



Figure similar

SIRIUS safety relay with contactor relay enabling circuits (EC) 24 V DC, 90 mm Spring-type terminal EC instantaneous: 2 NO EC delayed: 0 SC: 1NC Autostart/monitored start Basic device Maximum achieved SIL: 2, PL: d

product brand name	SIRIUS
product designation	safety relays
design of the product	for EMERGENCY-STOP and safety doors
General technical data	
protection class IP of the enclosure	IP20
protection class IP of the terminal	IP20
touch protection against electrical shock	finger-safe
insulation voltage rated value	690 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: 0,075 mm
shock resistance	5g / 11 ms
surge voltage resistance rated value	6 000 V
EMC emitted interference	IEC 60947-5-1, IEC 60000-4-3, IEC 60000-4-5, IEC 60000-4-6
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
contact reliability	one incorrect switching operation of 100 million switching operations (17 V, 5 mA)
number of sensor inputs	
• 1-channel or 2-channel	1
design of the cascading	none
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	2
SIL Claim Limit (subsystem) according to EN 62061	2
category according to EN ISO 13849-1	3
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	0.000000011 1/h
T1 value for proof test interval or service life according to IEC 61508	20 y
number of outputs as contact-affected switching	

<b>element</b>	
<ul style="list-style-type: none"> <li>• as NC contact <ul style="list-style-type: none"> <li>— for signaling function instantaneous contact</li> </ul> </li> <li>• as NO contact <ul style="list-style-type: none"> <li>— safety-related instantaneous contact</li> <li>— safety-related delayed switching</li> </ul> </li> </ul>	1 2 0
<b>number of outputs as contact-less semiconductor switching element</b>	
<ul style="list-style-type: none"> <li>• safety-related <ul style="list-style-type: none"> <li>— delayed switching</li> <li>— instantaneous contact</li> </ul> </li> <li>• for signaling function <ul style="list-style-type: none"> <li>— delayed switching</li> <li>— instantaneous contact</li> </ul> </li> </ul>	0 0 0 0
<b>stop category according to EN 60204-1</b>	0
<b>Inputs</b>	
<b>design of input</b>	
<ul style="list-style-type: none"> <li>• cascading input/functional switching</li> <li>• feedback input</li> <li>• start input</li> </ul>	No Yes Yes
<b>Outputs</b>	
<b>type of electrical connection plug-in socket</b>	Yes
<b>operating frequency maximum</b>	1 000 1/h
<b>switching capacity current</b>	
<ul style="list-style-type: none"> <li>• of the NO contacts of the relay outputs at DC-13 <ul style="list-style-type: none"> <li>— at 24 V</li> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> <li>• of the NO contacts of the relay outputs at AC-15 <ul style="list-style-type: none"> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> <li>• of the NC contacts of the relay outputs at DC-13 <ul style="list-style-type: none"> <li>— at 24 V</li> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> <li>• of the NC contacts of the relay outputs at AC-15 <ul style="list-style-type: none"> <li>— at 115 V</li> <li>— at 230 V</li> </ul> </li> </ul>	10 A 1 A 0.3 A 6 A 6 A 10 A 1 A 0.3 A 6 A 6 A
<b>mechanical service life (operating cycles) typical</b>	30 000 000
<b>maximum permissible voltage for safe isolation between electronics evaluation device and enabling circuit according to EN 60947-1</b>	400 V
<b>design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required</b>	gL/gG: 10 A
<b>DC resistance of the cable maximum</b>	250 Ω
<b>wire length between sensor and electronics evaluation device with Cu 1.5 mm² and 150 nF/km maximum</b>	2 000 m
<b>Times</b>	
<b>make time with automatic start</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• at DC maximum</li> </ul>	100 ms 200 ms
<b>make time with automatic start after power failure</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>	350 ms 500 ms
<b>make time with monitored start</b>	
<ul style="list-style-type: none"> <li>• maximum</li> <li>• typical</li> </ul>	100 ms 60 ms
<b>backslide delay time after opening of the safety circuits typical</b>	30 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>	100 ms 120 ms
<b>recovery time after opening of the safety circuits typical</b>	20 ms

recovery time after power failure typical	0.02 s		
pulse duration			
<ul style="list-style-type: none"><li>• of the sensor input minimum</li></ul>	20 ms		
<ul style="list-style-type: none"><li>• of the ON pushbutton input minimum</li></ul>	0.02 s		
<ul style="list-style-type: none"><li>• of the cascading input minimum</li></ul>	0.02 s		
Control circuit/ Control			
type of voltage of the control supply voltage	DC		
control supply voltage 1			
<ul style="list-style-type: none"><li>• at DC rated value</li></ul>	24 V		
operating range factor control supply voltage rated value of magnet coil			
<ul style="list-style-type: none"><li>• at DC</li></ul>	0.85 ... 1.1		
Auxiliary circuit			
contact reliability of auxiliary contacts	< 1 error per 100 million operating cycles		
Installation/ mounting/ dimensions			
mounting position	any		
fastening method	screw and snap-on mounting		
width	90 mm		
height	132 mm		
depth	108 mm		
Connections/ Terminals			
type of electrical connection	spring-loaded terminals		
type of connectable conductor cross-sections			
<ul style="list-style-type: none"><li>• solid</li></ul>	1x (0.2 ... 2.5 mm²)		
<ul style="list-style-type: none"><li>• finely stranded</li><li>— without core end processing</li></ul>	1x (0.25 ... 1.5 mm²)		
type of connectable conductor cross-sections at AWG cables			
<ul style="list-style-type: none"><li>• solid</li></ul>	1x (24 ... 18)		
<ul style="list-style-type: none"><li>• stranded</li></ul>	1x (24 ... 18)		
Product Function			
product function			
<ul style="list-style-type: none"><li>• light barrier monitoring</li></ul>	No		
<ul style="list-style-type: none"><li>• standstill monitoring</li></ul>	No		
<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>	No		
<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>	Yes		
<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		
suitability for interaction press control	No		
suitability for use			
<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>	Yes		
<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			
certificate of suitability	UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, 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>	Yes		
General Product Approval		EMC	Functional Safety/Safety of Machinery



[Type Examination Certificate](#)

Test Certificates

other

[Special Test Certificate](#)

[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=3TK2851-2BB40>

Cax online generator

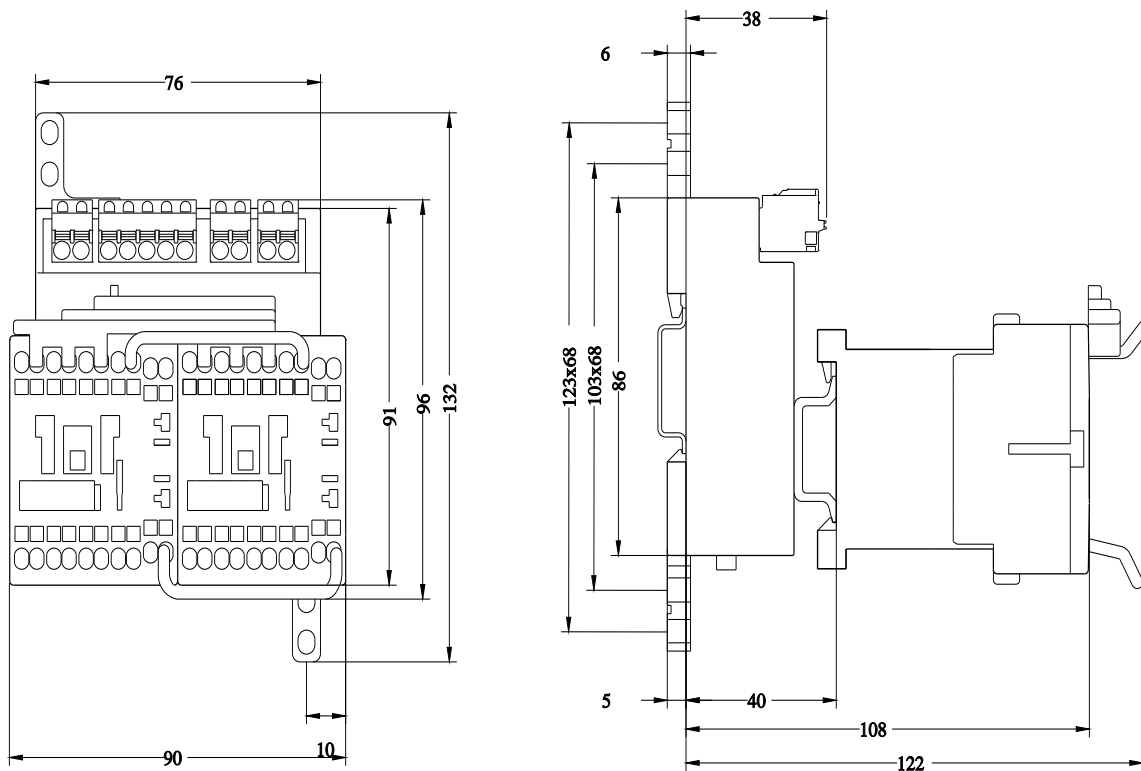
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2851-2BB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2851-2BB40>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3TK2851-2BB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2851-2BB40&lang=en)



last modified:

7/6/2022