SIEMENS

Product data sheet 3TK2824-2BB40

SIRIUS SAFETY RELAY WITH RELAY RELEASE CIRCUITS (RC),
DC 24V, 22.5MM, SPRING-LOADED TERMINAL,
RC INSTANT.: 2NO, RC DELAYED: 0NO,
MC: 0NC, AUTOSTART, BASIC DEVICE,
MAX. ACHIEVABLE SIL: 1, PL: C

General technical details:		
product brand name		SIRIUS
product designation		safety relays
Design of the product		for EMERGENCY-STOP units
protection class IP / of the housing		IP40
Protection class IP / of the terminal		IP20
Protection against electrical shock		finger-safe
Insulation voltage / rated value	V	300
Ambient temperature		
• during storage	°C	-40 … +80
• during operating	°C	-25 … +60
Air pressure		
• according to SN 31205	kPa	90 … 106
Relative humidity		
• during operating phase	%	10 … 95
Installation altitude / at a height over sea level / maximum	m	2,000
Resistance against vibration / according to IEC 60068-2-6		5 ... 500 Hz: 0,075 mm
Resistance against shock		8g / 10 ms
Impulse voltage resistance / rated value	V	4,000
EMC emitted interference		EN 60947-5-1
Installation environment relating to 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.
Item designation		
• according to DIN 40719 extendable after IEC 204-2 / according to IEC 750		KT
• according 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 or single-channel and two-channel
Product feature / transverse contact-secure		No
safety Integrated Level		
• according to IEC 61508		SIL1
SIL claim limit (for a subsystem) / according to EN 62061		1
Performance Level (PL)		
• according to ISO 13849-1		c
Category / according to EN 954-1		3
Category / according to ISO 13849-1		2
Hardware fault tolerance / according to IEC 61508		1
Safety device type / according to IEC 61508-2		Type A
Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061	1/h	0.87E-9
Average probability of failure on demand (PFDavg) / with low demand rate / according to IEC 61508	1/y	0.77E-6
T1 value / for proof test interval or service life / according to IEC 61508	a	20
Number of outputs / as contact-affected switching element		
• as NC contact / for reporting function / instantaneous switching		0
• as NO contact / safety-related / instantaneous switching		2
• as NO contact / safety-related/ delayed switching		0
Number of outputs / as contact-less semiconductor switching element		
• safety-related		
• delayed switching		0
• non-delayed		0
• for reporting function		
• delayed switching		0
• non-delayed		0
Stop category / according to DIN EN 60204-1		0

General technical details:

Design of the input		
• cascading-input/functional switching		No
• feedback input		Yes
• start input		Yes
Design of the electrical connection / jumper socket		Yes
Operating cycles / maximum	1/h	1,000
Switching capacity current		
• of NO contacts of relay outputs		
• at DC-13		

• at 24 V	A	6
• at 115 V	A	0.2
• at 230 V	A	0.1
• at AC-15		
• at 115 V	A	6
• at 230 V	A	6
Thermal current / of the contact-affected switching element / maximum	A	5
Electrical operating cycles as operating time / typical		100,000
Mechanical operating cycles as operating time / typical		10,000,000
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
Resistance to direct current / of the cable / maximum	Ω	30
Cable length / between sensor and electronic evaluation device / with Cu 1.5 mm² and 150 nF/km / maximum	m	1,000
Make time / with automatic start		
• for DC / maximum	ms	200
• for AC / maximum	ms	300
Backslide delay time / at mains power cut		
• maximum	ms	200
Recovery time / after opening of the safety circuits / typical	ms	200
Recovery time / after mains power cut / typical	s	200
Pulse duration		
• of the sensor input / minimum	ms	200
• of the ON pushbutton input / minimum	s	0.15

Control circuit:

Type of voltage / of the controlled supply voltage		DC
Control supply voltage / 1 / for DC / rated value	V	24
operating range factor control supply voltage rated value / of the magnet coil		
• at 50 Hz		
• for AC		0.85 … 1.1
• at 60 Hz		
• for AC		0.85 … 1.1
• for DC		0.85 … 1.2

Installation/mounting/dimensions:

mounting position		any
Type of mounting		screw and snap-on mounting
Width	mm	22.5

Height	mm	120
Depth	mm	120

Connections:		
Design of the electrical connection		spring-loaded terminals
Type of the connectable conductor cross-section		
• solid		2x (0.25 ... 1.5 mm²)
• finely stranded		
• with wire end processing		2 x (0.25 ... 1.5 mm²)
• without wire end processing		2x (0.25 ... 1.5 mm²)
Type of the connectable conductor cross-section / for AWG conductors		
• solid		2x (24 ... 16)
• stranded		2x (24 ... 16)

Product Function:		
Product function		
• light barrier monitoring		No
• standstill monitoring		No
• protective door monitoring		Yes
• automatic start		Yes
• magnetic switch monitoring Normally closed contact-Normally open contact		No
• rotation speed monitoring		No
• laser scanner monitoring		No
• monitored start-up		No
• light grid monitoring		No
• magnetic switch monitoring Normally closed contact-Normally closed contact		No
• emergency stop function		No
• step mat monitoring		No
Suitability for interaction / pressing control		No
Acceptability for application		
• monitoring of floating sensors		Yes
• monitoring of non-floating sensors		No
• safety cut-out switch		Yes
• position switch monitoring		Yes
• EMERGENCY-OFF circuit monitoring		Yes
• valve monitoring		No
• tactile sensor monitoring		No
• magnetically operated switches monitoring		No
• safety-related circuits		Yes

Certificates/approvals:

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

General Product Approval				EMC
CCC	CSA	GOST	UL	C-TICK

Functional Safety / Safety of Machinery		Declaration of Conformity	Test Certificates	other	
ATEX	VDE	EG-Konf.	Special Test Certificate	Confirmation	Environmental Confirmations

Further information:

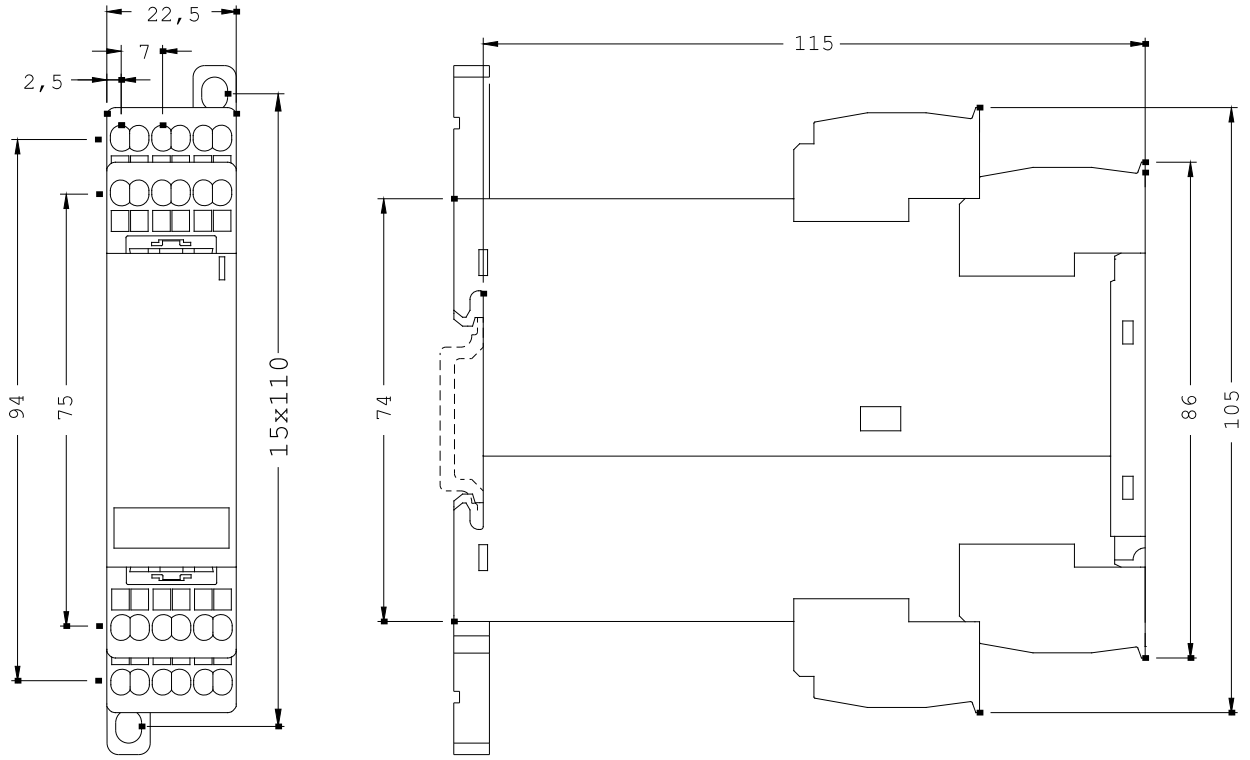
Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

Industry Mall (Online ordering system)
http://www.siemens.com/industrial-controls/mall

Cax online generator:
http://www.siemens.com/cax

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
http://support.automation.siemens.com/WW/view/en/3TK2824-2BB40/all

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2824-2BB40



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