

Datasheet - SRB 301LC/B-24V



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB 301LC/B



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

- Fit for signal evaluation of outputs of safety magnetic switches (to this end, integrated current and voltage limiters)
- 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
- 3 safety contacts, STOP 0
- 1 Signalling output

Ordering details

| | |
|--------------------------|-----------------|
| Product type description | SRB 301LC/B-24V |
| Article number | 101177962 |
| EAN code | 4030661315836 |

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 | 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-ops | 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

| | |
|--|---|
| Product name | SRB 301LC/B |
| 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 | , self-cleaning, positive action |
| Weight | 230 g |
| Start conditions | Automatic or Start button |
| 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) | No |
| Pull-in delay | |
| - ON delay with automatic start | ≤ 300 ms |
| - ON delay with reset button | ≤ 20 ms |
| Drop-out delay | |
| - Drop-out delay in case of emergency stop | ≤ 25 ms |

Mechanical data

| | |
|---|---------------------------------------|
| Connection type | Screw connection |
| Cable section | |
| - Min. Cable section | 0,25 mm ² |
| - Max. Cable section | 2.5 mm ² |
| Pre-wired cable | rigid or flexible |
| Tightening torque for the terminals | 0,6 Nm |
| Detachable terminals (Y/N) | No |
| 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, ± 15 % |

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 | II 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 m Ω |
| Power consumption | max. 1.7 W; 1.9 VA |
| Type of actuation | AC/DC |
| Switch frequency | max. 5 Hz |
| Rated operating voltage U_e | 24 VDC -15% / $+20\%$, residual ripple max. 10% 24 VAC -15% / $+10\%$ |
| Operating current I_e | 0,08 A |
| Frequency range | 50 / 60 Hz |
| Electronic protection (Y/N) | No |
| Fuse rating for the operating voltage | 0,5 A gG D-fuse |

Inputs

Monitored inputs

| | |
|------------------------------------|--|
| - Short-circuit recognition (Y/N) | No |
| - 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 mm ² ; 2500 m with 2.5 mm ² |
| Conduction resistance | max. 40 Ω |

Outputs

| | |
|---|--|
| Stop category | 0 |
| Number of safety contacts | 3 piece |
| Number of auxiliary contacts | 1 piece |
| Number of signalling outputs | 0 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 |
| Fuse rating | |
| - Protection of the safety contacts | 6 A slow blow |
| - Fuse rating for the auxiliary contacts | 2 A slow blow |
| Utilisation category To EN 60947-5-1 | AC-15: 230 V / 6 A DC-13: 24 V / 6 A |
| Number of undelayed semi-conductor outputs with signaling function | 0 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 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 | 4 piece |
| LED switching conditions display | |
| - The integrated LEDs indicate the following operating states. | |
| - Position relay K2 | |
| - Position relay K1 | |
| - Supply voltage | |
| - Internal operating voltage U_i | |

Miscellaneous data

Applications



Emergency-Stop button



Guard system



Pull-wire emergency stop switches



Safety light curtain



Safety sensor

Dimensions

| | |
|------------|---------|
| Dimensions | |
| - Width | 22.5 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

Input level: The example shows a 2-channel control of a guard door monitoring with two position switches, whereof one with positive break, external

reset button (R); cross-wire monitoring and feedback circuit (H2)

The control system recognises wire-breakage and earth faults 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.

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

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

Automatic start: The automatic start is programmed by connecting the feedback circuit to the terminals X1/X2. If the feedback circuit is not required, establish a bridge

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

Documents

Operating instructions and Declaration of conformity (nl) 457 kB, 24.03.2011

Code: mrl_srb_301lc_b_nl

Operating instructions and Declaration of conformity (nl) 457 kB, 24.03.2011

Code: mrl_srb_301lc_b_nl

Operating instructions and Declaration of conformity (fr) 331 kB, 28.04.2011

Code: mrl_srb_301lc_b_fr

Operating instructions and Declaration of conformity (fr) 331 kB, 28.04.2011

Code: mrl_srb_301lc_b_fr

Operating instructions and Declaration of conformity (de) 893 kB, 30.06.2010

Code: mrl_srb_301lc_b_de

Operating instructions and Declaration of conformity (de) 893 kB, 30.06.2010

Code: mrl_srb_301lc_b_de

Operating instructions and Declaration of conformity (it) 452 kB, 24.03.2011

Code: mrl_srb_301lc_b_it

Operating instructions and Declaration of conformity (it) 452 kB, 24.03.2011

Code: mrl_srb_301lc_b_it

Operating instructions and Declaration of conformity (en) 907 kB, 21.01.2010

Code: mrl_srb_301lc_b_en

Operating instructions and Declaration of conformity (en) 907 kB, 21.01.2010

Code: mrl_srb_301lc_b_en

Operating instructions and Declaration of conformity (jp) 804 kB, 19.07.2011

Code: mrl_srb_301lc_b_jp

Operating instructions and Declaration of conformity (jp) 804 kB, 19.07.2011

Code: mrl_srb_301lc_b_jp

Wiring example (99) 15 kB, 06.08.2009

Code: ksr3l23

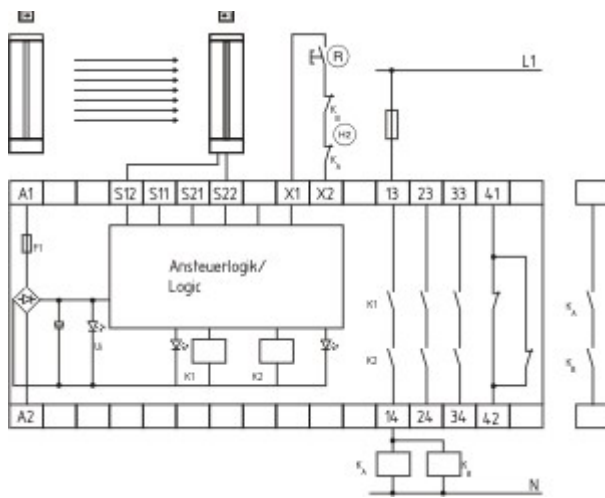
Wiring example (99) 20 kB, 22.08.2008

Code: ksr3l11

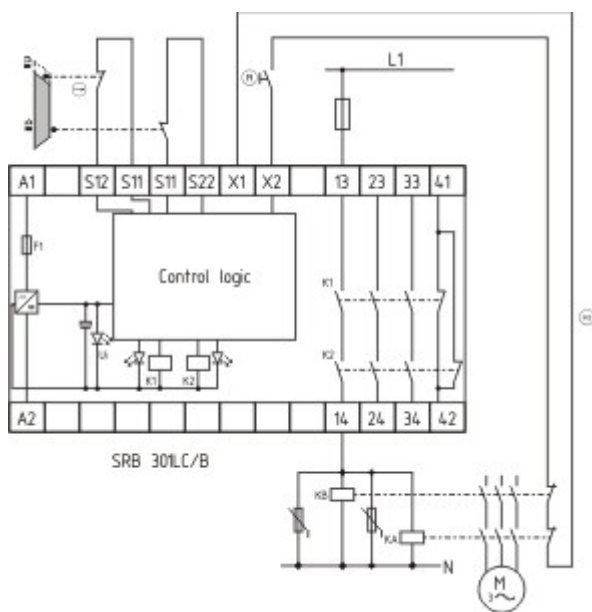
CCC certification (cn) 272 kB, 03.05.2011

Code: q_srbp02

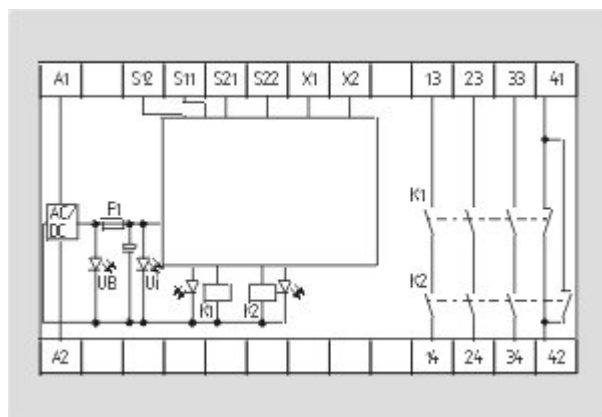
Images



Wiring example



Wiring example



Internal wiring diagram

The data and values have been checked thoroughly. Technical modifications and errors excepted.
Generiert am 03.07.2013 - 14:02:38h Kasbase 2.2.17.F DBI

