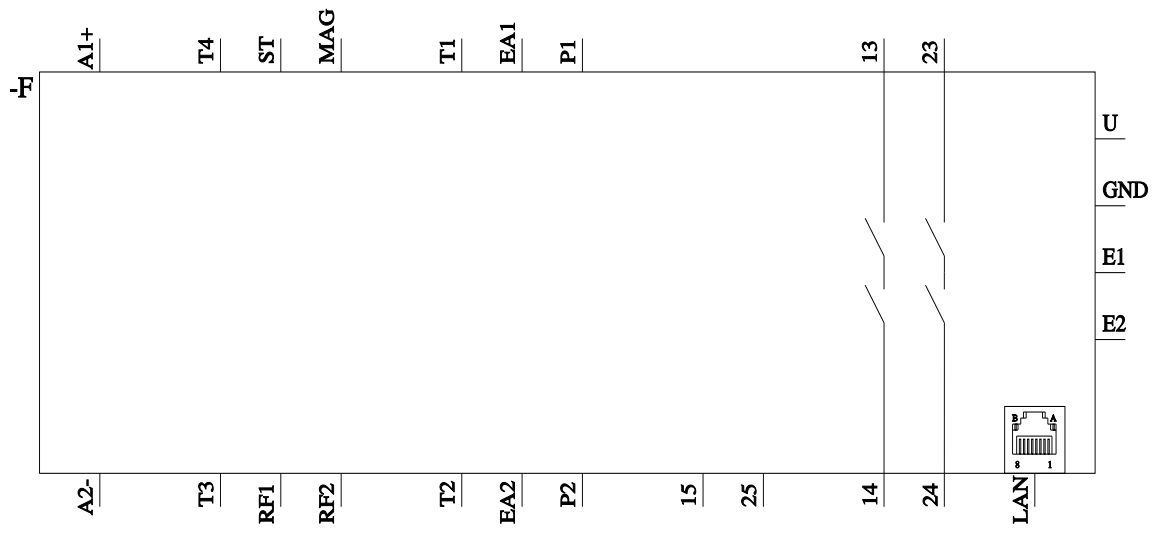
<b>certificate of suitability</b>	EN ISO 13849, EN 62061, IEC 61508
<ul style="list-style-type: none"> <li>• TÜV (German technical inspectorate) certificate</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• UL approval</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• BG BIA approval</li> </ul>	No

<b>General Product Approval</b>	<b>Declaration of Conformity</b>	<b>Test Certificates</b>
---------------------------------	----------------------------------	--------------------------



[Special Test Certificate](#)

[Confirmation](#)[Confirmation](#)**Further information****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>**Cax online generator**<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2810-1BA42>**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**<https://support.industry.siemens.com/cs/ww/en/ps/3TK2810-1BA42>**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&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2810-1BA42&lang=en)



last modified:

4/11/2022 