

SIRIUS safety relay with relay enabling circuits (EC) 24 V AC/DC, 22.5 mm Screw terminal EC instantaneous: 3 NO EC delayed: 0 NO SC: 1NC Autostart/manual start Basic device Maximum achieved SIL: 1, PL: c as expansion unit up to maximum achieved SIL: 3, PL: e

<b>product brand name</b>	SIRIUS
<b>product designation</b>	safety relays
<b>design of the product</b>	for EMERGENCY-STOP and safety doors
<b>product type designation</b>	3TK28
<b>Product Function</b>	
<b>product function</b>	
<ul style="list-style-type: none"> <li>• automatic start</li> <li>• light barrier monitoring</li> <li>• standstill monitoring</li> <li>• protective door monitoring</li> <li>• magnetically operated switch monitoring NC-NO</li> <li>• magnetically operated switch monitoring NC-NC</li> <li>• rotation speed monitoring</li> <li>• laser scanner monitoring</li> <li>• light array monitoring</li> <li>• EMERGENCY OFF function</li> <li>• monitored start-up</li> <li>• pressure-sensitive mat monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>No</li> <li>No</li> <li>Yes</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> <li>Yes</li> <li>No</li> <li>No</li> </ul>
<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>• position switch monitoring</li> <li>• EMERGENCY-OFF circuit monitoring</li> <li>• valve monitoring</li> <li>• opto-electronic protection device monitoring</li> <li>• tactile sensor monitoring</li> <li>• magnetically operated switch monitoring</li> <li>• proximity switch monitoring</li> <li>• safety switch</li> <li>• safety-related circuits</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>No</li> <li>Yes</li> <li>Yes</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> <li>Yes</li> <li>Yes</li> </ul>
<b>General technical data</b>	
certificate of suitability UL approval	Yes
<b>product feature cross-circuit-proof</b>	No
<b>insulation voltage rated value</b>	300 V
<b>surge voltage resistance rated value</b>	4 000 V
protection class IP	
<ul style="list-style-type: none"> <li>• of the enclosure</li> <li>• of the terminal</li> </ul>	<ul style="list-style-type: none"> <li>IP40</li> <li>IP20</li> </ul>
<b>shock resistance</b>	8g / 10 ms
<b>operating frequency maximum</b>	1 000 1/h
<b>mechanical service life (operating cycles) typical</b>	10 000 000
electrical endurance (operating cycles) typical	100 000
<b>thermal current of the switching element with contacts maximum</b>	5 A
<b>Substance Prohibition (Date)</b>	05/28/2009
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
<ul style="list-style-type: none"> <li>• during operation</li> </ul>	-25 ... +60 °C

• during storage	-40 ... +80 °C
relative humidity during operation	10 ... 95 %
air pressure according to SN 31205	90 ... 106 kPa
<b>Electromagnetic compatibility</b>	
<b>installation environment regarding EMC</b>	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.
<b>EMC emitted interference</b>	EN 60947-5-1
<b>Safety related data</b>	
<b>stop category according to IEC 60204-1</b>	0
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	1
PFHD with high demand rate according to IEC 62061	1.1E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	3
IEC 61508	
<b>safety device type according to IEC 61508-2</b>	Type A
<b>Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508</b>	9.9E-7 1/y
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	
<b>touch protection against electrical shock</b>	finger-safe
<b>Short-circuit protection</b>	
design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required	gL/gG: 6 A, or quick: 10 A
<b>Inputs</b>	
<b>design of input</b>	
• cascading input/functional switching	No
• feedback input	Yes
• start input	Yes
<b>number of sensor inputs</b>	
• 1-channel or 2-channel	1
<b>Outputs</b>	
<b>number of outputs as contact-affected switching element</b>	
• 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>	
• for signaling function	
— delayed switching	0
— instantaneous contact	0
• safety-related	
— delayed switching	0
— instantaneous contact	0
<b>switching capacity current of the NO contacts of the relay outputs at DC-13</b>	
• at 24 V	5 A
• at 115 V	0.2 A
• at 230 V	0.1 A
<b>switching capacity current of the NO contacts of the relay outputs at AC-15</b>	
• at 115 V	5 A
• at 230 V	5 A
<b>switching capacity current of the NC contacts of the relay outputs at DC-13</b>	
• at 24 V	5 A
• at 115 V	0.2 A
• at 230 V	0.1 A

<b>switching capacity current of the NC contacts of the relay outputs at AC-15</b>	
<ul style="list-style-type: none"> <li>at 115 V</li> <li>at 230 V</li> </ul>	<p>5 A</p> <p>5 A</p>
<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>	
<ul style="list-style-type: none"> <li>at DC maximum</li> <li>at AC maximum</li> </ul>	<p>200 ms</p> <p>200 ms</p>
<b>make time with automatic start after power failure</b>	
<ul style="list-style-type: none"> <li>maximum</li> </ul>	300 ms
<b>backslide delay time after opening of the safety circuits typical</b>	125 ms
<b>backslide delay time in the event of power failure</b>	
<ul style="list-style-type: none"> <li>typical</li> <li>maximum</li> </ul>	<p>125 ms</p> <p>200 ms</p>
<b>recovery time after opening of the safety circuits typical</b>	200 ms
<b>recovery time after power failure typical</b>	200 ms
<b>pulse duration</b>	
<ul style="list-style-type: none"> <li>of the sensor input minimum</li> <li>of the ON pushbutton input minimum</li> </ul>	<p>200 ms</p> <p>0.15 s</p>
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC/DC
<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>	<p>24 V</p> <p>24 V</p>
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>1 rated value</li> <li>2 rated value</li> </ul>	<p>50 Hz</p> <p>60 Hz</p>
<b>control supply voltage 1 at DC</b>	
<ul style="list-style-type: none"> <li>rated value</li> </ul>	24 V
<b>operating range factor control supply voltage rated value of magnet coil at DC</b>	
<ul style="list-style-type: none"> <li>initial value</li> <li>full-scale value</li> </ul>	<p>0.85</p> <p>1.2</p>
<b>operating range factor control supply voltage rated value of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> <li>at 60 Hz</li> </ul>	<p>0.85 ... 1.1</p> <p>0.85 ... 1.1</p>
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting
<b>height</b>	120 mm
<b>width</b>	22.5 mm
<b>depth</b>	120 mm
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	screw terminal
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>solid</li> <li>finely stranded with core end processing</li> <li>for AWG cables solid</li> <li>for AWG cables stranded</li> </ul>	<p>1x (0.5 ... 4.0 mm<sup>2</sup>), 2x (0.5 ... 2.5 mm<sup>2</sup>)</p> <p>1x (0.5 ... 2.5 mm<sup>2</sup>), 2x (0.5 ... 1.5 mm<sup>2</sup>)</p> <p>2x (20 ... 14)</p> <p>2x (20 ... 14)</p>
<b>connectable conductor cross-section</b>	
<ul style="list-style-type: none"> <li>solid</li> <li>finely stranded with core end processing</li> </ul>	<p>0.5 ... 4 mm<sup>2</sup></p> <p>0.5 ... 2.5 mm<sup>2</sup></p>
<b>AWG number as coded connectable conductor cross section</b>	
<ul style="list-style-type: none"> <li>solid</li> <li>stranded</li> </ul>	<p>20 ... 14</p> <p>20 ... 14</p>
<b>DC resistance of the cable maximum</b>	30 Ω
<b>type of electrical connection plug-in socket</b>	Yes

Approvals Certificates

General Product Approval	EMV	Functional Safety	Test Certificates
--------------------------	-----	-------------------	-------------------



[Type Examination Certificate](#)

[Special Test Certificate](#)

other	Environment
-------	-------------

[Confirmation](#)

[Environmental Confirmations](#)

Further information

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=3TK2821-1CB30>

Cax online generator

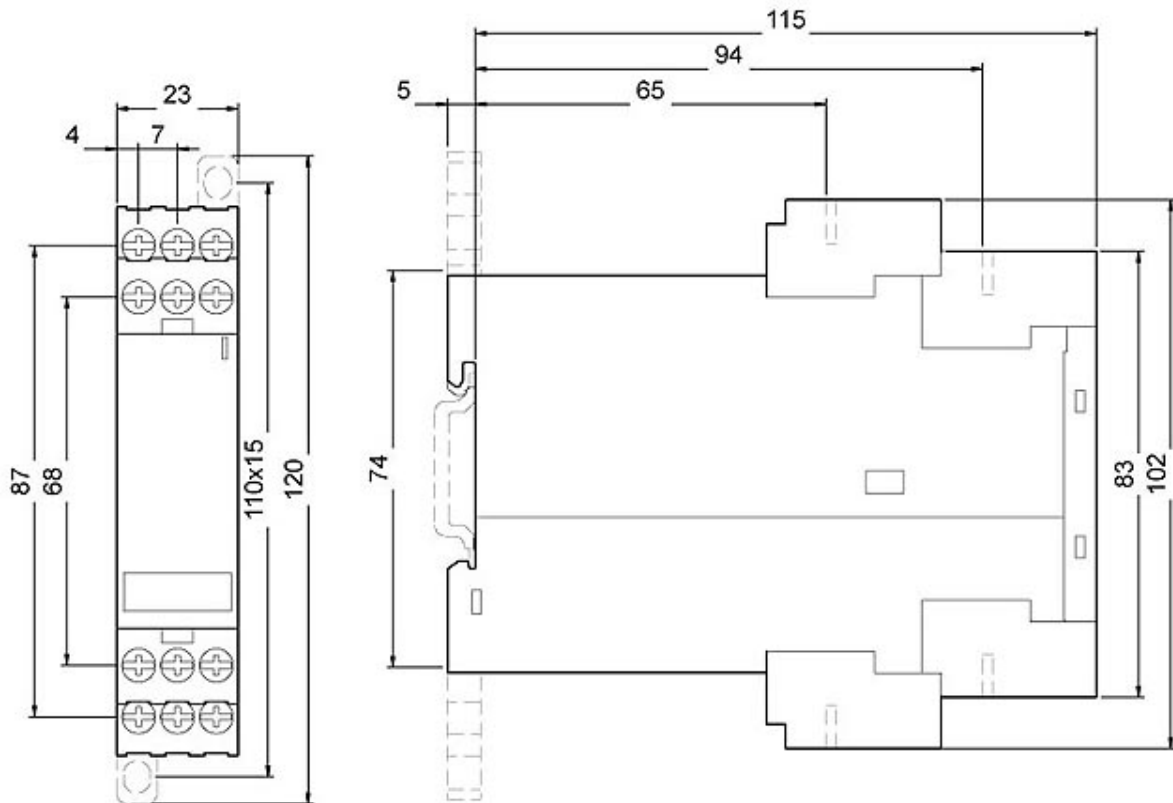
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2821-1CB30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2821-1CB30>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3TK2821-1CB30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2821-1CB30&lang=en)



last modified:

4/8/2024