SIEMENS

Data sheet 3TK2857-2BB41

SIRIUS safety relay with contactor relay enabling circuits (EC) 24 V DC, 90 mm Spring-type terminal EC instantaneous: 0 EC delayed: 3NO, 0.05...3 s MK: 0 Expansion unit Maximum achievable PL: as basic unit Maximum achievable SIL: as basic unit

product brand name product designation design of the product SIRIUS safety relays extension unit

General technical data

protection class IP of the enclosure protection class IP of the terminal touch protection against electrical shock insulation voltage rated value ambient temperature

- during storageduring operation
- air pressure according to SN 31205 relative humidity during operation

installation altitude at height above sea level maximum

vibration resistance according to IEC 60068-2-6 shock resistance

surge voltage resistance rated value

EMC emitted interference

installation environment regarding EMC

reference code according to DIN 40719 extended according to IEC 204-2 according to IEC 750 reference code according to EN 61346-2 contact reliability

design of the cascading product feature cross-circuit-proof Safety Integrity Level (SIL)

- according to IEC 61508
- for delayed release circuit according to IEC 61508

SIL Claim Limit (subsystem) according to EN 62061 performance level (PL)

 for delayed release circuit according to EN ISO 13849-1

category according to EN ISO 13849-1
hardware fault tolerance according to IEC 61508
safety device type according to IEC 61508-2
PFHD with high demand rate according to EN 62061
T1 value for proof test interval or service life according to IEC 61508
number of outputs as contact-affected switching

- elementas NC contact
 - for signaling function instantaneous contact
 - as NO contact
 - safety-related instantaneous contact
 - safety-related delayed switching

number of outputs as contact-less semiconductor switching element

• safety-related

IP20 IP20 finger-safe 690 V

-40 ... +80 °C -25 ... +60 °C 90 ... 106 kPa 10 ... 95 % 2 000 m

5 ... 500 Hz: 0,075 mm 8g / 10 ms, 15g / 5 ms

6 000 V

IEC 60947-5-1, IEC 60000-4-3, IEC 60000-4-5, IEC 60000-4-6

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.

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one incorrect switching operation of 100 million switching operations (17 V, 5 mA) $\,$

cascading and in-service switching

No

3 SIL3

е

3

4

Type B

0.00000011 1/h

20 a

0

0

0

delayed switching

- instantaneous contact - for signaling function - delayed switching - instantaneous contact stop category according to EN 60204-1 Inputs design of input - estantinput - estantinput - start input - type of electrical connection plug-in socket - operating frequency maximum - switching capacity current - of the NC contacts of the relay outputs at DC-13 - at 24 V - at 22 V - at 22 V - at 12 SV	for signaling function — delayed switching — instantaneous contact stop category according to EN 60204-1 nputs design of input	0 0 1 Yes Yes
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• maximum recovery time after opening of the safety circuits typical recovery time after power failure typical pulse duration • of the cascading input minimum • of the cascading input minimum 0.045 s Control circuit/ Control type of voltage of the control supply voltage control supply voltage 1 • at DC rated value operating range factor control supply voltage rated value of magnet coil • at DC Auxiliary circuit contact reliability of auxiliary contacts Auxiliary circuit Control million operating cycles	backslide delay time in the event of power failure	
recovery time after opening of the safety circuits typical recovery time after power failure typical pulse duration of the cascading input minimum 0.045 s Control circuit/ Control type of voltage of the control supply voltage control supply voltage 1 of at DC rated value operating range factor control supply voltage rated value of magnet coil of at DC Auxiliary circuit contact reliability of auxiliary contacts routing position 500 ms 500 ms 500 ms 500 ms 500 ms 600 ms 600 m	• typical	120 ms
typical recovery time after power failure typical pulse duration of the cascading input minimum 0.045 s Control circuit/ Control type of voltage of the control supply voltage control supply voltage 1 o at DC rated value operating range factor control supply voltage rated value of magnet coil at DC at DC Auxiliary circuit contact reliability of auxiliary contacts Installation/ mounting/ dimensions mounting position 7 s 7 s 7 s 7 s 7 s 9 0.045 s DC 0.045 s 104 V 007 108 V 109	• maximum	120 ms
recovery time after power failure typical pulse duration of the cascading input minimum 0.045 s Control circuit/ Control type of voltage of the control supply voltage control supply voltage 1 of at DC rated value operating range factor control supply voltage rated value of magnet coil of at DC Auxiliary circuit contact reliability of auxiliary contacts recovery time after power failure typical 7 s DC 0.045 s DC 0.85 1.1		500 ms
pulse duration		7-
of the cascading input minimum 0.045 s Control circuit/ Control type of voltage of the control supply voltage control supply voltage 1 • at DC rated value operating range factor control supply voltage rated value of magnet coil • at DC Auxiliary circuit contact reliability of auxiliary contacts Installation/ mounting/ dimensions mounting position OC 24 V 0.85 1.1 Auxiliary circuit < 1 error per 100 million operating cycles any		/ S
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control supply voltage 1 • at DC rated value 24 V operating range factor control supply voltage rated value of magnet coil • at DC 0.85 1.1 Auxiliary circuit contact reliability of auxiliary contacts < 1 error per 100 million operating cycles Installation/ mounting/ dimensions mounting position any		
 at DC rated value operating range factor control supply voltage rated value of magnet coil at DC 0.85 1.1 Auxiliary circuit contact reliability of auxiliary contacts Installation/ mounting/ dimensions mounting position 24 V O.85 1.1 any 		DC
operating range factor control supply voltage rated value of magnet coil	,	
value of magnet coil		24 V
● at DC Auxiliary circuit contact reliability of auxiliary contacts Installation/ mounting/ dimensions mounting position any		
Auxiliary circuit contact reliability of auxiliary contacts Installation/ mounting/ dimensions mounting position any	_	0.85 1.1
contact reliability of auxiliary contacts < 1 error per 100 million operating cycles Installation/ mounting/ dimensions mounting position any		0.00 1.1
Installation/ mounting/ dimensions mounting position any		400 '11'
mounting position any		< 1 error per 100 million operating cycles
	-	
fastening method screw and snap-on mounting	= -	
	fastening method	screw and snap-on mounting
width 90 mm		
height 132 mm	height	132 mm

depth	108 mm			
Connections/ Terminals				
type of electrical connection	spring-loaded terminals			
type of connectable conductor cross-sections				
• solid	1x (0.2 2.5 mm²)			
 finely stranded 				
 — without core end processing 	1x (0.25 1.5 mm²)			
type of connectable conductor cross-sections at AWG				
cables				
• solid	1x (24 18)			
• stranded	1x (24 18)			
Product Function				
product function				
 light barrier monitoring 	No			
 standstill monitoring 	No			
 protective door monitoring 	No			
automatic start	No			
 magnetically operated switch monitoring NC-NO 	No			
 rotation speed monitoring 	No			
 laser scanner monitoring 	No			
 monitored start-up 	No			
 light array monitoring 	No			
 magnetically operated switch monitoring NC-NC 	Yes			
 EMERGENCY OFF function 	Yes			
 pressure-sensitive mat monitoring 	No			
suitability for interaction press control	No			
suitability for use				
safety switch	Yes			
 position switch monitoring 	Yes			
 EMERGENCY-OFF circuit monitoring 	Yes			
 valve monitoring 	No			
 tactile sensor monitoring 	No			
 magnetically operated switch monitoring 	No			
safety-related circuits	Yes			
Certificates/ approvals				
certificate of suitability	UL, CSA, EN 60204-1, EN IS	SO 12100, EN 954-1, II	EC 61508	
 TÜV (German technical inspectorate) certificate 	Yes			
UL approval	Yes			
BG BIA approval	Yes			
General Product Approval		EMC	Functional Safety/Safety of Machinery	











Type Examination Certificate

Test Certificates other

Special Test Certific-

<u>ate</u>

Confirmation

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

https://www.siemens.com/ic10

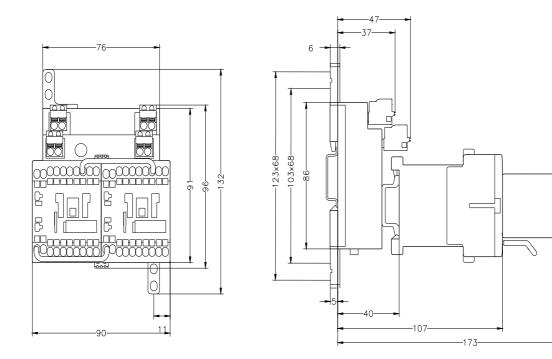
Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3TK2857-2BB41

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2857-2BB41

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2857-2BB41&lang=en



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