



SIRIUS safety relay with relay enabling circuits (EC) 115V AC, 22.5 mm Screw terminal Basic device Auto-start, monitored start EC instantaneous: 3 NO EC delayed: 0 NO SC: 1NC max. error category EN 13849-1: 4 Maximum achievable PL according to EN 13849-1: e Maximum achievable SIL according to IEC 61508: 3

product brand name	SIRIUS
product designation	safety relays
design of the product	for EMERGENCY-STOP and safety doors
<b>General technical data</b>	
protection class IP of the enclosure	IP40
protection class IP of the terminal	IP20
touch protection against electrical shock	finger-safe
insulation voltage rated value	300 V
ambient temperature	
• during storage	-40 ... +80 °C
• during operation	-25 ... +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	5 ... 500 Hz: 0.75 mm
shock resistance	15g / 11 ms
surge voltage resistance rated value	4 000 V
EMC emitted interference	IEC 60947-5-1, IEC 61000
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 EN 61346-2	F
number of sensor inputs	
• 1-channel or 2-channel	1
type of the safety-related wiring of the inputs	single-channel and two-channel
product feature cross-circuit-proof	Yes
Safety Integrity Level (SIL)	
• according to IEC 61508	3
SIL Claim Limit (subsystem) according to EN 62061	3
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 A
PFHD with high demand rate according to EN 62061	9.4E-10 1/h
Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	8.3E-7 1/y
T1 value for proof test interval or service life according to IEC 61508	20 a
number of outputs as contact-affected switching element	
• as NC contact	
— for signaling function instantaneous contact	1
• as NO contact	

— safety-related instantaneous contact	3
— safety-related delayed switching	0
<b>number of outputs as contact-less semiconductor switching element</b>	
• safety-related	
— delayed switching	0
— instantaneous contact	0
• for signaling function	
— delayed switching	0
— instantaneous contact	0
<b>stop category according to EN 60204-1</b>	0
<b>Inputs</b>	
<b>design of input</b>	
• feedback input	Yes
• start input	Yes
<b>Outputs</b>	
<b>type of electrical connection plug-in socket</b>	No
<b>operating frequency maximum</b>	2 000 1/h
<b>switching capacity current</b>	
• of the NO contacts of the relay outputs at DC-13	
— at 24 V	4 A
— at 115 V	0.2 A
— at 230 V	0.1 A
• of the NO contacts of the relay outputs at AC-15	
— at 24 V	4 A
— at 115 V	4 A
— at 230 V	4 A
• of the NC contacts of the relay outputs at DC-13	
— at 24 V	4 A
— at 115 V	0.2 A
— at 230 V	0.1 A
• of the NC contacts of the relay outputs at AC-15	
— at 24 V	4 A
— at 115 V	4 A
— at 230 V	4 A
<b>thermal current of the switching element with contacts maximum</b>	5 A
<b>electrical endurance (operating cycles) typical</b>	200 000
<b>mechanical service life (operating cycles) typical</b>	10 000 000
<b>design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required</b>	gL/gG: 10 A or quick-response: 10 A or MCB type B: 2 A or MCB type C: 1.6 A or SITOP select diagnostics module (order No.: 6EP1961-2BA00)
<b>DC resistance of the cable maximum</b>	50 Ω
<b>wire length between sensor and electronics evaluation device with Cu 1.5 mm<sup>2</sup> and 150 nF/km maximum</b>	1 000 m
<b>Times</b>	
<b>make time with automatic start</b>	
• typical	400 ms
<b>make time with automatic start after power failure</b>	
• typical	110 ms
• maximum	170 ms
<b>make time with monitored start</b>	
• maximum	30 ms
• typical	20 ms
<b>backslide delay time after opening of the safety circuits typical</b>	8 ms
<b>backslide delay time in the event of power failure</b>	
• typical	40 ms
• maximum	45 ms
<b>recovery time after opening of the safety circuits typical</b>	20 ms
<b>recovery time after power failure typical</b>	60 ms
<b>pulse duration</b>	
• of the sensor input minimum	35 ms

<ul style="list-style-type: none"> <li>of the ON pushbutton input minimum</li> </ul>	35 ms
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>1 rated value</li> <li>2 rated value</li> </ul>	50 Hz 60 Hz
<b>control supply voltage 1 at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz rated value</li> <li>at 60 Hz rated value</li> </ul>	115 V 115 V
<b>operating range factor control supply voltage rated value of magnet coil</b>	
<ul style="list-style-type: none"> <li>at AC <ul style="list-style-type: none"> <li>at 50 Hz</li> <li>at 60 Hz</li> </ul> </li> </ul>	0.85 ... 1.1 0.85 ... 1.1
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	snap-on mounting
<b>width</b>	22.5 mm
<b>height</b>	103.6 mm
<b>depth</b>	118 mm
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	screw-type terminals
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>solid</li> <li>finely stranded <ul style="list-style-type: none"> <li>with core end processing</li> <li>without core end processing</li> </ul> </li> </ul>	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x ( 0.5 ... 1.5 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
<b>type of connectable conductor cross-sections for AWG cables</b>	
<ul style="list-style-type: none"> <li>solid</li> <li>stranded</li> </ul>	1x (20 ... 14), 2x (20 ... 16) 1x (20 ... 14), 2x (20 ... 18)
<b>Product Function</b>	
<b>product function</b>	
<ul style="list-style-type: none"> <li>light barrier monitoring</li> <li>standstill monitoring</li> <li>protective door monitoring</li> <li>automatic start</li> <li>magnetically operated switch monitoring NC-NO</li> <li>rotation speed monitoring</li> <li>laser scanner monitoring</li> <li>monitored start-up</li> <li>light array monitoring</li> <li>magnetically operated switch monitoring NC-NC</li> <li>EMERGENCY OFF function</li> <li>pressure-sensitive mat monitoring</li> </ul>	No No Yes Yes No No No Yes No Yes Yes Yes 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> <li>monitoring of non-floating sensors</li> <li>safety switch</li> <li>position switch monitoring</li> <li>EMERGENCY-OFF circuit monitoring</li> <li>valve monitoring</li> <li>tactile sensor monitoring</li> <li>magnetically operated switch monitoring</li> <li>safety-related circuits</li> </ul>	Yes No Yes Yes Yes No No Yes Yes
<b>Certificates/ approvals</b>	
<b>certificate of suitability</b>	UL / CSA
<ul style="list-style-type: none"> <li>TÜV (German technical inspectorate) certificate</li> <li>UL approval</li> <li>BG BIA approval</li> </ul>	Yes Yes No



[Type Examination Certificate](#)

Test Certificates

other

[Special Test Certificate](#)

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#### 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=3TK2820-1AJ20>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2820-1AJ20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2820-1AJ20>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3TK2820-1AJ20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2820-1AJ20&lang=en)



