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Data sheet 3TK2824-1BB40

SIRIUS safety relay with relay enabling circuits (EC) 24 V DC, 22.5 mm Screw terminal EC instantaneous: 2 NO EC delayed: 0 NO SC: 0 NC AUTOSTART Basic device Maximum achieved SIL: 1, PL: c

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	No
● pressure-sensitive mat monitoring	No
product feature cross-circuit-proof	No
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-related circuits	Yes
General technical data	
certificate of suitability UL approval	Yes
insulation voltage rated value	300 V
surge voltage resistance rated value	4 000 V
protection class IP	
● of the enclosure	IP40
● of the terminal	IP20
shock resistance	8 g / 10 ms
vibration resistance according to IEC 60068-2-6	5 ... 500 Hz: 0,075 mm
operating frequency maximum	1 000 1/h
electrical endurance (operating cycles) typical	100 000
Substance Prohibitance (day/month/year)	05/28/2009
SVHC substance name	Lead monoxide (lead oxide) CAS-No. 1317-36-8 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol CAS-No. 119-47-1
Net Weight	0.229 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	

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● 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
Electromagnetic compatibility	
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.
EMC emitted interference	EN 60947-5-1
Safety related data	
product function suitable for safety function	Yes
stop category according to IEC 60204-1	0
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	1
PFHD with high demand rate according to IEC 62061	8.7E-10 1/h
ISO 13849	
category according to EN ISO 13849-1	2
IEC 61508	
Safety Integrity Level (SIL)	
● according to IEC 61508	3
safety device type according to IEC 61508-2	Type A
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	
touch protection against electrical shock	finger-safe
Short-circuit protection	
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
Inputs	
design of input	
● cascading input/functional switching	No
● feedback input	Yes
● start input	Yes
number of sensor inputs	
● 1-channel or 2-channel	1
Outputs	
number of outputs as contact-affected switching element	
● as NC contact	
— for signaling function instantaneous contact	0
● as NO contact	
— safety-related instantaneous contact	2
— safety-related delayed switching	0
mechanical service life (operating cycles) typical	10 000 000
thermal current of the switching element with contacts maximum	5 A
number of outputs as contact-less semiconductor switching element	
● for signaling function	
— delayed switching	0
— instantaneous contact	0
● safety-related	
— delayed switching	0
— instantaneous contact	0
switching capacity current of the NO contacts of the relay outputs at DC-13	
● at 24 V	6 A
● at 115 V	0.2 A
● at 230 V	0.1 A
switching capacity current of the NO contacts of the relay outputs at AC-15	

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● at 115 V	6 A
● at 230 V	6 A
wire length between sensor and electronics evaluation device with Cu 1.5 mm² and 150 nF/km maximum	1 000 m
Times	
make time with automatic start	
● at DC maximum	200 ms
● at AC maximum	300 ms
backslide delay time in the event of power failure	
● maximum	200 ms
recovery time after opening of the safety circuits typical	200 ms
recovery time after power failure typical	200 ms
pulse duration	
● of the sensor input minimum	200 ms
● of the ON pushbutton input minimum	0.15 s
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage 1 at DC rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
● initial value	0.85
● full-scale value	1.2
operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.85 ... 1.1
● at 60 Hz	0.85 ... 1.1
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
height	120 mm
width	22.5 mm
depth	120 mm
Connections/ Terminals	
type of electrical connection	screw terminal
type of connectable conductor cross-sections	
● solid	1x (0.5 ... 4.0mm²), 2x (0.5 ... 2.5 mm²)
● finely stranded with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
● for AWG cables solid	2x (20 ... 14)
● for AWG cables stranded	2x (20 ... 14)
connectable conductor cross-section	
● solid	0.5 ... 4 mm²
● finely stranded with core end processing	0.5 ... 2.5 mm²
AWG number as coded connectable conductor cross section	
● solid	20 ... 14
● stranded	20 ... 14
DC resistance of the cable maximum	30 Ω
type of electrical connection plug-in socket	Yes

Approvals Certificates

Environment	General Product Approval			EMV	Functional Saftey
Environmental Confirmations	CCC	UL	EAC	RCM	Type Examination Certificate

Test Certificates	other

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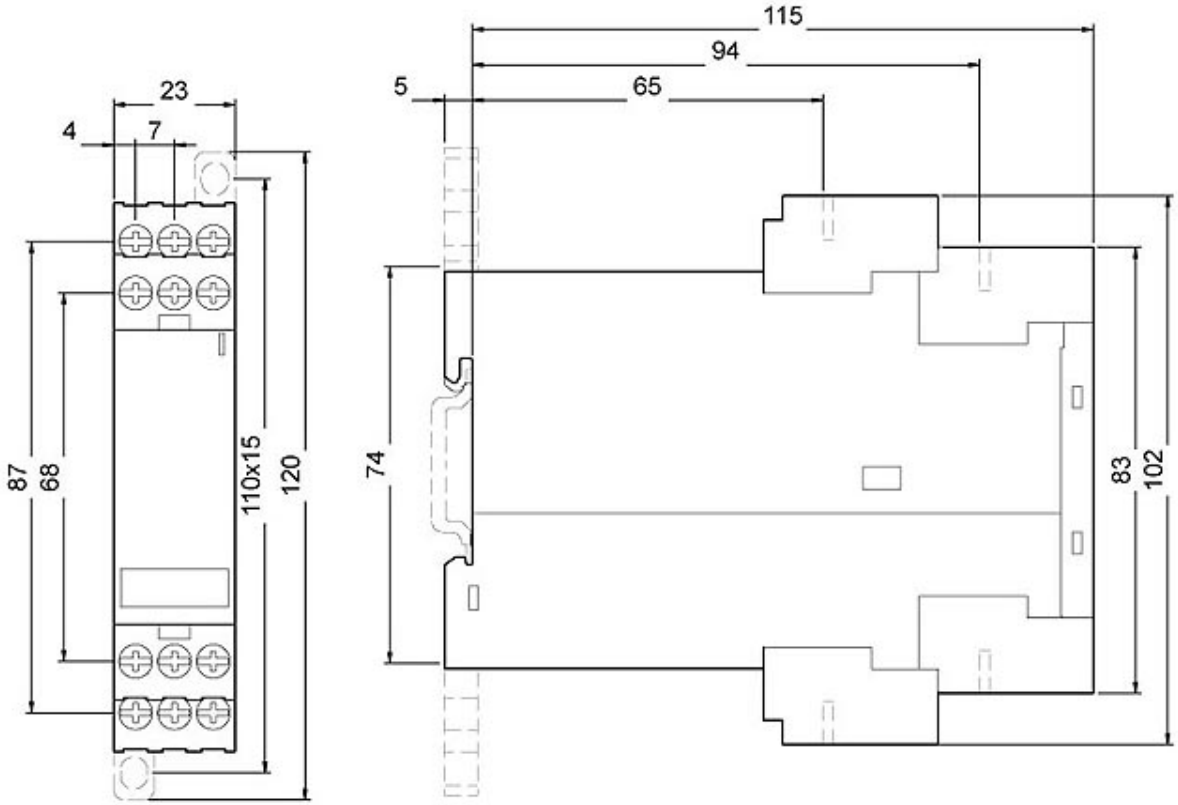
Special Test Certific-ate

Confirmation

产品合格
QC PASS

Further information

Information on the packaging
https://support.industry.siemens.com/cs/ww/en/view/109813875
Information for data generation and storage
https://support.industry.siemens.com/cs/ww/en/view/109995012
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=3TK2824-1BB40
Cax online generator
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2824-1BB40
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TK2824-1BB40
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2824-1BB40&lang=en



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