



SIRIUS safety relay with relay enabling circuits (EC) 24 V DC, 45 mm overall width  
Screw terminal EC instantaneous: 3 NO EC delayed: 0 NO SC: 2 NC  
Autostart/monitored start Basic device Maximum achieved SIL: 3, PL: E

product brand name	SIRIUS
product designation	safety relays
design of the product	for EMERGENCY-STOP and safety doors
product type designation	3TK28
Product Function	
product function	
• automatic start	Yes
• light barrier monitoring	No
• standstill monitoring	No
• protective door monitoring	Yes
• magnetically operated switch monitoring NC-NO	No
• magnetically operated switch monitoring NC-NC	No
• rotation speed monitoring	No
• laser scanner monitoring	No
• light array monitoring	No
• EMERGENCY OFF function	Yes
• monitored start-up	Yes
• pressure-sensitive mat monitoring	Yes
suitability for interaction press control	No
suitability for use	
• monitoring of floating sensors	Yes
• monitoring of non-floating sensors	No
• position switch monitoring	Yes
• EMERGENCY-OFF circuit monitoring	Yes
• valve monitoring	No
• opto-electronic protection device monitoring	No
• tactile sensor monitoring	No
• magnetically operated switch monitoring	No
• proximity switch monitoring	No
• safety switch	Yes
• safety-related circuits	Yes
General technical data	
certificate of suitability UL approval	Yes
product feature cross-circuit-proof	Yes
insulation voltage rated value	300 V
surge voltage resistance rated value	4 000 V
protection class IP	
• of the enclosure	IP20
• of the terminal	IP20
shock resistance	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>	6 A
<b>Substance Prohibittance (Date)</b>	05/01/2012
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• during operation	-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	3
PFHD with high demand rate according to IEC 62061	1.5E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
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>	1.3E-6 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
<b>Electrical Safety</b>	
<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	2
• 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	6 A
• at 115 V	0.2 A

<ul style="list-style-type: none"> <li>• at 230 V</li> </ul>	0.1 A
<b>switching capacity current of the NO contacts of the relay outputs at AC-15</b>	
<ul style="list-style-type: none"> <li>• at 115 V</li> </ul>	6 A
<ul style="list-style-type: none"> <li>• at 230 V</li> </ul>	6 A
<b>switching capacity current of the NC contacts of the relay outputs at DC-13</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	6 A
<ul style="list-style-type: none"> <li>• at 115 V</li> </ul>	0.2 A
<ul style="list-style-type: none"> <li>• at 230 V</li> </ul>	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> </ul>	6 A
<ul style="list-style-type: none"> <li>• at 230 V</li> </ul>	6 A
<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 AC maximum</li> </ul>	150 ms
<b>make time with monitored start</b>	
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	25 ms
<b>backslide delay time in the event of power failure</b>	
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	350 ms
<b>recovery time after opening of the safety circuits typical</b>	200 ms
<b>recovery time after power failure typical</b>	0.5 s
<b>pulse duration</b>	
<ul style="list-style-type: none"> <li>• of the sensor input minimum</li> </ul>	25 ms
<ul style="list-style-type: none"> <li>• of the ON pushbutton input minimum</li> </ul>	25 ms
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	DC
<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> </ul>	0.85
<ul style="list-style-type: none"> <li>• full-scale value</li> </ul>	1.1
<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> </ul>	0.85 ... 1.1
<ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>	0.85 ... 1.1
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting
<b>height</b>	138.5 mm
<b>width</b>	44.8 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> </ul>	1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• finely stranded with core end processing</li> </ul>	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for AWG cables solid</li> </ul>	2x (20 ... 14)
<ul style="list-style-type: none"> <li>• for AWG cables stranded</li> </ul>	2x (20 ... 14)
<b>connectable conductor cross-section</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 with core end processing</li> </ul>	0.5 ... 2.5 mm <sup>2</sup>
<b>AWG number as coded connectable conductor cross section</b>	
<ul style="list-style-type: none"> <li>• solid</li> </ul>	20 ... 14
<ul style="list-style-type: none"> <li>• stranded</li> </ul>	20 ... 14
<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
 CCC	 UL	 EAC	 RCM

[Type Examination Certificate](#)

[Special Test Certificate](#)

other	Environment
<a href="#">Confirmation</a>	<a href="#">Environmental Confirmations</a>

## 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=3TK2825-1BB40>

Cax online generator

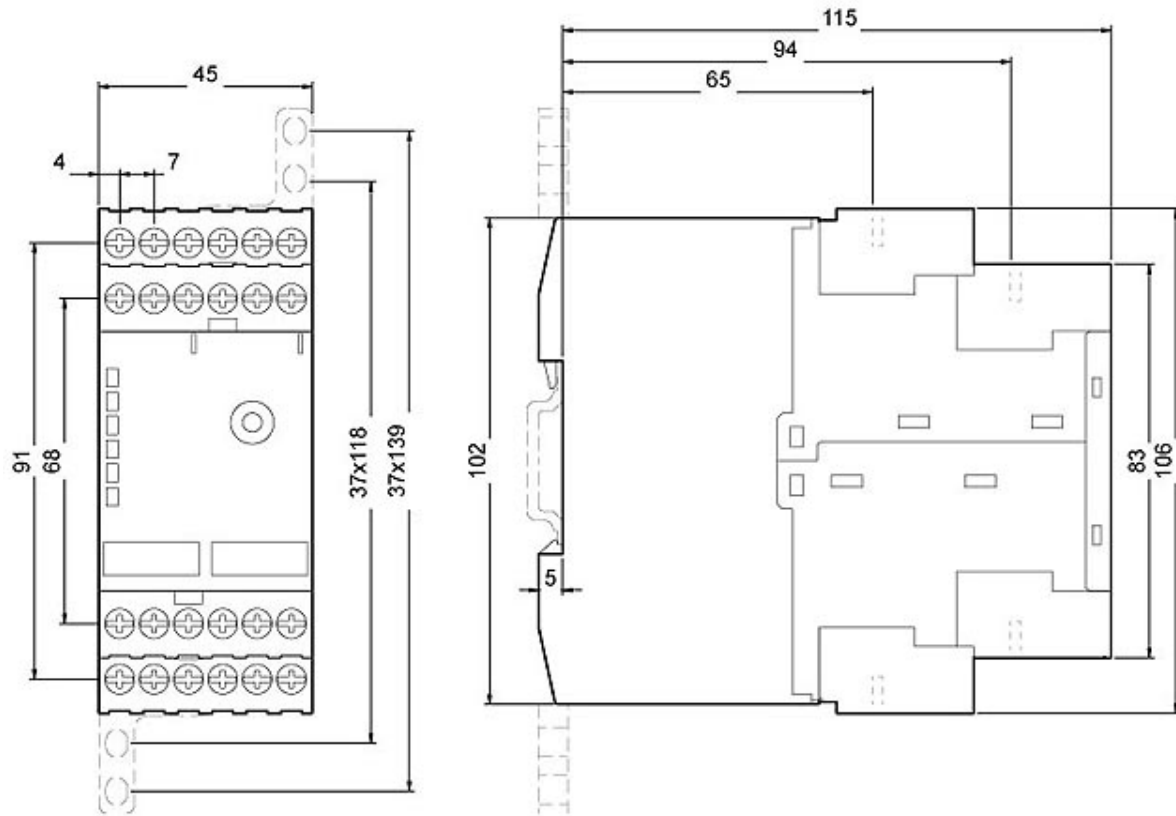
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2825-1BB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2825-1BB40>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3TK2825-1BB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2825-1BB40&lang=en)



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