<meta name='Description' content='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;</p>

2 safety contacts, STOP 1 (adjustable 1 ... 30 s),4 Signalling outputs,Optional: Short-circuit recognition, Manual reset with edge detection in fail-safe circuit, Automatic reset function' />

21.11.2016

10:37:26h

# Datasheet - SRB324ST 24V (V.3)



Guard door monitors and Safety control modules for Emergency Stop applications / General Purpose safety controllers (Series PROTECT SRB) / SRB324ST

☑ Preferred typ



- 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;
- 2 safety contacts, STOP 1 (adjustable 1 ... 30 s)
- 4 Signalling outputs
- Optional: Short-circuit recognition, Manual reset with edge detection in fail-safe circuit, Automatic reset function

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

## **Ordering details**

Product type description SRB324ST 24V (V.3)

Article number 101195504
EAN code 4030661446547

Replaced article number 101179876

eCl@ss 27-37-19-01

#### **Approval**

Approval



## Classification

PL up e (STOP 0) bis d (STOP 1)

up 4 (STOP 0) Control category

bis 3 (STOP 1) 99% (STOP 0)

> 60% (STOP 1) CCF > 65 points

PFH value ≤ 2,0 x 10-8/h (STOP 0)

≤ 2,0 x 10-7/h (STOP 1)

SIL up 3 (STOP 0) bis 2 (STOP 1)

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**

DC

Product name SRB324ST

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

IEC/EN 60947-1 Terminal designations

Materials

- Material of the housings Plastic, glass-fibre reinforced thermoplastic, ventilated

- Material of the contacts , Ag-Ni, self-cleaning, positive action

Weight 435 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 Yes

Automatic reset function (Y/N) Reset with edge detection (Y/N) Yes

Pull-in delay

250 ms - ON delay with automatic start - ON delay with reset button 20 ms

Drop-out delay

- Drop-out delay in case of power failure 80 ms

- Drop-out delay in case of emergency stop 30 ms / ≤ 36 ms

## **Mechanical data**

Connection type

Cable section

0,25 mm<sup>2</sup> - Min. Cable section - Max. Cable section 2.5 mm<sup>2</sup>

Pre-wired cable rigid or flexible Tightening torque for the terminals

0,6 Nm

Screw connection

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
 Max. environmental temperature
 +60 °C

Storage and transport temperature

Min. Storage and transport temperature
 Max. Storage and transport temperature
 +85 °C

Protection class

Protection class-Enclosure
 Protection class-Terminals
 Protection class-Clearance

Air clearances and creepage distances To IEC/EN 60664-1

- Rated impulse withstand voltage U<sub>imp</sub> 4 kV

Overvoltage categoryDegree of pollution2 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 controls28.8 V

Rated AC voltage for controls, 50 Hz

Min. rated AC voltage for controls, 50 Hz
 Max. rated AC voltage for controls, 50 Hz
 20.4 V
 26.4 V

Rated AC voltage for controls, 60 Hz

Min. rated AC voltage for controls, 60 Hz
 Max. rated AC voltage for controls, 60 Hz
 20.4 V

Contact resistance  $max. 100 m\Omega$ 

Power consumption 3.2 W; 7.1 VA, plus signalling output

Type of actuation AC/DC

Rated operating voltage Ue 24 VDC -15% / +20%, residual ripple max. 10%

24 VAC -15% / +10%

Operating current le

Frequency range 50 Hz / 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 (x 4);

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

#### 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:

> 850 m with 1.5 mm<sup>2</sup> 1400 m with 2.5 mm<sup>2</sup>

2-channel with/ without cross-wire detection

Conduction resistance max. 40 Ω

## **Outputs**

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

 $A; -60^{\circ}C = 8 A$ 

Stop category

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

A: - 60°C = 12 A

Number of safety contacts 5 piece Number of auxiliary contacts 1 piece Number of signalling outputs 3 piece

Switching capacity

- Switching capacity of the safety contacts (13-14; 23-24; 33-34) max. 250 V, 8 A ohmic (inductive in case of

appropriate protective wiring)

(47-48; 57-58) max. 250 V, 6 A ohmic (inductive in case of appropriate

protective wiring)

61-62: 24 VDC / 2 A - Switching capacity of the auxiliary contacts

- Switching capacity of the signaling/diagnostic outputs Y1-Y3: 24 VDC / 100 mA, residual current: 200 mA

Fuse rating

- Protection of the safety contacts 8 A slow blow (13-14; 23-24) 6.3 A slow blow (37-38)

- Fuse rating for the auxiliary contacts 2 A slow blow

- Fuse rating for the signaling/diagnostic outputs 500 mA (Internal electronic trip F3)

Utilisation category To EN 60947-5-1 13-14, 23-24, 33-34:

AC-15: 230 V / 6 A, DC-13: 24 V / 6 A

37-38, 47-48:

AC-15: 230 V / 3 A, DC-13: 24 V / 2 A

Note on the utilisation category

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 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). 2 piece

# LED switching conditions display

Number of LED's

6 piece

LED switching conditions display

- The integrated LEDs indicate the following operating states.
- Position relay K2
- Position relay K3
- Position relay K1
- Position relay K4
- Supply voltage
- Internal operating voltage Ui

# Miscellaneous data

Applications

Guard system



Emergency-Stop button



Pull-wire emergency stop switches



Safety light curtain



Safety sensor

#### **Dimensions**

Dimensions

WidthHeight

- Depth

45 mm 100 mm

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 (pt) 602 kB, 01.10.2013

Code: mrl\_srb\_324st\_v3\_pt

Operating instructions and Declaration of conformity (es) 601 kB, 01.10.2013

Code: mrl\_srb\_324st\_v3\_es

Operating instructions and Declaration of conformity (jp) 1 MB, 26.06.2012

Code: mrl\_srb\_324st\_v3\_jp

Operating instructions and Declaration of conformity (pl) 610 kB, 15.04.2014

Code: mrl\_srb\_324st\_v3\_pl

Operating instructions and Declaration of conformity (cn) 770 kB, 13.07.2015

Code: mrl\_srb\_324st\_v3\_cn

Operating instructions and Declaration of conformity (de) 674 kB, 09.09.2016

Code: mrl\_srb\_324st\_v3\_de

Operating instructions and Declaration of conformity (da) 592 kB, 13.10.2015

Code: mrl\_srb\_324st\_v3\_da

Operating instructions and Declaration of conformity (fr) 1 MB, 26.06.2012

Code: mrl\_srb\_324st\_v3\_fr

Operating instructions and Declaration of conformity (en) 682 kB, 09.09.2016

Code: mrl\_srb\_324st\_v3\_en

Operating instructions and Declaration of conformity (it) 1 MB, 26.06.2012

Code: mrl\_srb\_324st\_v3\_it

Operating instructions and Declaration of conformity (it) 1 MB, 03.01.2012

Code: mrl\_srb\_324st\_v3\_it

Operating instructions and Declaration of conformity (nl) 1 MB, 17.10.2012

Code: mrl\_srb\_324st\_V3\_nl

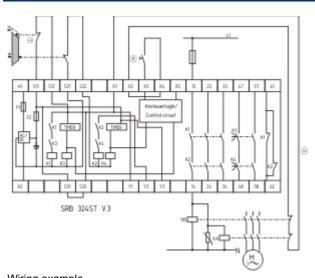
Wiring example (99) 21 kB, 04.08.2008

Code: ksrb3l10

TÜV certification (de, en) 226 kB, 04.09.2012

Code: z\_srbp02

# **Images**



Wiring example