Datasheet - SRB 308IT-24V

Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB 308IT

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

- Multifunctional safety relay module for superior diagnostics and visualisation
- 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
- 2 + 6 Signalling outputs
- Level 1: Reset without edge detection, Optional Automatic reset function, Short-circuit recognition, Level 2: / Opener (NC) Normally open contact (NO)

Ordering details

Product type description	SRB 308IT-24V
Article number	101159511
EAN code	4030661186566

Approval

Approval	cULus USA/CAN

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	≤ 2,0 x 10-8/h (STOP 0)
SIL	up 3 (STOP 0)
Mission time	20 Years
- notice	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 %	75.087	7,0 min
80 %	30.918	17,0 min
100 %	12.223	43,0 min

Global Properties

Product name	SRB 308IT
Standards	IEC/EN 60204-1, EN 60947-5-1, EN ISO 13849-1, IEC 61508
Compliance with the Directives (Y/N) CE	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	, Ag-Ni, self-cleaning, positive action
Weight	428 g
Start conditions	Automatic or Start button (Optional monitored)
Start input (Y/N)	Yes
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Automatic reset function (Y/N)	Yes
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with automatic start	60 ms
- ON delay with reset button	200 ms
Drop-out delay	
- Drop-out delay in case of emergency stop	≤ 15 ms

Mechanical data

Connection type	Screw connection
Cable section	
- Min. Cable section	0,25 mm²
- Max. Cable section	2.5 mm²
Pre-wired cable	rigid or flexible
Tightening torque for the terminals	0,6 Nm
Detachable terminals (Y/N)	Yes
Mechanical life	10.000.000 operations
Electrical lifetime	Derating curve available on request
restistance 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	+45 °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

Electrical data

Rated DC voltage for controls	
- Min. rated DC voltage for controls	20.4 V
- Max. rated DC voltage for controls	28.8 V
Rated AC voltage for controls, 50 Hz	
- Min. rated AC voltage for controls, 50 Hz	20.4 V
- Max. rated AC voltage for controls, 50 Hz	26.4 V
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	20.4 V
- Max. rated AC voltage for controls, 60 Hz	26.4 V
Contact resistance	max. 100 mΩ
Power consumption	3 W; 3 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	0,125 A
Frequency range	50 Hz / 60 Hz
Electronic protection (Y/N)	Yes
Fuse rating for the operating voltage	Internal electronic trip, tripping current > 0,5 A, Reset after disconnection of supply voltage
Current and tension on control circuits	
- S11, S12, S21, S22, S31, S32	max. 28 VDC, Test current: 50 mA
- X3 … X5	max. 28 VDC, Test current: 100 mA

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	1500 m with 1.5 mm²; 2500 m with 2.5 mm²
Conduction resistance	max. 40 Ω

Outputs

- Stop category 1	Residual current at ambient temperature up to: - 45°C = 12 A; - 55°C = 10 A; - 60°C = 8 A
Stop category	0
- Stop category 0	Residual current at ambient temperature up to: - 45°C = 18 A; - 55°C = 15 A; - 60°C = 12 A

Number of safety contacts	3 piece
Number of auxiliary contacts	2 piece
Number of signalling outputs	6 piece
Switching capacity	
- Switching capacity of the safety contacts	max. 250 VAC, 6 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, 10 mA
Fuse rating	
- Protection of the safety contacts	6.3 A slow blow
- Fuse rating for the auxiliary contacts	2 A slow blow
- Fuse rating for the signaling/diagnostic outputs	Internal electronic trip, tripping current > 0,1 A
Utilisation category To EN 60947-5-1	AC-15: 230 V / 1,5 A DC-13: 24 V / 1,2 A
Note on the utilisation category	
Number of undelayed semi-conductor outputs with signaling function	6 piece
Number of undelayed outputs with signaling function (with contact)	2 piece
Number of delayed semi-conductor outputs with signaling function.	0 piece
Number of delayed outputs with signalling 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	5 piece
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- Position relay K2	
- Position relay K3	
- Position relay K1	
- Supply voltage	
- Internal operating voltage U_i	

Miscellaneous data

Applications	 Guard system  Emergency-Stop button  Pull-wire emergency stop switches  Safety sensor  Safety light curtain

Dimensions

Dimensions	
- Width	45 mm

- Height	100 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) and feedback circuit (H2). (example without cross-wire monitoring)

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

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.

F1 = hybrid fuse

F2 = Fuse for signalling outputs

For 2-channel control with cross-wire monitoring, connect the NC contact to S11/S12 and S31/S32 and bridge S21/S22

For 1-channel control, connect NC contact to S11/S12 and bridge S21/S22 und S31/S32

Start function / Reset button:
The function "trailing edge" is programmed by means of the "AF" switch located underneath the housing cover (switch position = 1).
The automatic start is programmed by bridging terminals X3/X5 and by switching the "AF" switch to 0. The time offset between the channels is approx. 100 ms. An endless time offset between the channels 1 and 2 is programmed by bridging the terminals X3/X6.

Connect potential p-type outputs of safety light grids/curtains to S12/S22. The devices must have the same reference potential.

The ISD tables (Intergral System Diagnostics) for analysis of the fault indications and their causes are shown in the appendix.

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

Documents

Operating instructions and Declaration of conformity (jp) 1 MB, 11.01.2012
Code: mrl_srb308it_jp

Operating instructions and Declaration of conformity (it) 901 kB, 27.01.2011
Code: mrl_srb308it_it

Operating instructions and Declaration of conformity (en) 1 MB, 01.02.2010
Code: mrl_srb308it_en

Operating instructions and Declaration of conformity (fr) 902 kB, 27.01.2011
Code: mrl_srb308it_fr

Operating instructions and Declaration of conformity (nl) 908 kB, 27.01.2011
Code: mrl_srb308it_nl

Operating instructions and Declaration of conformity (es) 903 kB, 27.01.2011
Code: mrl_srb308it_es

Operating instructions and Declaration of conformity (de) 1 MB, 01.07.2010
Code: mrl_srb308it_de

Wiring example (99) 21 kB, 04.08.2008
Code: ksrb3l03

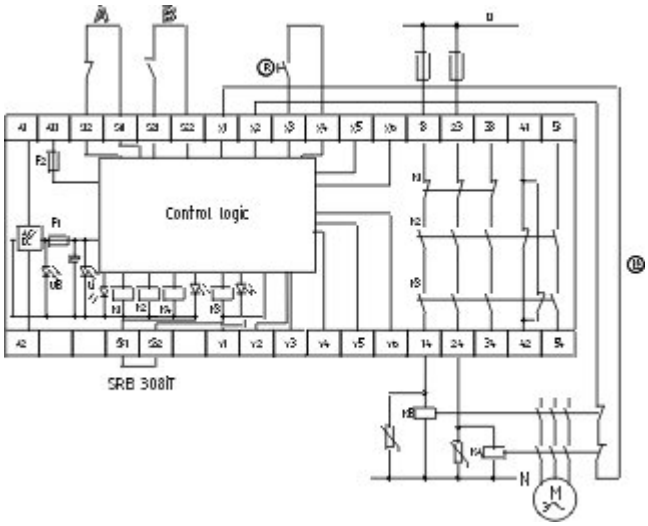
Wiring example (99) 20 kB, 04.08.2008
Code: KSRB3L01

ISD tables (Intergral System Diagnostics) (en) 21 kB, 29.07.2008

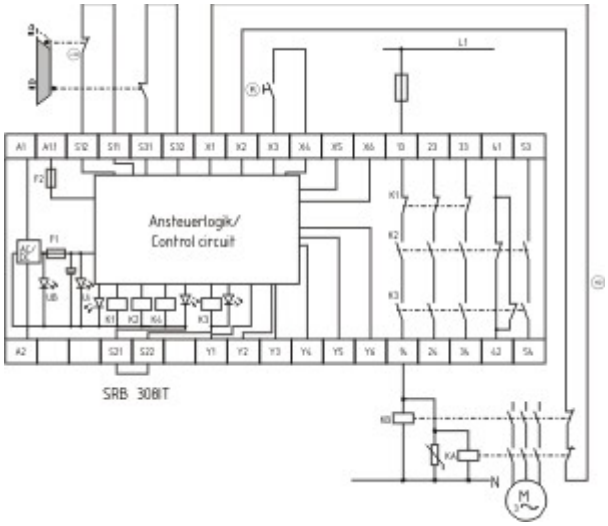
Code: i_sr3p02

ISD tables (Intergral System Diagnostics) (de) 37 kB, 29.07.2008
Code: i_sr3p01

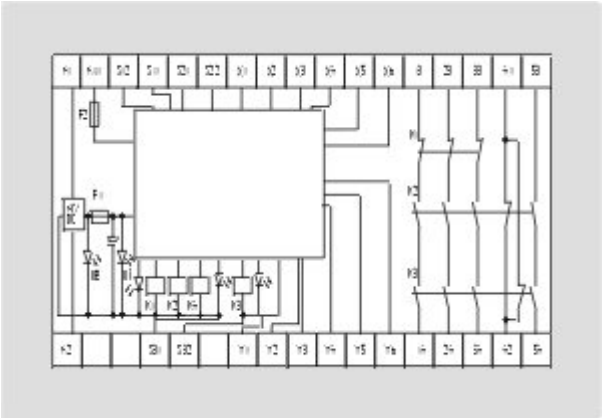
Images



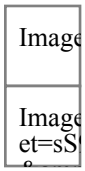
Wiring example



Wiring example



Internal wiring diagram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