SIEMENS

Data sheet 3TK2840-1BB40

SIRIUS SAFETY RELAY WITH ELECTRONIC RELEASE CIRCUIT (RC) DC 24V, 22.5MM, SCREW TERMINAL, RC INSTANT.: 2 HL, RC DELAYED: 0, MK: 0, AUTOSTART / MONITORED START, BASIC DEVICE, MAX. ACHIEVABLE SIL: 2, PL: D

Figure similar

General technical data	
Product brand name	SIRIUS
Product designation	safety relays
Design of the product	for EMERGENCY-STOP units
Protection class IP of the enclosure	IP40
Protection class IP of the terminal	IP20
Protection against electrical shock	finger-safe
Insulation voltage rated value	50 V
Ambient temperature	
• during storage	-40 ... +80 °C
• during operation	-25 ... +60 °C
Air pressure acc. 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 acc. to IEC 60068-2-6	5 ... 500 Hz: 0,075 mm
Shock resistance	8g / 10 ms and 15g / 5 ms
Surge voltage resistance rated value	500 V

EMC emitted interference	EN 60947-5-1, EN 61000-6-2, EN 61000-6-4
Installation environment regarding EMC	This product is suitable for Class A environments only. It can cause undesired radio-frequency interference in residential environments. If this is the case, the user must take appropriate measures.
Equipment marking acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	KT
Equipment marking acc. to DIN EN 61346-2	F
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)	
• acc. to IEC 61508	2
SIL Claim Limit (subsystem) acc. to EN 62061	2
Performance level (PL)	
• acc. to EN ISO 13849-1	d
Category acc. to EN 954-1	3
Category acc. to EN ISO 13849-1	3
Hardware fault tolerance acc. to IEC 61508	1
Safety device type acc. to IEC 61508-2	Type B
PFHD with high demand rate acc. to EN 62061	0.000000011 1/h
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Number of outputs as contact-affected switching element	
• as NC contact	
— for signaling function instantaneous contact	0
• as NO contact	
— safety-related instantaneous contact	0
— safety-related delayed switching	0
Number of outputs as contact-less semiconductor switching element	
• safety-related	
— delayed switching	0
— instantaneous contact	2
• for signaling function	
— delayed switching	0
— instantaneous contact	0
Stop category acc. to DIN EN 60204-1	0

General technical data

Design of input	
• cascading input/functional switching	No
• feedback input	Yes
• Start input	Yes
Type of electrical connection Plug-in socket	Yes
Operating frequency maximum	2 000 1/h
Switching capacity current	
• **of semiconductor outputs**	
— for enabling circuit at DC-13 at 24 V	0.5 A
Design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required	not required
DC resistance of the cable maximum	250 Ω
Wire length between sensor and electronic evaluation device with Cu 1.5 mm² and 150 nF/km maximum	2 000 m
Make time with automatic start	
• typical	80 ms
• at DC maximum	100 ms
Make time with automatic start after power failure	
• typical	350 ms
• maximum	500 ms
Make time with monitored start	
• maximum	100 ms
• typical	60 ms
Backslide delay time after opening of the safety circuits typical	20 ms
Backslide delay time in the event of power failure	
• typical	0 ms
• maximum	0 ms
Recovery time after opening of the safety circuits typical	120 ms
Recovery time after power failure typical	500 ms
Pulse duration	
• of the sensor input minimum	5 ms
• of the ON pushbutton input minimum	0.06 s
• of the cascading input minimum	0.005 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	0.9 ... 1.15

Installation/ mounting/ dimensions	
Mounting position	any
Mounting type	screw and snap-on mounting
Width	22.5 mm
Height	100 mm
Depth	88 mm

Connections/Terminals	
Type of electrical connection	screw-type terminals
Type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)
• finely stranded	
— with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
Type of connectable conductor cross-sections at AWG conductors	
• solid	2x (20 ... 14)
• stranded	2x (20 ... 14)

Product Function	
Product function	
• Light barrier monitoring	No
• Standstill monitoring	No
• protective door monitoring	Yes
• Automatic start	Yes
• magnetically operated switch monitoring NC-NO	No
• rotation speed monitoring	No
• laser scanner monitoring	No
• monitored start-up	Yes
• 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	
• Monitoring of floating sensors	Yes
• Monitoring of non-floating sensors	No
• safety switch	Yes
• position switch monitoring	Yes
• EMERGENCY-OFF circuit monitoring	Yes
• valve monitoring	No
• tactile sensor monitoring	No

• magnetically operated switch monitoring	Yes
• safety-related circuits	Yes

Certificates/approvals

Certificate of suitability	UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508
• TÜV (German technical inspectorate) certificate	Yes
• UL approval	Yes
• BG BIA certificate	Yes

General Product Approval				EMC	Functional Safety/Safety of Machinery
CCC	CSA	UL	EAC	C-Tick	Type Examination Certificate

Declaration of Conformity	Test Certificates	other	
EG-Konf.	Special Test Certificate	Environmental Confirmations	Confirmation

Further information

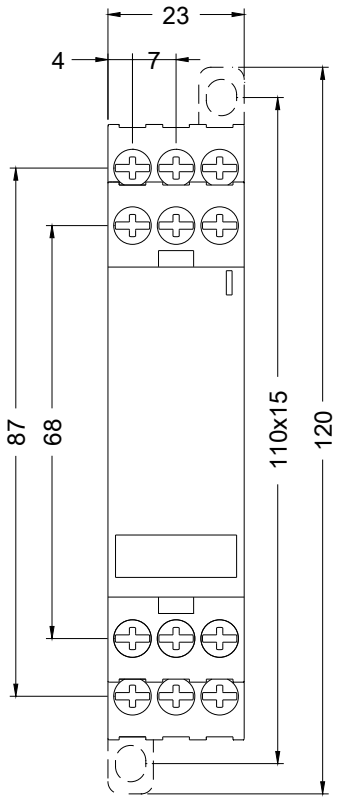
Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

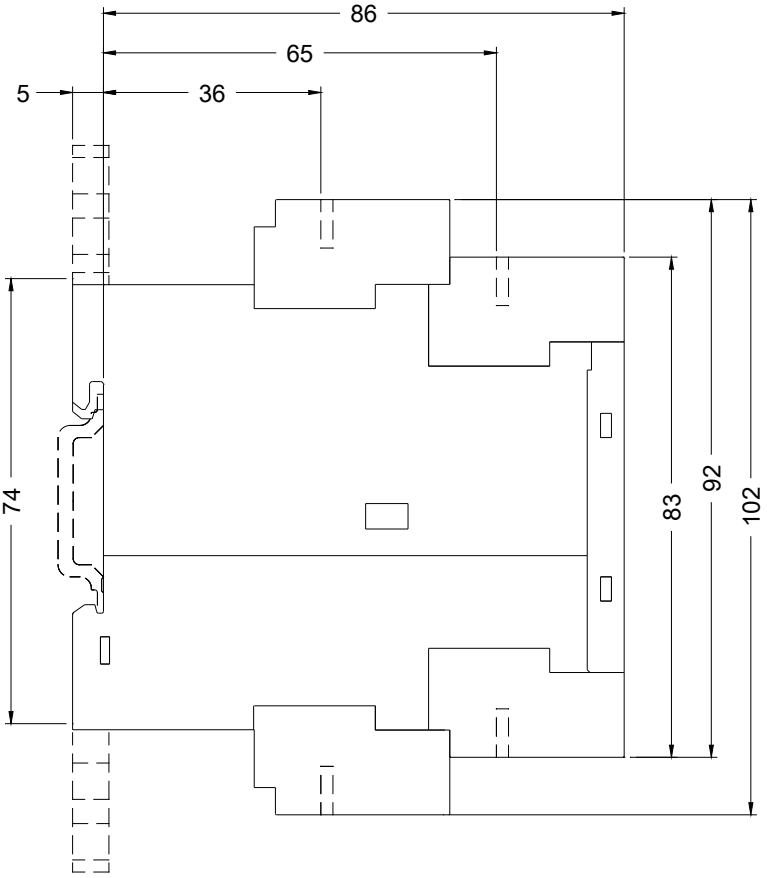
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3TK2840-1BB40

Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2840-1BB40

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TK2840-1BB40

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2840-1BB40&lang=en





last modified: 09/12/2017