

Datasheet - SRB304ST



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB304ST



- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 4 Signalling outputs

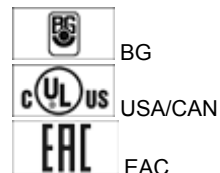
(Minor differences between the printed image and the original product may exist!)

Ordering details

Product type description	SRB304ST
Article number	101190715
EAN Code	4250116202294
Replaced article number	101193475
eCl@ss	27-37-19-01

Approval

Approval



Classification

Standards	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL	up e (STOP 0)
Control category	up 4 (STOP 0)
DC	99% (STOP 0)
CCF	> 65 points
PFH value	$\leq 2,0 \times 10^{-8}/h$ (STOP 0)
SIL	up 3 (STOP 0)

Mission time
- notice

20 Years


The PFH value is applicable for the combinations listed in the table for contact load (K) (current through enabling paths) and switching cycle number (n-op/y).

In case of 365 operating days per year and a 24-hour operation, this results in the specified switching cycle times (t-cycle) for the relay contacts.

Diverging applications on request.

K	n-op/y	t-cycle
20 %	525.600	1,0 min
40 %	210.240	2,5 min
60 %	75.067	7,0 min
80 %	30.918	17,0 min
100 %	12.223	43,0 min

Global Properties

Permanent light	SRB304ST
Standards	IEC/EN 60204-1, EN 60947-5-1, EN ISO 13849-1, IEC 61508
Compliance with the Directives (Y/N) 	Yes
Climatic stress	EN 60068-2-78
Mounting	snaps onto standard DIN rail to EN 60715
Terminal designations	IEC/EN 60947-1
Materials	
- Material of the housings	Plastic, glass-fibre reinforced thermoplastic, ventilated
- Material of the contacts	AgSn0, self-cleaning, positive action
Weight	340
Start conditions	Automatic or Start button (Optional monitored)
Start input (Y/N)	Yes
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Reset after disconnection of supply voltage (Y/N)	
Automatic reset function (Y/N)	Yes
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with automatic start	typ. 250 ms
- ON delay with reset button	typ. 20 ms
Drop-out delay	
- Drop-out delay in case of power failure	typ. 80 ms
- Drop-out delay in case of emergency stop	typ. 30 ms / max. 36 ms

Mechanical data

Connection type	Screw connection
Cable section	
- Min. Cable section	0,25
- Max. Cable section	2.5
Pre-wired cable	rigid or flexible
Tightening torque for the terminals	0,6
Detachable terminals (Y/N)	Yes
Mechanical life	10.000.000 operations
Electrical lifetime	Derating curve available on request
resistance to shock	30 g / 11 ms
Resistance to vibration To EN 60068-2-6	10...55 HZ, Amplitude 0,35 mm

Ambient conditions

Ambient temperature	
- Min. environmental temperature	-25 °C
- Max. environmental temperature	+60 °C
Storage and transport temperature	
- Min. Storage and transport temperature	-40 °C
- Max. Storage and transport temperature	+85 °C
Protection class	
- Protection class-Enclosure	IP40
- Protection class-Terminals	IP20
- Protection class-Clearance	IP54
Air clearances and creepage distances To IEC/EN 60664-1	
- Rated impulse withstand voltage U_{imp}	4 kV
- Overvoltage category	III To VDE 0110
- Degree of pollution	2 To VDE 0110

Electromagnetic compatibility (EMC)

EMC rating	conforming to EMC Directive
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Electrical data

Rated DC voltage for controls	
- Max. rated DC voltage for controls	20.4
- Max. rated DC voltage for controls	28.8
Rated AC voltage for controls, 50 Hz	
- Min. rated AC voltage for controls, 50 Hz	20.4
- Max. rated AC voltage for controls, 50 Hz	26.4
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	20.4
- Max. rated AC voltage for controls, 60 Hz	26.4
Contact resistance	max. 100 mΩ
Power consumption	1.9 W; 4.9 VA
Type of actuation	AC/DC
Rated operating voltage U_e	24 VDC -15% / +20%, residual ripple max. 10% 24 VAC -15% / +10%
Operating current I_e	
Frequency range	50 / 60 HZ
Electronic protection (Y/N)	Yes
Fuse rating for the operating voltage	Internal electronic trip, tripping current F1: > 2.5 A; F2: > 50 mA (S11/S31), > 800 mA (X4) Reset after disconnection of supply voltage
Current and tension on control circuits	
- S11, S12, S21, S22, S31, S32	24 VDC, Test current: 10 mA
- X1, X2	24 VDC, Start pulse: 350 mA / 15 ms
- X3, X4	24 VDC, Start pulse: 130 mA / 80 ms
- X4, X5	24 VDC, Start pulse: 140 mA / 15 ms
Bridging in case of voltage drops	approx. 100 ms

Inputs

Monitored inputs	
- Short-circuit recognition (Y/N)	optional
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	Yes
Number of shutters	0 piece

Number of openers	2 piece
Cable length	1-channel without cross-wire detection: 1.5 mm ² = 850 m; 2.5 mm ² = 1400 m 2-channel with/ without cross-wire detection: 1.5 mm ² = 850 m; 2.5 mm ² = 1400 m
Conduction resistance	max. 10 Ω

Outputs

Stop category	0
Number of safety contacts	3 piece
Number of auxiliary contacts	1 piece
Number of signalling outputs	3 piece
Switching capacity	
- Switching capacity of the safety contacts	max. 250 VAC, 8 A ohmic (inductive in case of appropriate protective wiring); min. 10 V / 10 mA
- Switching capacity of the auxiliary contacts	24 VDC, 2 A
- Switching capacity of the signaling/diagnostic outputs	24 VDC, 100 mA residual current: 200 mA
Fuse rating	
- Protection of the safety contacts	8 A slow blow
- Fuse rating for the auxiliary contacts	2 A slow blow
- Fuse rating for the signaling/diagnostic outputs	100 mA slow blow
Utilisation category To EN 60947-5-1	AC-15: 230 V / 6 A DC-13: 24 V / 6 A
Note on the utilisation category	Residual current at ambient temperature up to: - 45°C = A; - 55°C = 24 A; - 60°C = 18 A
Number of undelayed semi-conductor outputs with signaling function	3 piece
Number of undelayed outputs with signaling function (with contact)	1 piece
Number of delayed semi-conductor outputs with signaling function.	0 piece
Number of delayed outputs with signaling function (with contact).	0 piece
Number of secure undelayed semi-conductor outputs with signaling function	0 piece
Number of secure, undelayed outputs with signaling function, with contact.	3 piece
Number of secure, delayed semi-conductor outputs with signaling function	0 piece
Number of secure, delayed outputs with signaling function (with contact).	0 piece

LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED's	4
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K1	
- Position relay K2	
- Supply voltage	
- Internal operating voltage Ui	

Miscellaneous data

Applications



Emergency-Stop button



Guard system



Pull-wire emergency stop switches



Safety light curtain



Safety sensor

Dimensions

Dimensions

- Width	45 mm
- Height	120 mm
- Depth	121 mm

notice

Inductive loads (e.g. contactors, relays, etc.) are to be suppressed by means of a suitable circuit.

notice - Wiring example

2 channel control shown for a guard-door monitor with two contacts, of which at least one contact has positive break, with external reset button (R).

Relay outputs: Suitable for 2 channel control, for increase in capacity or number of contacts by means of contactors or relays with positive-guided contacts.

(H2) = Feedback circuit

The control recognises cross-short, cable break and earth leakages in the monitoring circuit.

The wiring diagram is shown with guard doors closed and in de-energised condition.

Documents

Operating instructions and Declaration of conformity (es) 395 kB, 10.10.2018

Code: mrl_srb_304st_es

Operating instructions and Declaration of conformity (nl) 400 kB, 10.10.2018

Code: mrl_srb_304st_nl

Operating instructions and Declaration of conformity (en) 380 kB, 10.10.2018

Code: mrl_srb_304st_en

Operating instructions and Declaration of conformity (it) 390 kB, 10.10.2018

Code: mrl_srb_304st_it

Operating instructions and Declaration of conformity (pt) 400 kB, 10.10.2018

Code: mrl_srb_304st_pt

Operating instructions and Declaration of conformity (de) 366 kB, 10.10.2018

Code: mrl_srb_304st_de

Operating instructions and Declaration of conformity (jp) 478 kB, 10.10.2018

Code: mrl_srb_304st_jp

Operating instructions and Declaration of conformity (pl) 399 kB, 10.10.2018

Code: mrl_srb_304st_pl

Operating instructions and Declaration of conformity (fr) 391 kB, 10.10.2018

Code: mrl_srb_304st_fr

Wiring example (99) 17 kB, 04.08.2008

Code: ksrb3l21

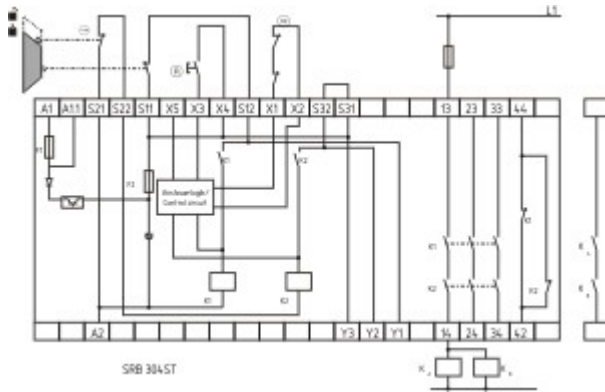
TÜV certification (de, en) 650 kB, 18.12.2017

Code: z_srbp02

EAC certification (ru) 1 MB, 15.03.2018

Code: q_aesp01

Images



Wiring example

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The data and values have been checked thoroughly. Technical modifications and errors excepted.

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