

Datasheet - SRB301HC/T-230V



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB301HC/T



- 3 safety contacts, STOP 0
- 1 Signalling output
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks and Safety mats

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

Ordering details

| | |
|--------------------------|-----------------|
| Product type description | SRB301HC/T-230V |
| Article number | 101190595 |
| EAN code | 4250116202348 |
| Replaced article number | 101193479 |
| 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 % | 525.800 | 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 | SRB301HC/T |
| 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 | 356 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 reset button | 200 ms, max. 400 ms |
| Drop-out delay | |
| - Drop-out delay in case of power failure | 100 ms |
| - Drop-out delay in case of emergency stop | 20 ms, max. 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) | 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 | +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 | 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 | - |
| - Max. rated DC voltage for controls | - |
| Rated AC voltage for controls, 50 Hz | |
| - Min. rated AC voltage for controls, 50 Hz | 48 V |
| - Max. rated AC voltage for controls, 50 Hz | 240 V |
| Rated AC voltage for controls, 60 Hz | |
| - Min. rated AC voltage for controls, 60 Hz | 48 V |
| - Max. rated AC voltage for controls, 60 Hz | 240 V |
| Contact resistance | max. 100 mΩ |
| Power consumption | 2 W; 5.1 VA |
| Type of actuation | AC |
| Rated operating voltage U_e | 48 ... 240 VAC |
| Frequency range | 50 / 60 Hz |
| Electronic protection (Y/N) | Yes |
| Fuse rating for the operating voltage | Internal electronic trip: tripping current $F1$: > 0,5 A; primary side: Safety fuse T1A |
| Current and tension on control circuits | |
| - S13 ... S14 | 24 VDC, Test current: 20 mA, Start pulse: 80 mA / 120 ms |
| - S23 ... S24 | 24 VDC, Test current: 20 mA |
| - X1 ... X2 | 24 VDC, Start pulse: 80 mA / 120 ms |
| Bridging in case of voltage drops | 90 ms |

Inputs

Monitored inputs

| | |
|------------------------------------|--|
| - Short-circuit recognition (Y/N) | Yes |
| - 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, 8 A ohmic (inductive in case of appropriate protective wiring) |
| - Switching capacity of the auxiliary contacts | 24 V DC, 2 A |
| Fuse rating | |
| - Protection of the safety contacts | 8 A slow blow, 10 A quick-blow |
| - Fuse rating for the auxiliary contacts | 2 A slow blow, 2.5 A quick-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 = 24 A; - 55°C = 18 A; - 60°C = 12 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 K1 | |
| - Position relay K2 | |
| - Supply voltage U_B | |

Miscellaneous data

| | |
|--------------|---|
| Applications |  Emergency-Stop button |
| |  Guard system |
| |  Safety mats |
| |  Pull-wire emergency stop switches |

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).

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 (de) 319 kB, 29.11.2013

Code: mrl_srb_301hc_t_de

Operating instructions and Declaration of conformity (cs) 321 kB, 27.07.2015

Code: mrl_srb_301hc_t_cs

Operating instructions and Declaration of conformity (pl) 327 kB, 20.03.2014

Code: mrl_srb_301hc_t_pl

Operating instructions and Declaration of conformity (fr) 295 kB, 21.01.2014

Code: mrl_srb_301hc_t_fr

Operating instructions and Declaration of conformity (nl) 295 kB, 21.01.2014

Code: mrl_srb_301hc_t_nl

Operating instructions and Declaration of conformity (it) 292 kB, 21.01.2014

Code: mrl_srb_301hc_t_it

Operating instructions and Declaration of conformity (jp) 395 kB, 21.01.2014

Code: mrl_srb_301hc_t_jp

Operating instructions and Declaration of conformity (es) 296 kB, 21.01.2014

Code: mrl_srb_301hc_t_es

Operating instructions and Declaration of conformity (en) 309 kB, 29.11.2013

Code: mrl_srb_301hc_t_en

Wiring example (99) 19 kB, 04.08.2008

Code: ksr3l22

TÜV certification (de, en) 226 kB, 13.02.2014

Code: z_srbp05

CCC certification (en) 104 kB, 20.11.2015

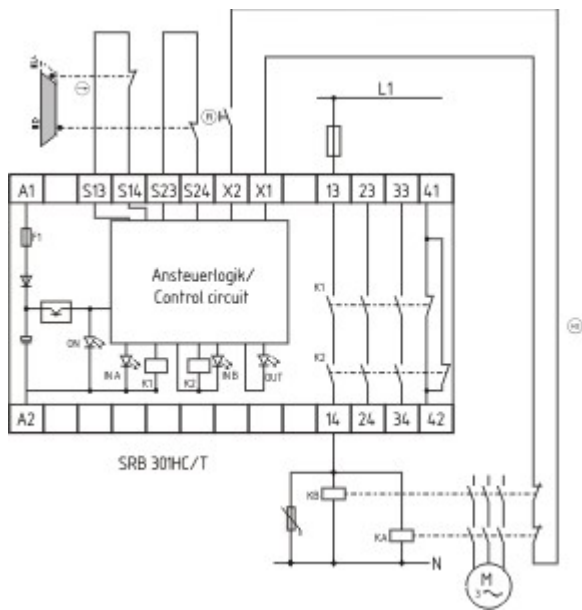
Code: q_srbp03

CCC certification (cn) 95 kB, 20.11.2015

Code: q_srbp04

EAC certification (ru) 833 kB, 05.10.2015

Images



Wiring example

K.A. Schmersal GmbH & Co. KG, Möddinghofe 30, D-42279 Wuppertal

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

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