Datasheet - SRB301HC/R-24V

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

☒ Preferred typ

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

- 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 Two-hand control panels and Safety mats

Ordering details

Product type description	SRB301HC/R-24V
Article number	101190594
EAN code	4250116202317
Replaced article number 101193476	
eCl@ss	27-37-19-01

Approval

Approval	TÜV 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	SRB301HC/R
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	, self-cleaning, positive action
Weight	354 g
Start conditions	Start button (monitored)
Start input (Y/N)	Yes
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Automatic reset function (Y/N)	No
Reset with edge detection (Y/N)	Yes
Pull-in delay	
- ON delay with reset button	50 ms
Drop-out delay	
- Drop-out delay in case of power failure	100 ms
- Drop-out delay in case of emergency stop	≤ 20 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	+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	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	1.4 W; 3.3 VA
Type of actuation	AC / DC
Rated operating voltage U_e	24 VDC −15% / +20%, residual ripple max. 10% 24 VAC −15% / +10%
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 secondary side: tripping current > 0,12 A
Current and tension on control circuits	
- S13 ... S14	24 VDC, Test current: 20 mA
- S23 ... S24	24 VDC, Test current: 20 mA
- S13 ... X2	24 VDC, Test current: 10 mA
Bridging in case of voltage drops	approx. 100 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 mm²; 2500 m with 2.5 mm²
Conduction resistance	max. 40 Ω

Outputs

Stop category	0
Stop category 1	0
Stop category 0	3
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) min. 10 V / 10 mA
- 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  Two-hand control panels  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 (fr) 309 kB, 21.01.2014
Code: mrl_srb_301hc_r_fr

Operating instructions and Declaration of conformity (nl) 309 kB, 21.01.2014
Code: mrl_srb_301hc_r_nl

Operating instructions and Declaration of conformity (da) 389 kB, 22.08.2013
Code: mrl_srb_301hc_r_da

Operating instructions and Declaration of conformity (pl) 340 kB, 18.03.2014
Code: mrl_srb_301hc_r_pl

Operating instructions and Declaration of conformity (jp) 411 kB, 21.01.2014
Code: mrl_srb_301hc_r_jp

Operating instructions and Declaration of conformity (en) 305 kB, 03.04.2017
Code: mrl_srb_301hc_r_en

Operating instructions and Declaration of conformity (es) 312 kB, 04.05.2017
Code: mrl_srb_301hc_r_es

Operating instructions and Declaration of conformity (it) 313 kB, 10.05.2017
Code: mrl_srb_301hc_r_it

Operating instructions and Declaration of conformity (de) 296 kB, 03.04.2017
Code: mrl_srb_301hc_r_de

Operating instructions and Declaration of conformity (pt) 316 kB, 27.04.2017
Code: mrl_srb_301hc_r_pt

Wiring example (99) 20 kB, 22.08.2008
Code: ksrb3l17

Wiring example (99) 20 kB, 22.08.2008

Code: ksrb3l17

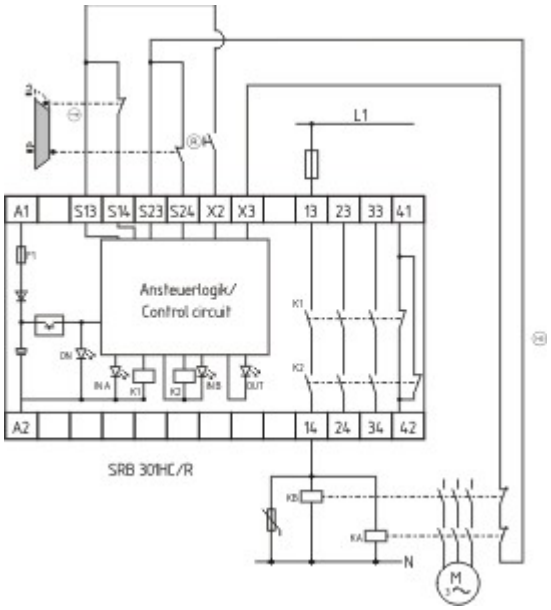
TÜV certification (de, en) 599 kB, 24.03.2017
Code: z_srbp04

CCC certification (en) 495 kB, 16.01.2017
Code: q_srbp03

CCC certification (cn) 485 kB, 16.01.2017
Code: q_srbp04

EAC certification (ru) 833 kB, 05.10.2015
Code: q_6042p17_ru

Images



Wiring example