

Emergency-Stop and guard door monitoring

SRB 301 LC

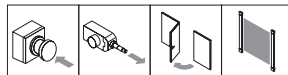


- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- Signal evaluation of potential outputs, for instance safety light curtains and grids
- 1 or 2 channel control
- 3 enabling paths, Stop 0
- 1 indication contact (NC)
- Optionally cross-wire detection
- Reset without edge detection or automatic start
- 4 LEDs to show operating conditions
- Control Category 4 to EN 954-1

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	Reset button, autostart
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.08 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 1.9 VA, 1.7 W
Max. fuse rating:	Glass fuse F1, tripping current 1.25 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	1 NC contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Contact material:	AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 50 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	4 LEDs
Weight:	230 g
Dimensions:	22.5 x 100 x 121 mm

Approvals



Ordering details

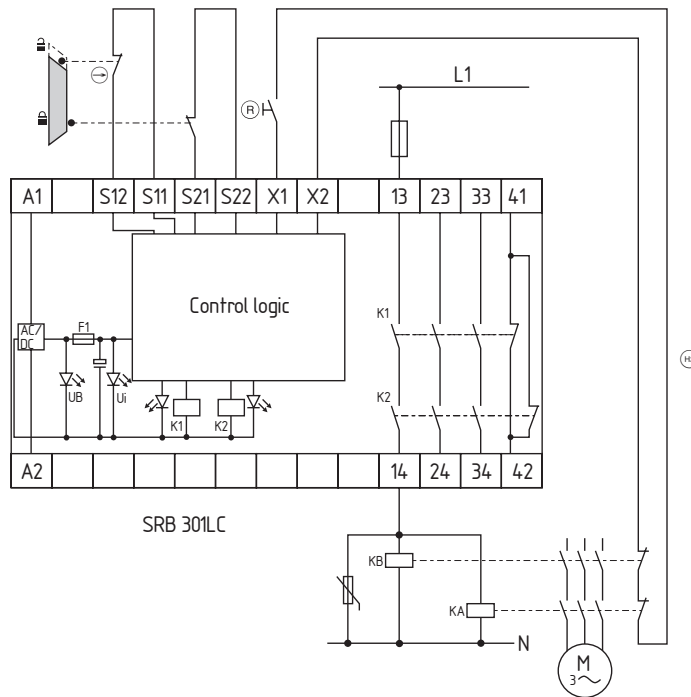
SRB 301 LC

Emergency-Stop and guard door monitoring

Note

- 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 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.
- 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 terminals X1/X2. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function display:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 301 LC/B

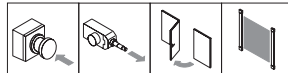


- Signal processing of potential-free outputs, e.g. emergency stop command devices, interlocking devices, etc.
- Signal processing of outputs of safety magnetic switches (built-in current and voltage limitation for this purpose)
- Restrictedly suitable for signal processing (no reset with edge detection) of outputs connected to potentials (AOPD's), e.g. safety light grids/curtains
- 1 or 2 channel control
- 3 enabling paths, Stop 0
- 1 indication contact (NC)
- Manual reset without edge detection
- Automatic reset function
- Green LED indications for relay K1, K2, supply voltage U_B and internal fuse U_i
- Control Category 4 to EN 954-1

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	reset button without edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0,2 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I_e :	max. 0.08 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 1.9 VA, 1.7 W
Max. fuse rating:	Glass fuse F1, tripping current 1.25 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Signalling contacts:	1 NC contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
	≤ 30 ms (Auto-start/Reset button)
Drop-out delay:	≤ 50 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	4 LED
Weight:	230 g
Dimensions:	22.5 x 100 x 121 mm

Approvals



Ordering details

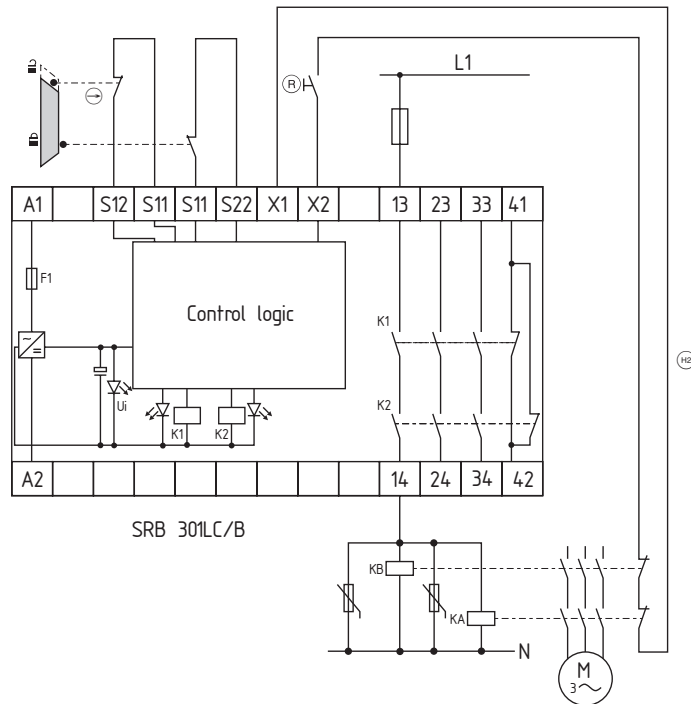
SRB 301 LC/B

Emergency-Stop and guard door monitoring

Note

- 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 (HG)
- 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.
- 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 terminals X1/X2. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function display:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 301 ST

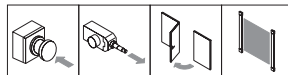


- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- Signal evaluation of potential outputs, for instance safety light curtains and grids
- 1 or 2 channel control
- 3 enabling paths, Stop 0
- 1 indication contact (NC)
- Optionally cross-wire detection
- With hybrid fuse
- Reset with edge detection or automatic start
- 4 LEDs to show operating conditions
- Control Category 4 to EN 954-1
- Plug-in screw terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.16 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 3.8 VA, 2.4 W
Max. fuse rating:	internal electronic trip F1, tripping current > 0.5 A, reset after disconnection of supply voltage
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Signalling contacts:	1 NC contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 200 ms
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	4 LEDs
Weight:	230 g
Dimensions:	22.5 x 100 x 121 mm

Approvals



Ordering details

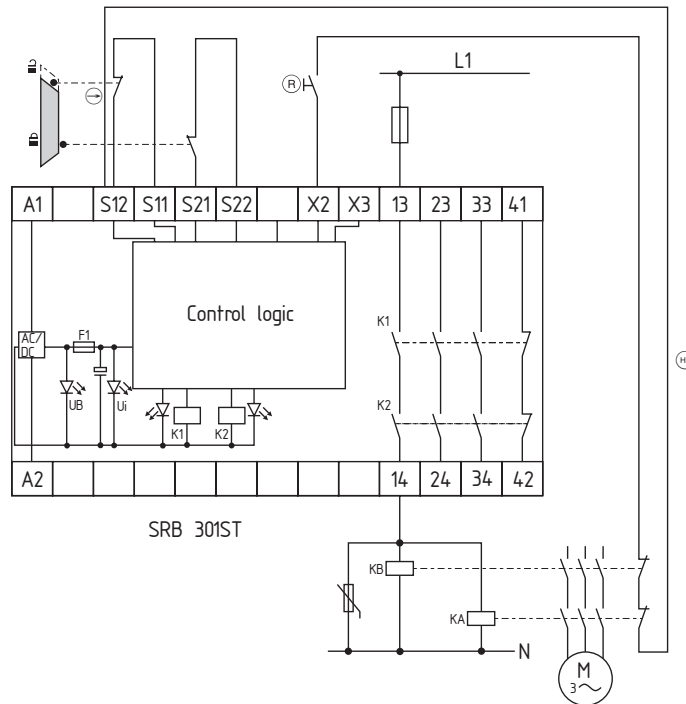
SRB 301 ST

Emergency-Stop and guard door monitoring

Note

- 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 (HG).
- The control recognises cross short, cable break and earth leakages in the monitoring circuit.
- F1 = Hybrid fuse
- 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 terminals S12/X3. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function display:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 301 ST-230V






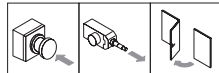
- Multiple-voltage design
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- 1 or 2 channel control
- 3 enabling paths, Stop 0
- 1 indication contact (NC)
- With electronic fuse
- Reset with edge detection or automatic start
- 3 LEDs to show operating conditions
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	48 ... 240 VAC
Frequency range:	50/60 Hz
I _e :	max. 0.06 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 2.8 VA
Max. fuse rating:	internal electronic trip F1, tripping current > 0.12 A, reset after disconnection of supply voltage
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	1 NC contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Contact material:	AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 30 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	3 LEDs
Weight:	250 g
Dimensions:	22.5 x 100 x 121 mm

Approvals

   in preparation



Ordering details

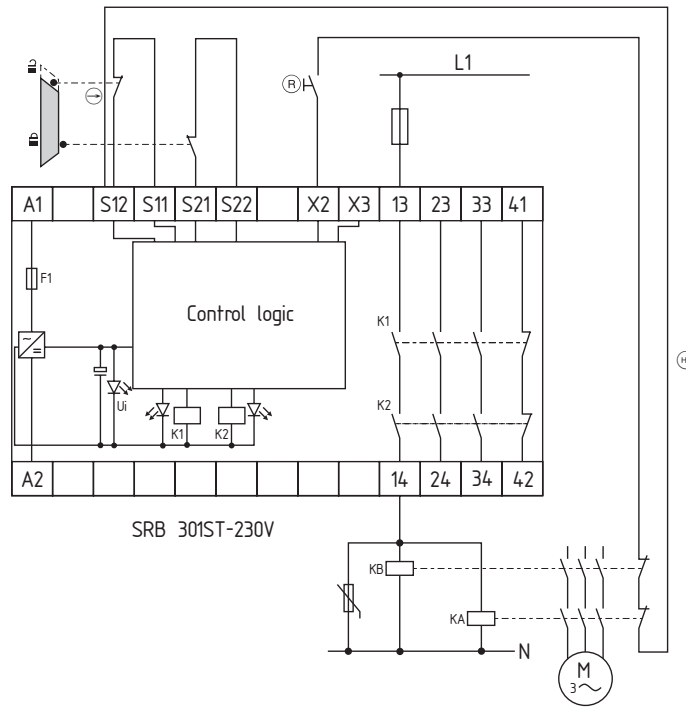
SRB 301 ST-230V

Emergency-Stop and guard door monitoring

Note

- 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 (HG)
- The control recognises cable break 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
- Automatic start: The automatic start is programmed by connecting the feedback circuit to terminals S12/X3. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 301 SQ-230V






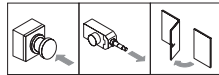
- Multiple-voltage design
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- 2 channel control
- 3 enabling paths, Stop 0
- 1 indication contact (NC)
- Cross-wire monitoring
- With electronic fuse
- Reset with edge detection or automatic start
- 3 LEDs to show operating conditions
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	48 ... 240 VAC
Frequency range:	50/60 Hz
I _e :	max. 0.06 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 2.8 VA
Max. fuse rating:	internal electronic trip F1, tripping current > 0.5 A, reset after disconnection of supply voltage
Monitored inputs	2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	1 NC contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Contact material:	AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 30 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	3 LEDs
Weight:	250 g
Dimensions:	22.5 x 100 x 121 mm

Approvals

   in preparation



Ordering details

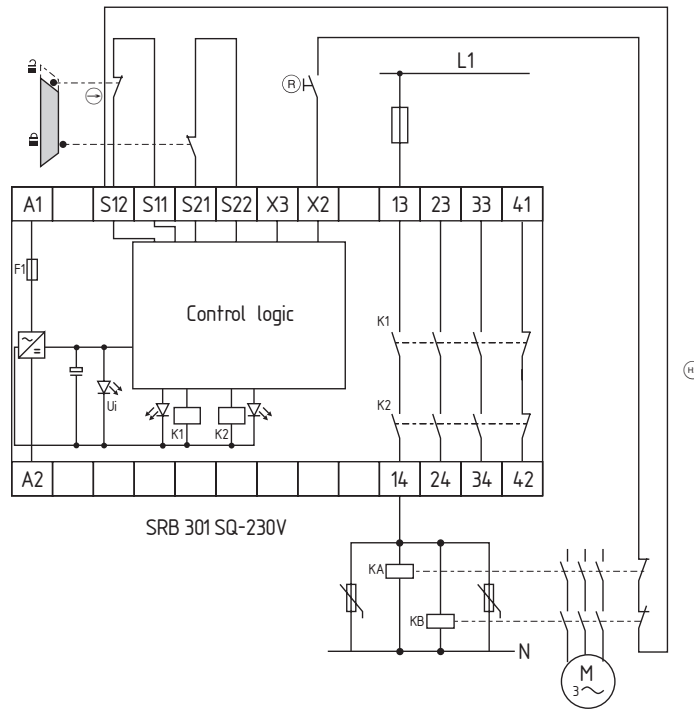
SRB 301 SQ-230V

Emergency-Stop and guard door monitoring

Note

- 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 (HG)
- The control recognises cross short and cable break 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.
- Automatic start:
The automatic start is programmed by connecting the feedback circuit to terminals S12/X3. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 206 ST



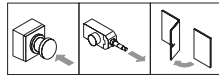
- Multiple evaluation of up to 6 safety guards
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- 2 enabling paths, Stop 0
- 6 indication outputs
- 1 or 2 channel control
- Reset with edge detection or automatic start
- 4 LEDs to show operating conditions
- With hybrid fuse
- Control Category 3 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0
Control category:	3
Start conditions:	reset button (trailing edge), autostart
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20% residual ripple max. 10% 24 VAC -15%/+10% 48 ... 240 VAC
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.125 A (DC version)
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 3.6 W, 6.6 VA (24 V), 6.8 VA (230 V)
Max. fuse rating:	24 V version: internal electronic fuse, tripping current > 1.0 A, reset after breakdown of the supply voltage; 230 V version: primary side: safety fuse, tripping current > 1.0 A secondary side: internal electronic fuse, tripping current > 0.12 A
Monitored inputs	6 x 2 channels (NC/NC)
Feedback circuit:	yes
Drive circuits:	max. 28 VDC
Enabling contacts:	2 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	24 VDC (internal) / 20 mA
Contact material:	AgCdO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 50 ms
Drop-out delay:	≤ 30 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overtoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	4 LEDs
Weight:	400 g
Dimensions:	45 x 100 x 121 mm

Approvals

in preparation



Ordering details

SRB 206 ST ^①

No.	Replace	Description
①	230V	24 VAC/DC 48 ... 230 VAC

Function table

Indication contact:

Y1
Y2
Y3
Y4
Y5
Y6

Function / Switching condition:

Guard door 1 closed
Guard door 2 closed
Guard door 3 closed
Guard door 4 closed
Guard door 5 closed
Guard door 6 closed

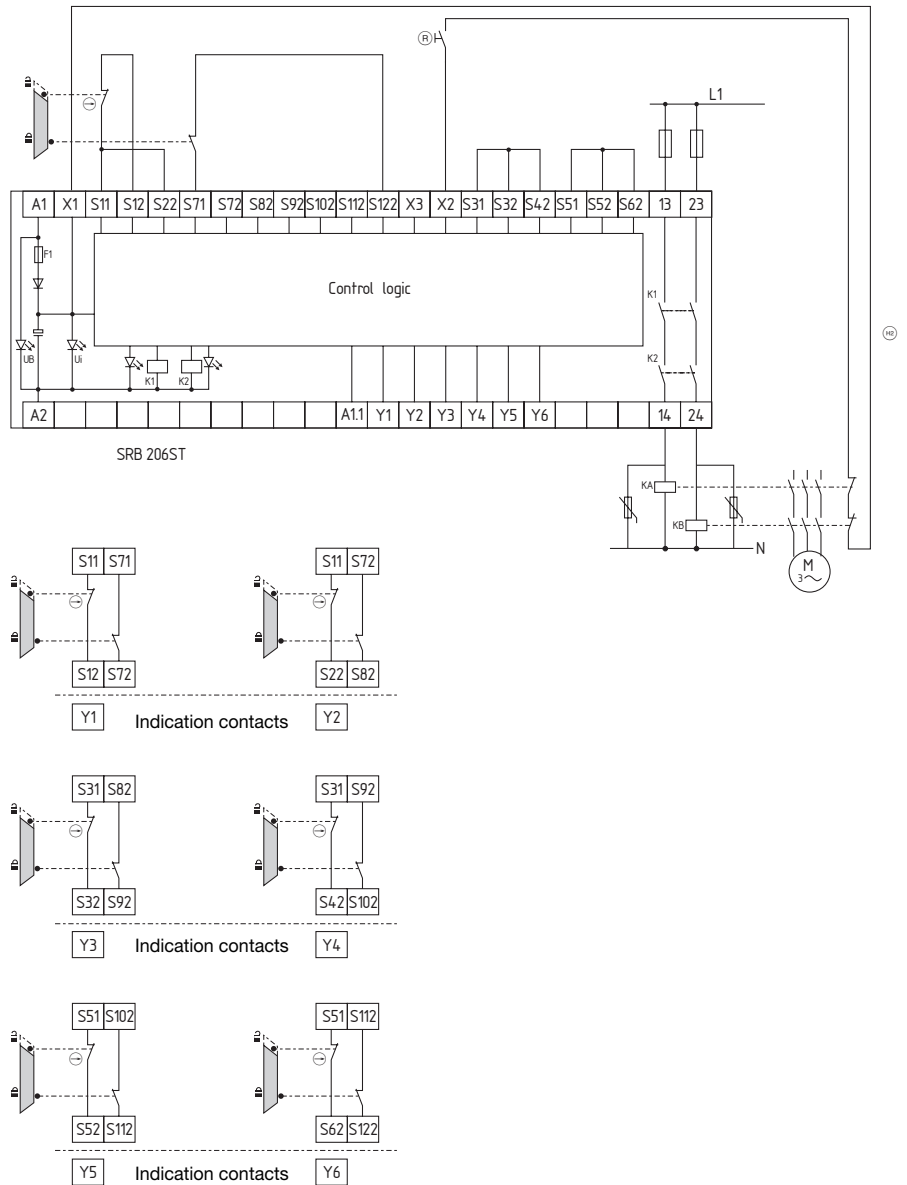
Emergency-Stop and guard door monitoring

Note

- 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) and feedback circuit (H)
- If more guard doors are monitored, they must be connected according to the wiring table
- The control recognises 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.
- Control category 4 to EN 954-1 (when an individual guard door is opened). To control the risk of error accumulation, which is especially required in control category 4, we recommend regularly checking the circuit by means of a start-up test
- Control category 3 to EN 954-1 (upon opening of several guard doors simultaneously).
- A single failure in the sensors does not cause the safety to be lost
- If the single failure occurs, the safety function will be maintained. Some, although not all, errors will be recognised. An accumulation of unrecognised errors could cause the safety function to be lost.
- Automatic start:
The automatic start is programmed by connecting the feedback circuit to the terminals X1/X3. If the feedback circuit is not required, establish a bridge

Connection table:
(see appendix)

Wiring diagram



LED

Function display:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 206 SQ



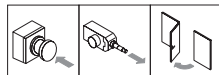
- Multiple evaluation of up to 6 safety guards
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- 2 enabling paths, Stop 0
- 6 indication outputs
- Cross-wire monitoring
- 2 channel control
- Reset with edge detection or automatic start
- 4 LEDs to show operating conditions
- With hybrid fuse
- Control Category 3 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0
Control category:	3
Start conditions:	reset button (trailing edge), autostart
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10% 48 ... 240 VAC
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.275 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 3.6 W, 6.6 VA (24 V), 6.8 VA (230 V)
Max. fuse rating:	24 V version: internal electronic fuse, tripping current > 1.0 A reset after breakdown of the supply voltage; 230 V version: primary side: safety fuse, tripping current > 1.0 A secondary side: internal electronic fuse, tripping current > 0.12 A
Monitored inputs	6 x 2 channels (NC/NC)
Feedback circuit:	yes
Drive circuits:	max. 28 VDC
Enabling contacts:	2 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	24 VDC (internal) / 20 mA
Contact material:	AgCdO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 50 ms
Drop-out delay:	≤ 30 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	4 LEDs
Weight:	400 g
Dimensions:	45 x 100 x 121 mm

Approvals

in preparation



Ordering details

SRB 206 SQ ①

No.	Replace	Description
①	230V	24 VAC/DC 48 ... 230 VAC

Function table

Indication contact:

Y1
Y2
Y3
Y4
Y5
Y6

Function / Switching condition:

Guard door 1 closed
Guard door 2 closed
Guard door 3 closed
Guard door 4 closed
Guard door 5 closed
Guard door 6 closed

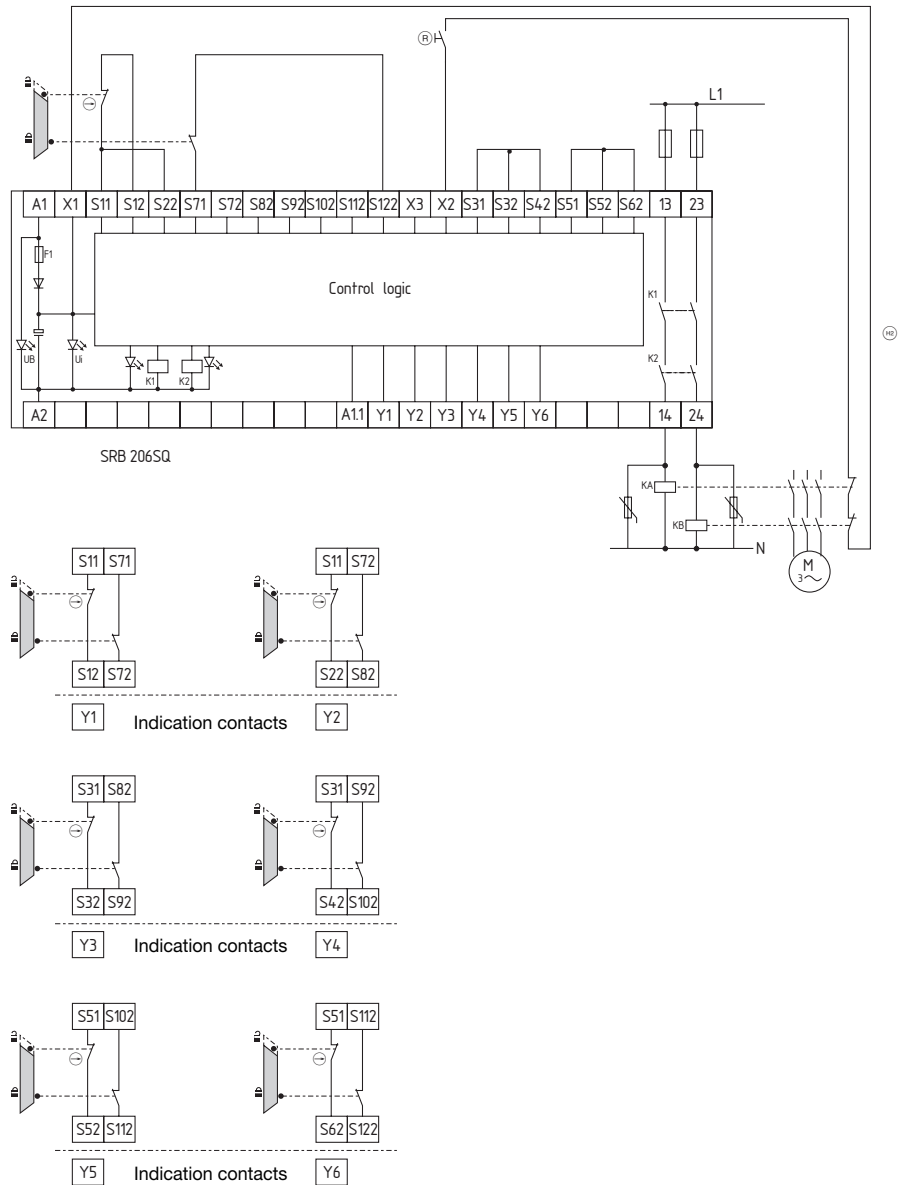
Emergency-Stop and guard door monitoring

Note

- Input level: the example shows a 2-channel control of a guard door monitoring with two position switches, wherof one with positive break, external reset button (R) cross-wire monitoring and feedback circuit (H)
- If more guard doors are monitored, they must be connected according to the wiring table
- 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.
- Control category 4 to EN 954-1 (when an individual guard door is opened). To control the risk of error accumulation, which is especially required in control category 4, we recommend regularly checking the circuit by means of a start-up test
- Control category 3 to EN 954-1 (upon opening of several guard doors simultaneously).
- A single failure in the sensors does not cause the safety to be lost
- If the single failure occurs, the safety function will be maintained. Some, although not all, errors will be recognised. An accumulation of unrecognised errors could cause the safety function to be lost.
- Automatic start:
The automatic start is programmed by connecting the feedback circuit to the terminals X1/X3. If the feedback circuit is not required, establish a bridge

Connection table:
(see appendix)

Wiring diagram



LED

Function display:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 219 IT

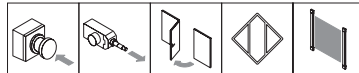


- Multifunctional safety relay module for superior diagnostics and visualisation
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function, solenoid interlocks and safety sensors
- Signal evaluation of potential outputs, for instance safety light curtains and grids
- 1 or 2 channel control
- 2 enabling paths, Stop 0
- 1 enabling path, Stop 1, adjustable 1 to 30 sec.
- 1 indication contact (NC)
- Optionally cross-wire monitoring, reset with edge detection or automatic start
- 8 signalling outputs for the diagnostics of the operating conditions
- 7 LEDs to show operating conditions
- Start-up test
- With hybrid fuse
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0, 1x Stop 1 (1 ... 30 s delayed)
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.2 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 5.2 VA, 4.4 W
Max. fuse rating:	internal electronic trip F1, tripping current > 0.5 A, reset after disconnection of supply voltage
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22, S31/S32: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths „Stop 0“: 6 A/230 VAC, 6 A/24 VDC enabling paths „Stop 1“: 3 A/230 VAC, 2 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	1 NC contact
Switching capacity:	indicating contact: 2 A/24 VDC
Signalling output:	Y1 - Y8: 8 transistor outputs 100 mA total, short-circuit proof
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
External auxiliary voltage:	A1.1: 24 VDC -10%/+10%
Pull-in delay:	≤ 60 ms / ≤ 200 ms (Auto-start/Reset button)
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	-25 °C ... +45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	7 LEDs
Weight:	360 g
Dimensions:	45 x 100 x 121 mm

Approvals



Ordering details

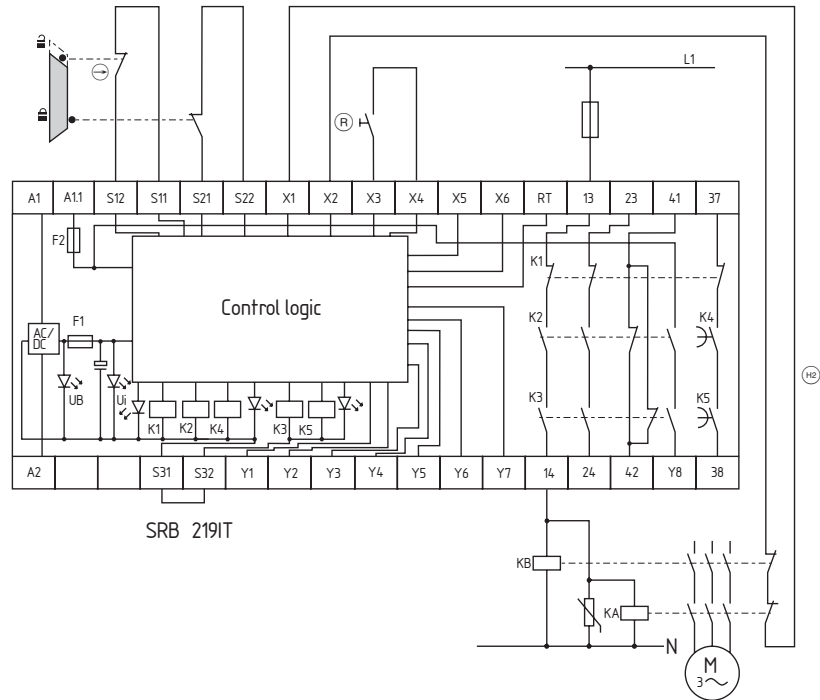
SRB 219 IT-24V

Emergency-Stop and guard door monitoring

Note

- 2 channel control (Example without cross-wire monitoring), 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 (FB).
- 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 the NC contact to S11/S12 and bridge S21/S22 and 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.
- Drop-out delay:
The enabling path „Stop 1“ 37/38 is adjustable for 1 to 30 seconds drop-out delay. Setting of the drop-out delay time is carried out by means of a potentiometer from the front of the enclosure.
- Early switch-off of time delay
The drop-out delay time can be ended early via the input RT.
The input RT makes it possible to „switch off“ the time-delayed enabling circuit 37/38 before the set time has elapsed.
- Connect potential p-type outputs of safety light grids/curtains to S12/S22. The devices must have the same reference potential.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Position relay K3
- Position relay K4
- Position relay K5
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

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

Emergency-Stop and guard door monitoring

SRB 308 IT

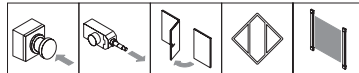


- Multifunctional safety relay module for superior diagnostics and visualisation
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function, solenoid interlocks and safety sensors
- Signal evaluation of potential outputs, for instance safety light curtains and grids
- 1 or 2 channel control
- 3 enabling paths, Stop 0
- 2 signalling contacts (NC/NO)
- Optionally cross-wire monitoring, reset with edge detection or automatic start
- 5 LEDs to show operating conditions
- 6 diagnostic outputs for the operating state
- Start-up test
- With hybrid fuse
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC, 48 VAC, 115 VAC, 230 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.125 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 3 VA, 3 W
Max. fuse rating:	internal electronic trip F1, tripping current > 0.5 A, reset after disconnection of supply voltage
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22, S31/S32: max. 28 VDC
Utilisation category:	AC-15, DC-13
Enabling contacts:	3 enabling paths
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	1 NC contact / 1 NO contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Signalling output:	Y1 - Y6: 6 transistor outputs, 100 mA total
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
External auxiliary voltage:	A1.1: 24 VDC -10%/+10%
Pull-in delay:	≤ 60 ms / ≤ 200 ms (Auto-start/Reset button)
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LEDs
Weight:	340 g
Dimensions:	45 x 100 x 121 mm

Approvals



Ordering details

SRB 308 IT-①

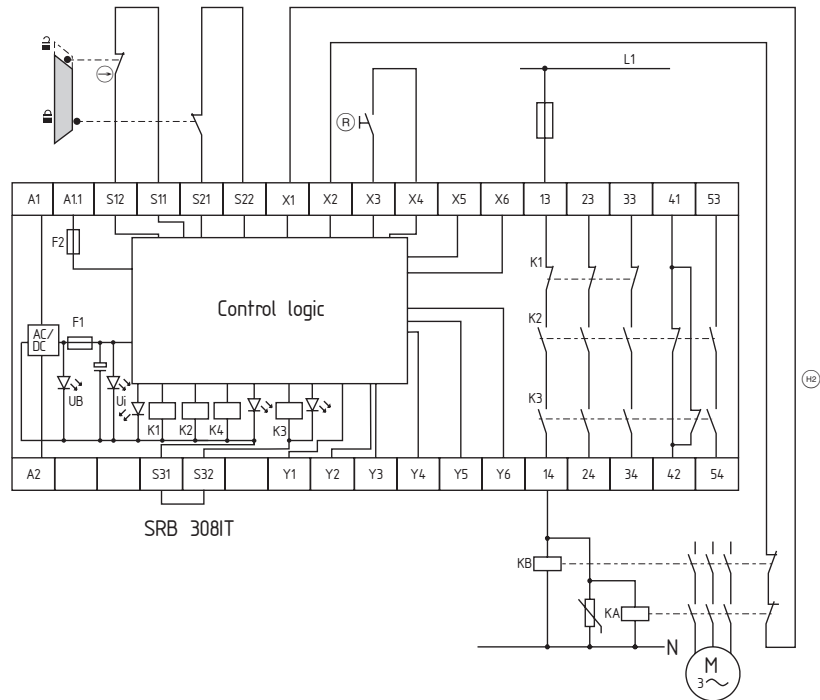
No.	Replace	Description
①	24V	24 VAC/DC
	48V	48 VAC
	115V	115 VAC
	230V	230 VAC

Emergency-Stop and guard door monitoring

Note

- 2 channel control (Example without cross-wire monitoring), 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 (FB)
- 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 the NC contact to S11/S12 and bridge S12/S22 and 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.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Position relay K3
- Supply voltage U_B
- Internal Operating voltage U_i

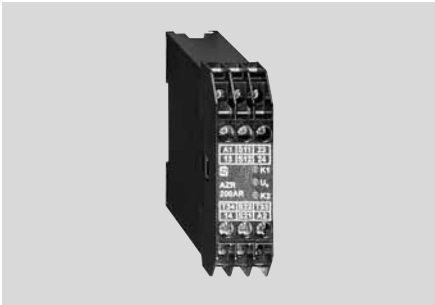
Note

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

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

Emergency-Stop and guard door monitoring

AZR 200 AR

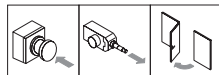


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- 2 channel control
- 2 enabling paths, Stop 0
- Cross-wire monitoring
- Manual reset without edge detection
- Automatic reset function
- Control Category 4 to EN 954-1
- Green LED indications for relay K1, K2 and supply voltage U_B

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0
Control category:	4
Start conditions:	reset button without edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC – 15 % / + 20 %, residual ripple max. 10 % 24 VAC – 15 % / + 6 %
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	max. 0.11 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 2.5 VA
Max. fuse rating:	glass fuse F1, tripping current 0,5 A
Monitored inputs	2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	2 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 10 ms
Drop-out delay:	≤ 30 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	3 LED
Weight:	190 g
Dimensions:	22.5 x 82 x 98.8 mm

Approvals



Ordering details

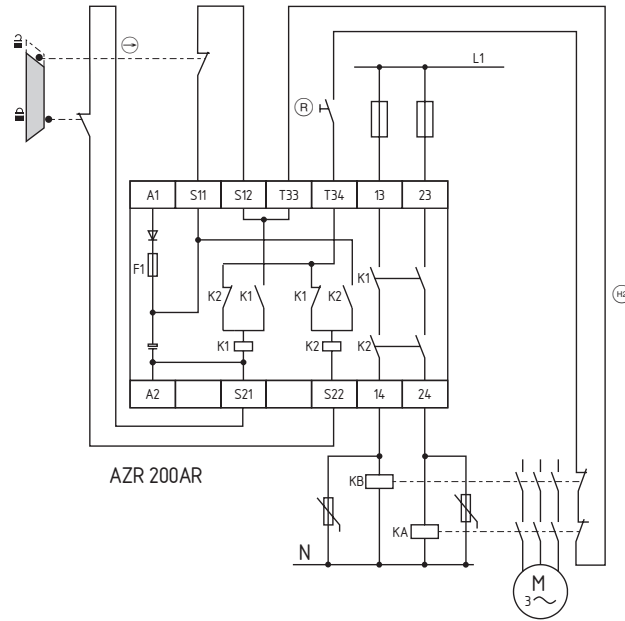
AZR 200 AR

Emergency-Stop and guard door monitoring

Note

- 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 (HG)
- The control recognises 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.
- Automatic start:
The automatic start is programmed by connecting the feedback circuit to terminals T33/T34. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

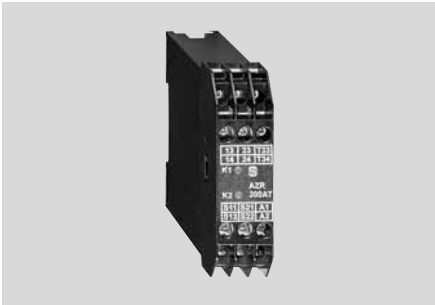
- Position relay K1
- Position relay K2
- Supply voltage U_B

Note

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

Emergency-Stop and guard door monitoring

AZR 200 AT

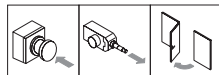


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- 2 channel control
- 2 enabling paths, Stop 0
- Cross-wire monitoring
- Manual reset with edge detection in fail-safe circuit
- Automatic reset function
- Green LED indications for relay K1, K2
- Control Category 4 to EN 954-1

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10%
I _e :	max. 0.11 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 2.5 VA
Max. fuse rating:	internal electronic trip F1, tripping current > 0,6 A, reset after approx. 1 s
Monitored inputs	2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	2 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 3 A/230 VAC, 2 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 50 ms
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	2 LED
Weight:	190 g
Dimensions:	22.5 x 82 x 98.8 mm

Approvals



Ordering details

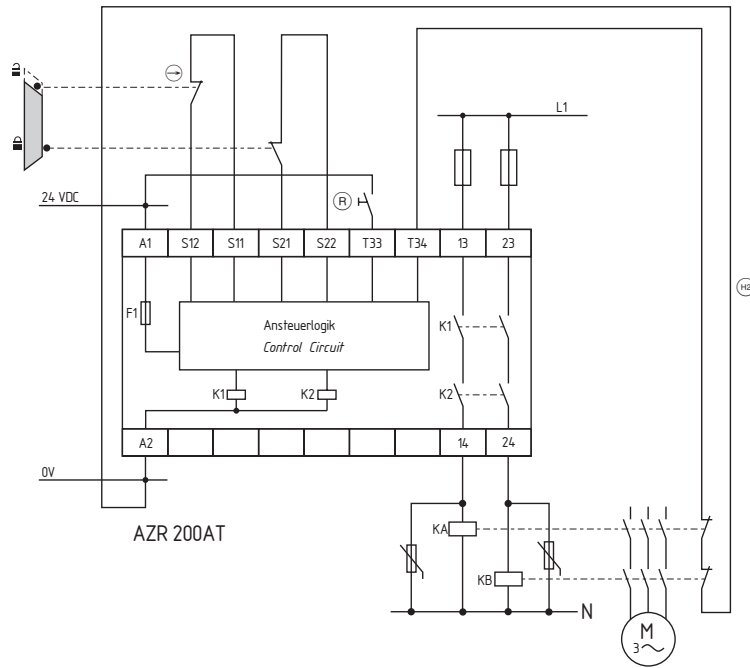
AZR 200 AT

Emergency-Stop and guard door monitoring

Note

- Input level: the example shows a 2-channel control of a guard door monitoring with two position switches, whereof one with positive break, and external reset button (R) with edge detection
- The control recognises 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.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2

Note

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

Emergency-Stop and guard door monitoring

SRB 202 C.



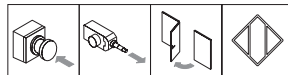
- Two-functions safety monitoring module (double evaluation)
- 2 enabling paths with different shut-down behaviour, e.g. Emergency Stop opens both enabling paths (level 1) guard door monitoring only opens the second enabling path (level 2)
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices (level 1), position switches with safety function, solenoid interlocks and safety sensors (level 2)
- 2 indication contacts: NC (2 planes)
- Cross-wire monitoring (optional)
- Level 1: reset with or without edge detection (option) or automatic start
Level 2: reset without edge detection or automatic start
- 1 or 2 channel control
- 6 LEDs to show operating conditions
- NC/NC contact or NC/NO contact signal evaluation in level 2 optionally
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0
Control category:	4
Start conditions:	reset button with / without edge detection (option), with automatic reset, with / without cross-wire monitoring (option)
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10%
I _e :	max. 0.18 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 4.4 W
Max. fuse rating:	internal electronic trip F1, tripping current > 1 A, reset after approx. 1 s
Monitored inputs	1/2-channel NC/NC contact and 2-channel NC/NO contact (depending on the version)
Feedback circuit:	yes
Drive circuits:	S12, S22, S43/S44, S31/S32: max. 28 VDC
Enabling contacts:	2 enabling paths
Switching capacity:	Enabling path 13-14/13-24: max. residual current 230 V, 6 A ohmic (inductive in case of appropriate protective wiring)
Utilisation category:	AC-15: 250 V / 1.5 A DC-13: 24 V / 1.2 A
Signalling contacts:	2 NC contacts
Switching capacity:	Indicating contact: 2 A/24 VDC
Contact material:	AgNi, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 40 ms (plane 1) ≤ 0.5 s (plane 2)
Drop-out delay:	≤ 50 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	-25 °C ... +45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LEDs
Weight:	235 g
Dimensions:	22.5 x 100 x 121 mm

Approvals

in preparation



Ordering details

SRB 202 C.

Refer to table right

Ordering details

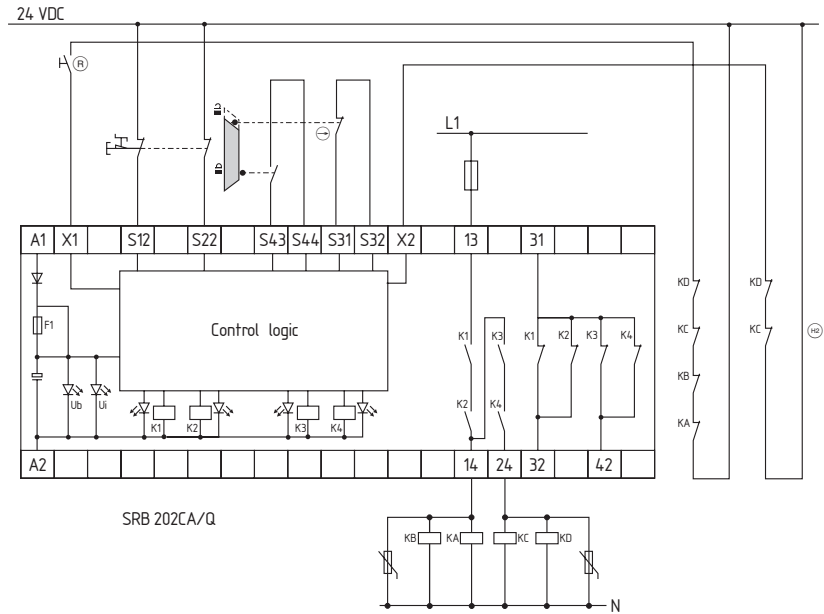
	Level 1: Sensor	Level 2: start conditions:
	NC contact/NC contact	Reset without edge detection, optionally with automatic reset
SRB 202 CS/T	Reset with trailing edge	NC contact/NC contact
SRB 202 CS	Reset without edge detection, optionally with automatic reset	NC contact/NC contact
SRB 202 CA/T	Reset with trailing edge	NC contact/NO contact
SRB 202 CA/QT	Reset with trailing edge, Cross-wire monitoring	NC contact/NO contact
SRB 202 CA	Reset without edge detection, optionally with automatic reset	NC contact/NO contact
SRB 202 CA/Q	Reset without edge detection, optionally with automatic reset, Cross-wire monitoring	NC contact/NO contact

Emergency-Stop and guard door monitoring

Note

- Input level: the example shows a 2-channel control of an Emergency Stop command device (level 1) with external reset button (Ⓡ), and guard door monitoring (level 2) with feedback circuit (Ⓢ)
- 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.
- Automatic start:
 Level 1: the automatic start is programmed by connecting the feedback circuit to the terminals X1/+24VDC.
 Level 2: the automatic start is programmed by connecting the feedback circuit to the terminals X2/+24VDC.
 If the feedback circuit is not required, establish a bridge.
- 1 NC contact each time communicates the status of level 1 and level 2

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Position relay K3
- Position relay K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 400 C.



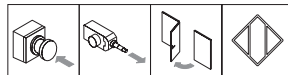
- Multi purpose safety monitoring module (double evaluation)
- 2 x 2 enabling paths with different shut-down behaviour, e.g. Emergency Stop opens both enabling paths (level 1) guard door monitoring only opens the second enabling path (level 2)
- Signal evaluation of potential-free contacts, e.g. emergency stop command devices (level 1), position switches with safety function, solenoid interlocks and safety sensors (level 2)
- Cross-wire monitoring (optional)
- Level 1: reset with or without edge detection (option) or automatic start
Level 2: reset without edge detection or automatic start
- 1 or 2 channel control
- 6 LEDs to show operating conditions
- NC/NC contact or NC/NO contact signal evaluation in level 2 optionally
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	4x Stop 0
Control category:	4
Start conditions:	reset button with / without edge detection (option), with automatic reset, with / without cross-wire monitoring (option)
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10%
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
I _e :	max. 0.18 A
Power consumption:	max. 4.4 W
Max. fuse rating:	internal electronic trip F1, tripping current > 1 A, reset after approx. 1 s
Monitored inputs	1/2-channel NC contact / NC contact and 2-channel NC/NO contact (depending on the version)
Feedback circuit:	yes
Drive circuits:	S12, S22, S43/S44, S31/S32: max. 28 VDC
Enabling contacts:	4 enabling paths
Switching capacity:	Enabling paths 13-14/13-24 and 33-34/33-44: max. residual current 230 V each, 6 A ohmic (inductive in case of appropriate protective wiring)
Utilisation category:	AC-15: 250 V / 1.5 A DC-13: 24 V / 1.2 A
Contact material:	AgNi, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 40 ms (plane 1) ≤ 0.5 s (plane 2)
Drop-out delay:	≤ 50 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LEDs
Weight:	235 g
Dimensions:	22.5 x 100 x 121 mm

Approvals

in preparation



Ordering details

SRB 400 C.

Refer to table right

Ordering details

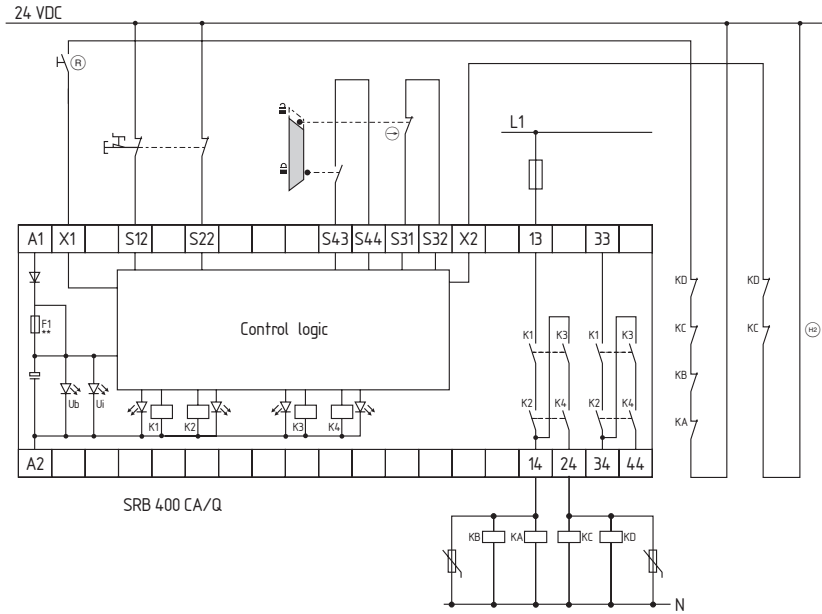
	Level 1: Sensor	Level 2: start conditions:
	NC contact/NC contact	Reset without edge detection, optionally with automatic reset
SRB 400 CS/T	Reset with trailing edge	NC contact/NC contact
SRB 400 CS	Reset without edge detection, optionally with automatic reset	NC contact/NC contact
SRB 400 CA/T	Reset with trailing edge	NC contact/NO contact
SRB 400 CA/QT	Reset with trailing edge, Cross-wire monitoring	NC contact/NO contact
SRB 400 CA	Reset without edge detection, optionally with automatic reset	NC contact/NO contact
SRB 400 CA/Q	Reset without edge detection, optionally with automatic reset, Cross-wire monitoring	NC contact/NO contact

Emergency-Stop and guard door monitoring

Note

- Input level: the example shows a 2-channel control of an Emergency Stop command device (level 1) with external reset button $\text{\textcircled{R}}$, and guard door monitoring (level 2) with feedback circuit $\text{\textcircled{H}}$
- 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.
- Automatic start:
 - Level 1: the automatic start is programmed by connecting the feedback circuit to the terminals X1/+24VDC.
 - Level 2: the automatic start is programmed by connecting the feedback circuit to the terminals X2/+24VDC.
 - If the feedback circuit is not required, establish a bridge

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Position relay K3
- Position relay K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

AZR 501 AT

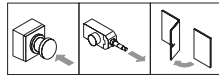


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- Suitable for signal processing of outputs connected to potentials (AOPD's), e.g. safety light grids/curtains
- 1 or 2 channel control
- 5 enabling paths, Stop 0
- Acknowledgement output, normally-closed function (with potential)
- Optionally
 - Cross-wire detection
 - Automatic reset function
 - Manual reset with edge detection in fail-safe circuit
- Green LED indications for relay K1, K2, K3, K4, supply voltage U_B and internal fuse U_i
- Control Category 4 to EN 954-1

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	5x Stop 0
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC – 15 % / + 20 %, residual ripple max. 10% 24 VAC – 15 % / + 6 %
Frequency range:	50/60 Hz (on AC operational voltage)
I_e :	max. 0.15 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 3.6 VA plus signalling contact 66
Max. fuse rating:	glass fuse F1, tripping current 0.5 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12: max. 28 VDC
Enabling contacts:	5 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 4 A/230 VAC, 4 A/24 VDC
Fuse rating:	enabling paths: 4 A gG D-fuse
Max. switching frequency:	5 Hz
Auxiliary contacts:	66
Switching capacity:	auxiliary contacts: 0.5 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 60 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LED
Weight:	460 g
Dimensions:	45 x 83 x 140 mm

Approvals



Ordering details

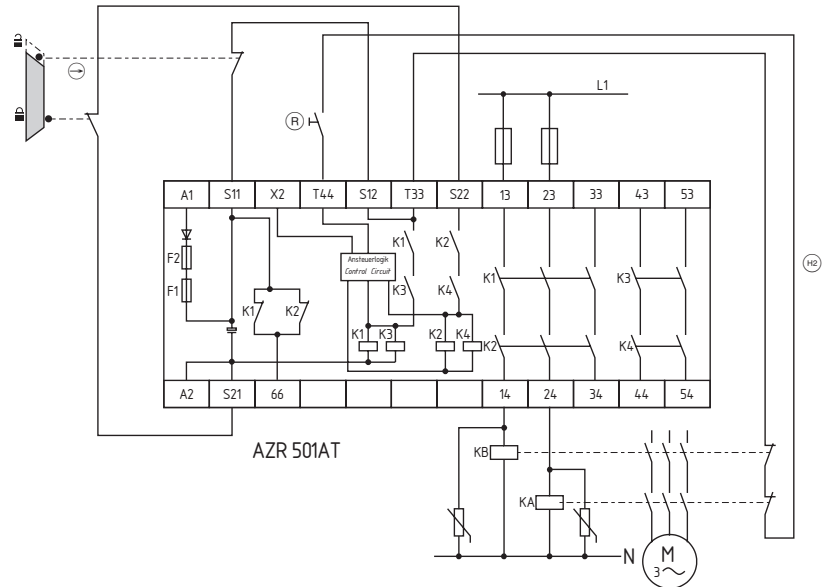
AZR 501 AT

Emergency-Stop and guard door monitoring

Note

- 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 (HG)
- The control recognises cross short, cable break and earth leakages in the monitoring circuit.
- For 1-channel control, bridge NC contact S12/S22
- 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.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Position relay K3
- Position relay K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

AZR 301 AL

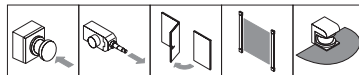


- Signal processing of potential-free outputs, e.g. emergency stop command devices, interlocking devices, etc.
- Restrictedly suitable for signal processing (no reset with edge detection) of potentials (AOPD's), e.g. safety light grids/curtains
- 1 or 2 channel control
- 3 enabling paths, Stop 0
- Acknowledgement output, normally-closed function (potential-free)
- Manual reset without edge detection
- Automatic reset function
- Green LED indications for relay K1, K2, supply voltage U_B and internal fuse U_i
- Control Category 4 to EN 954-1

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0
Control category:	4
Start conditions:	reset button without edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	plug-in, screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC, 115 VAC, 230 VAC -15%/+6%
Frequency range:	50/60 Hz (on AC operational voltage)
I_e :	max. 0.15 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 2.5 VA
Max. fuse rating:	glass fuse F1: tripping current 0.25 A F2 A: tripping current 0.125 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S11/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Auxiliary contacts:	45/46
Switching capacity:	auxiliary contacts: 2 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 20 ms
Drop-out delay:	≤ 50 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	-25 °C ... +45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LED
Weight:	280 g (190g for 24V version)
Dimensions:	45 x 83 x 140 mm

Approvals



Ordering details

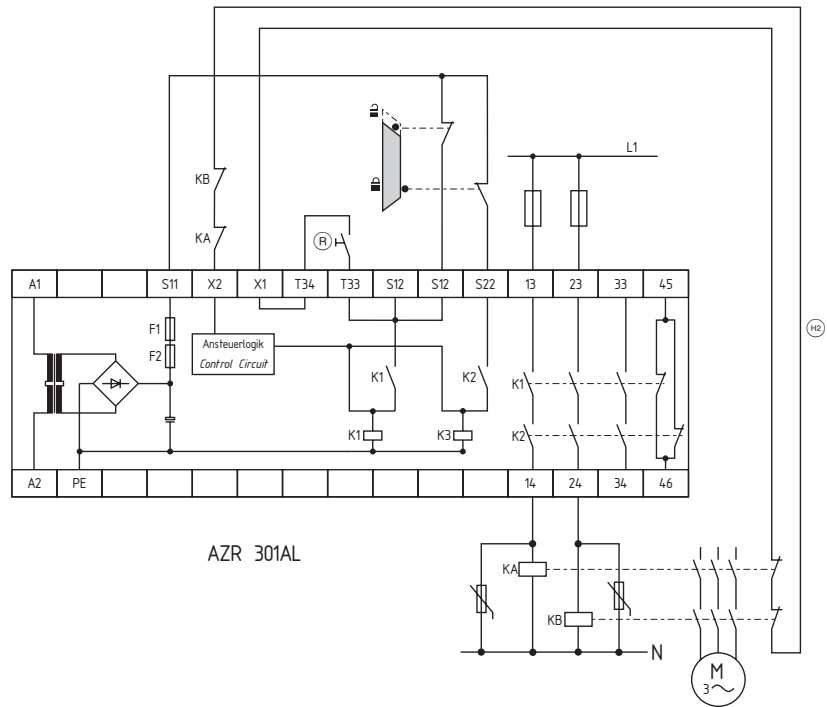
AZR 301 AL

Emergency-Stop and guard door monitoring

Note

- 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) and feedback circuit (FB)
- The control recognises 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.
- For operating voltage of the AC-type, a detachable connection is required between the device and the ground to DIN VDE 0100 Part 725

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operational states.

- Position relay K1
- Position relay K2
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 211 ST

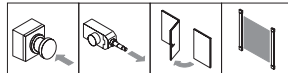


- Signal evaluation of potential-free contacts, e.g. emergency stop command devices, position switches with safety function and solenoid interlocks
- Signal evaluation of potential outputs, for instance safety light curtains and grids
- 1 or 2 channel control
- 2 enabling paths, Stop 0
1 enabling path, Stop 1
- 1 signalling contact (transistor output)
- Optionally cross-wire monitoring, reset with edge detection or automatic start
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0, 1x Stop 1 (1 ... 30 s delayed)
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	0.24 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 5.7 VA, 5.1 W
Max. fuse rating:	internal electronic trip F1, tripping current > 1.0 A, reset after disconnection of supply voltage
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	4 A/230 VAC ohmic (inductive in case of appropriate protective wiring) enabling paths: „stop 0“ 1.5 A/250 V, 1.2 A/24 V „stop 1“ 3 A/250 V, 2 A/24 V
Fuse rating:	enabling paths: 4 A gG D-fuse
Signalling contacts:	24 VDC (internal) / 100 mA
Contact material:	AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 40 ms
Drop-out delay:	≤ 40 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	5 LEDs
Weight:	255 g
Dimensions:	22.5 x 100 x 121 mm

Approvals



Ordering details

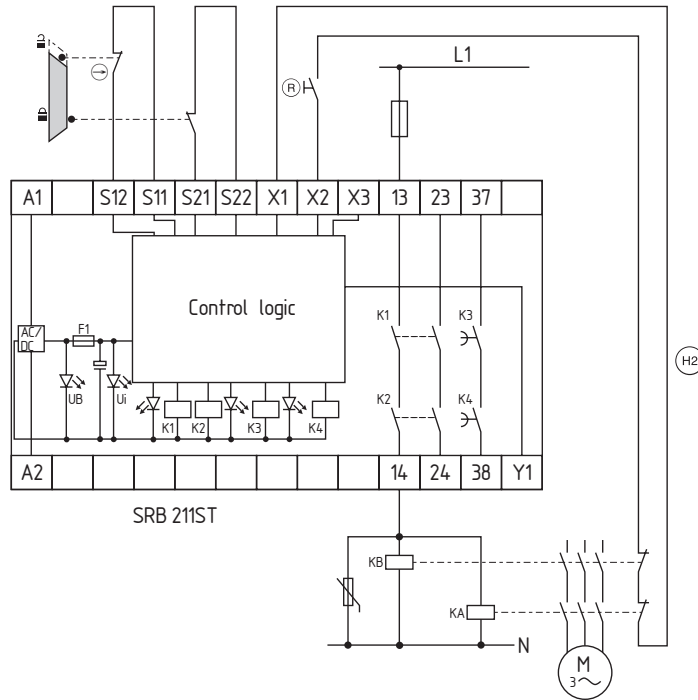
SRB 211 ST

Emergency-Stop and guard door monitoring

Note

- 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 recognises cross short, cable break and earth leakages in the monitoring circuit.
- F1 = Hybrid fuse
- 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/X3. If the feedback circuit is not required, establish a bridge
- Drop-out delay:
The enabling path „Stop 1“ 37/38 is adjustable for 1 to 30 seconds drop-out delay. Setting of the drop-out delay time is carried out by means of a potentiometer from the front of the enclosure.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Position relays K3/K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 324 ST

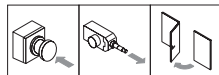


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- Suitable for signal processing of outputs connected to potentials (AOPD's), e.g. safety light grids/curtains
- 1 or 2 channel control
- 5 enabling paths, two delayed 1...30 s
- 3 signalling contacts (transistor output)
- With hybrid fuse
- Optionally
 - Cross-wire detection
 - Automatic reset function
 - Manual reset with edge detection in fail-safe circuit
- Control Category 4 to EN 954-1
- Green LED indications for relay K1, K2, K3, K4, supply voltage U_B and internal fuse U_i

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0, 2x Stop 1 (1 ... 30 s delayed)
Control category:	4
Start conditions:	start, reset button (trailing edge), autostart
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	plug-in, screw terminals
Cable section:	min. 0,2 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
Frequency range:	50/60 Hz (on AC operational voltage)
I_e :	max. 0.2 A (DC version), plus signalling outputs Y1-Y3
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 7.8 VA; 4.8 W plus signalling outputs Y1-Y3
Max. fuse rating:	internal electronic trip F1, tripping current > 0.5 A, reset after disconnection of supply voltage
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	5 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths "Stop 0": 6 A/230 VAC, 6 A/24 VDC enabling paths "Stop 1": 3 A/230 VAC, 2 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Auxiliary contacts:	61/62:
Switching capacity:	auxiliary contacts: 2 A/24 VDC
Signalling output:	Y1 - Y3: 8 transistor outputs 100 mA total, short-circuit proof
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 30 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overtoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LED
Weight:	480 g
Dimensions:	45 x 100 x 121 mm

Approvals



Ordering details

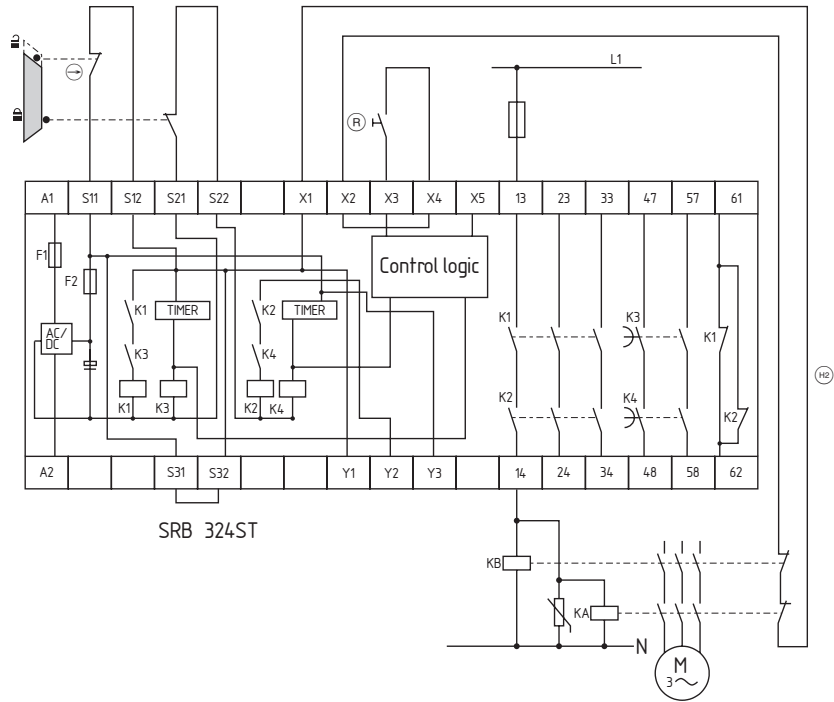
SRB 324 ST

Emergency-Stop and guard door monitoring

Note

- Input level: the example shows a 2-channel control of a guard door monitoring with two position switches, wherof one with positive break, external reset button (R); cross-wire monitoring and feedback circuit (HG)
- The control recognises cross short, cable break and earth leakages in the monitoring circuit.
- F1 = Hybrid fuse
- 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 the NC contact to S11/S12 and bridge S12/S32 and S21/S22
- Connect potential p-type outputs of safety light grids/curtains to S12/S32 and bridge S21/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 at X1/X2 and X4/X5.
- Drop-out delay:
The enabling path "Stop 1" 37/38 is adjustable for 1 to 30 seconds drop-out delay. Setting of the drop-out delay time is carried out by means of a DIP switch from the front of the enclosure.
- Signalling outputs
Y1 = Status input S12
Y2 = Status input S22
Y3 = Status operating voltage

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Position relay K3
- Position relay K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

AZR 031 AR

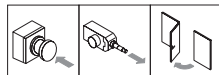


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- 1 or 2 channel control
- 3 enabling paths, Stop 1 (Drop-out delay 1,1 s)
- Acknowledgement output, normally-closed function (delayed, potential-free)
- Cross-wire monitoring
- Manual reset without edge detection
- Automatic reset function
- Green LED indications for relay K1, K2 and supply voltage U_B
- Control Category 4 to EN 954-1

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 1
Control category:	3
Start conditions:	reset button without edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC – 15 % / + 20 %, residual ripple max. 10%
I_e :	max. 0.02 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 2.5 VA
Max. fuse rating:	glass fuse F1, tripping current 0,25 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	A1, A2: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Auxiliary contacts:	45/46
Switching capacity:	auxiliary contacts: 2 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 50 ms
Drop-out delay:	≤ 50 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	3 LED
Weight:	190 g
Dimensions:	22.5 x 82 x 98.8 mm

Approvals



Ordering details

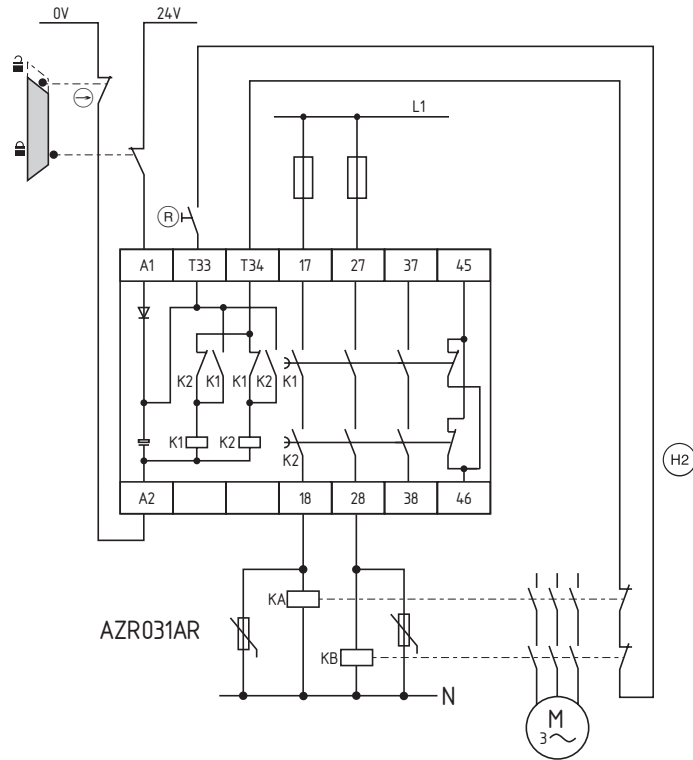
AZR 031 AR

Emergency-Stop and guard door monitoring

Note

- 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 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.
- For a 1-channel control, connect NC contact to L+/A1
- Automatic start:
The automatic start is programmed by connecting the feedback circuit to terminals T33/T34. If no feedback circuit is required, establish a bridge.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Supply voltage U_B

Note

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

Emergency-Stop and guard door monitoring

SRB-NA-R-C.19

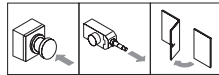


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- Suitable for signal processing of outputs connected to potentials (AOPD's), e.g. safety light grids/curtains
- 1 or 2 channel control
- 3 enabling paths, Stop 1 (Drop-out delay 0,7...5,3 s)
- Optionally:
 - Automatic reset function
 - Manual reset with edge detection in fail-safe circuit
- Control Category 4 to EN 954-1
- Green LED indications for relay K2, K3, K4 and internal fuse U_i

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 1
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0.5 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC – 15 % / + 20 %, residual ripple max. 10%
I _e :	max. 0.125 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	< 3 W
Max. fuse rating:	glass fuse, tripping current F1: 0.25 A F2: 0.5 A F3: 0.1 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	T11/S11, T11/S2: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 100 ms
Drop-out delay:	0.7 ... 5.3 s
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	4 LED
Weight:	390 g
Dimensions:	45 x 83 x 140 mm

Approvals



Ordering details

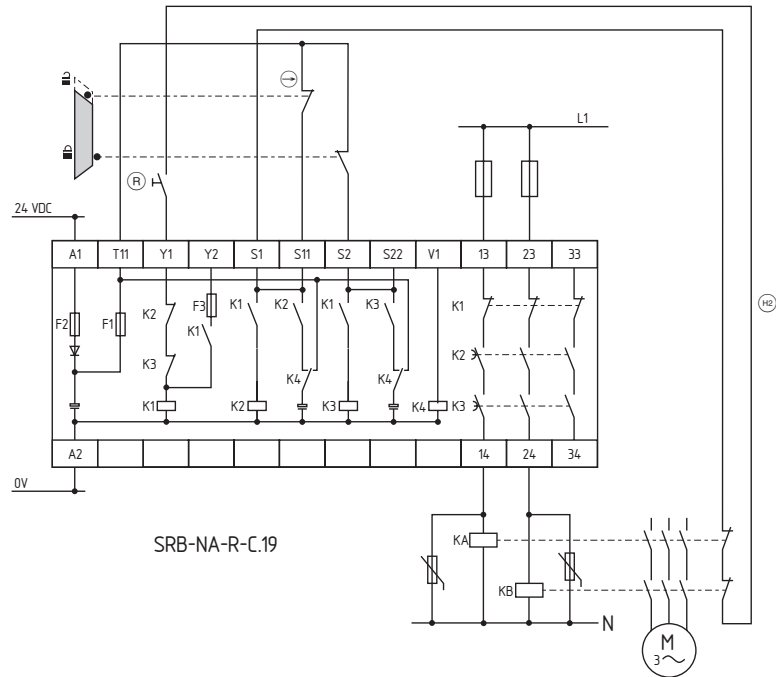
SRB-NA-R-C.19

Emergency-Stop and guard door monitoring

Note

- 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) and feedback circuit (H2)
- The control recognises 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.
- For a 1-channel control, connect NC contact to T11/S1
- Automatic start: The automatic start is programmed by connecting the feedback circuit to terminals S11/Y1. If no feedback circuit is required, establish a bridge.
- Dropout delay: The enabling paths „Stop 1“ (13/14, 23/24, 33/34) are adjustable for 0.7 to 5.3 seconds dropout delay. The dropout delay is set by means of a DIP switch at the rear of the enclosure

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K2
- Position relay K3
- Position relay K4
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB-NA-R-C.31

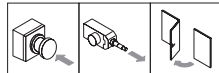


- Suitable for signal processing of potential-free outputs, e.g. emergency-stop command devices, interlocking equipment etc.
- 1 or 2 channel control
- 4 enabling paths, one delayed: 0.5 s
- Manual reset without edge detection
- Automatic reset function
- Control Category 4 to EN 954-1
- Green LED indications for relay K1, K2, K3, K4, supply voltage U_B and internal fuse U_i

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	3x Stop 0, 1x Stop 1 (0,5 s delayed)
Control category:	4
Start conditions:	reset button without edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	self-opening screw terminals
Cable section:	min. 0.5 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC – 15 % / + 20 %, residual ripple max. 10%
I_e :	max. 0.2 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 4.5 W
Max. fuse rating:	glass fuse F1: tripping current 1.25 A F2 A: tripping current 1.0 A
Monitored inputs	1 or 2 channels
Feedback circuit:	yes
Drive circuits:	C1/S1, C1/S2: max. 28 VDC
Enabling contacts:	4 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 4 A/230 VAC, 4 A/24 VDC
Fuse rating:	enabling paths: 4 A gG D-fuse
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 200 ms
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	6 LED
Weight:	390 g
Dimensions:	45 x 83 x 140 mm

Approvals



Ordering details

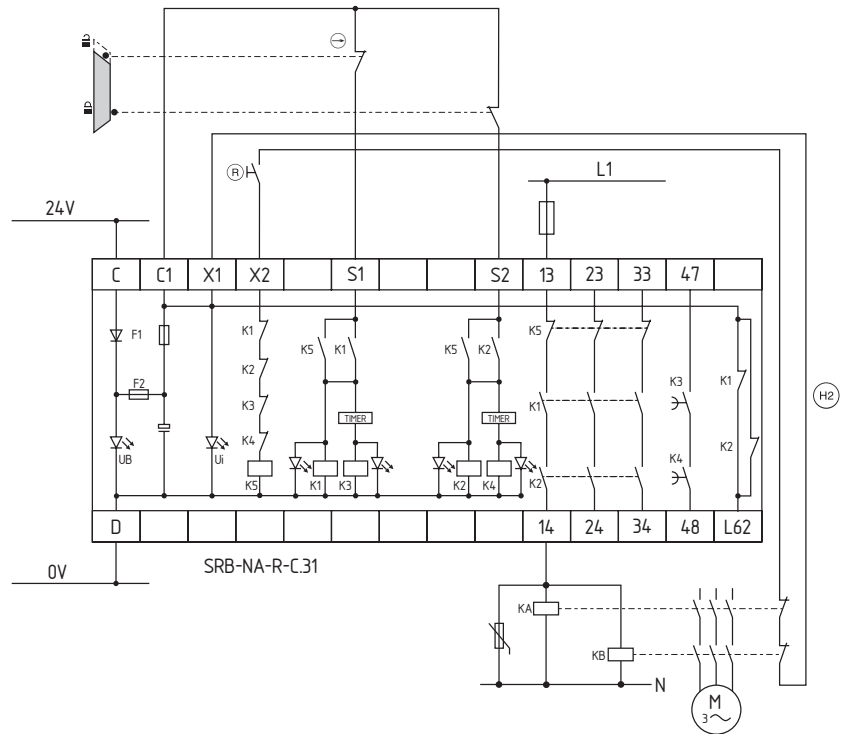
SRB-NA-R-C.31

Emergency-Stop and guard door monitoring

Note

- 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) and feedback circuit (H2)
- The control recognises 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.
- For 1-channel control, connect NC contact to S11/S12 and bridge S12/S22
- Automatic start: The automatic start is programmed by connecting the feedback circuit to the terminals X1/X3. If the feedback circuit is not required, establish a bridge
- Drop-out delay: The enabling path "Stop 1" 37/38 is adjustable for 1 to 30 seconds drop-out delay. Setting of the drop-out delay time is carried out by means of a potentiometer from the front of the enclosure.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

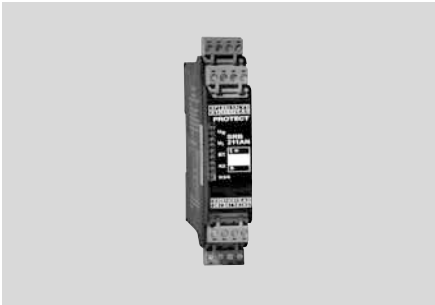
- Position relay K1
- Position relay K2
- Position relay K3
- Position relay K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Emergency-Stop and guard door monitoring

SRB 211 AN

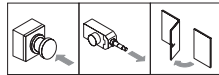


- Fit for signal evaluation of potential-free outputs, e.g. emergency-stop command devices, interlocking devices, etc.
- Fit for signal evaluation of outputs of safety magnetic switches (to this end, integrated current and voltage limiters; please observe technical specifications)
- 1 or 2 channel control
- 2 enabling paths, Stop 0;
1 enabling path, Stop 1
- Acknowledgement output, normally-closed function (with potential)
- With hybrid fuse
- Cross-wire monitoring
- Optionally:
 - Automatic reset function
 - Manual reset with edge detection in fail-safe circuit
- Control Category 4 to EN 954-1
- Green LED indications for relay K1, K2, K3, K4, supply voltage U_B and internal fuse U_i

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	2x Stop 0, 1x Stop 1
Control category:	4
Start conditions:	reset button with edge detection, auto start
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	plug-in, screw terminals
Cable section:	min. 0,2 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U_e :	24 VDC – 15 % / + 20 %, residual ripple max. 10% 24 VAC – 15 % / + 10 %
Frequency range:	50/60 Hz (on AC operational voltage)
I_e :	max. 0.24 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 5.7 VA, 5.1 W
Max. fuse rating:	internal electronic trip F1, tripping current > 0,375 A, reset after disconnection of supply voltage
Monitored inputs	2 channels NO contact / NC contact
Feedback circuit:	yes
Drive circuits:	S11/S12, S21/S22: max. 28 VDC
Enabling contacts:	3 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC (ohmic) enabling paths "Stop 0": 1.5 A/230 VAC, 1.2 A/24 VDC enabling paths "Stop 1": 3 A/230 VAC, 2 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Auxiliary contacts:	Y1
Switching capacity:	auxiliary contacts: 0.1 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 40 ms
Drop-out delay:	≤ 40 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overtoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	5 LED
Weight:	255 g
Dimensions:	22.5 x 100 x 121 mm

Approvals



Ordering details

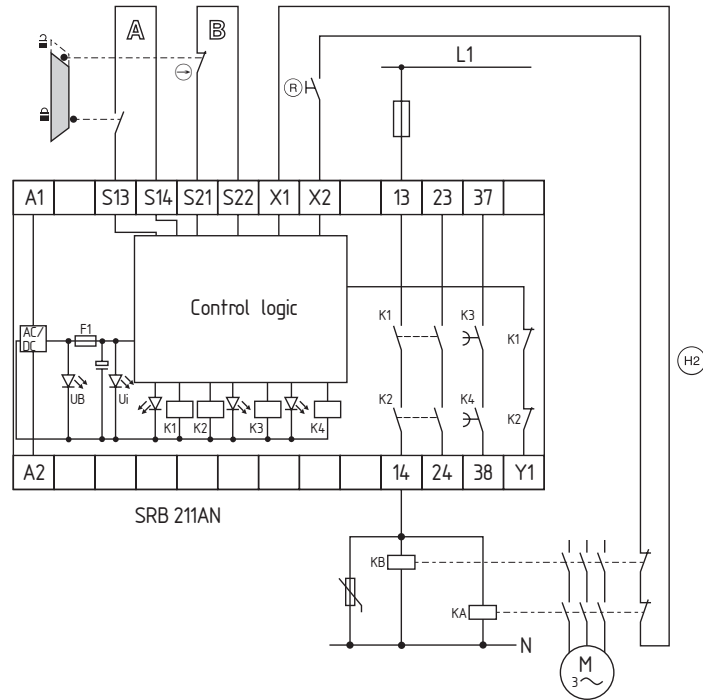
SRB 211 AN

Emergency-Stop and guard door monitoring

Note

- 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) and feedback circuit (H2)
- 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.
- Time delay
The time-delayed safety enable 37/38 is adjustable for 1 to 30 seconds drop-out delay (see setting instructions).
- The safety enabling circuit 37/38 conforms to EN 60204-1 for STOP Category 1. The safety enabling circuits 13/14 and 23/24 conform to EN 60204-1 for STOP Category 0.
- Setting of the drop-out delay time is carried out by means of a potentiometer from the front of the enclosure.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Position relays K3/K4
- Supply voltage U_B
- Internal operating voltage U_i

Note

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

Output expander

SRB 402 EM



- Expander module for contact expansion
- 4 enabling paths, Stop 0
- 2 indication contacts (NC)
- LED display of operating conditions
- Control category 4 to EN 954-1 depending on the used safety relay module
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	4x Stop 0
Control category:	max. 4 (depending on the connected safety relay module)
Enclosure:	glass-fibre reinforced thermoplastic, ventilated
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC -15%/+20%, residual ripple max. 10% 24 VAC -15%/+10%
I _e :	max. 0.05 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	1 VA
Max. fuse rating:	glass fuse F1, tripping current 1.0 A
Drive circuits:	A1: max. 28 VDC A2: 0 V A1/A2: 26 VAC
Enabling contacts:	4 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Signalling contacts:	2 NC contacts
Switching capacity:	indicating contact: 2 A/24 VDC
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 35 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Function display:	1 LED
Weight:	230 g
Dimensions:	22.5 x 100 x 121 mm

Approvals



Ordering details

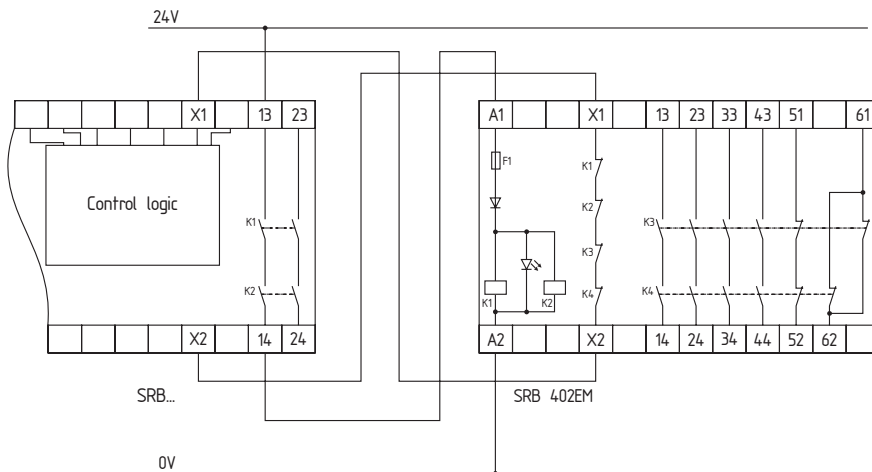
SRB 402 EM

Output expander

Note

- Power level: 1-channel control of the expander module SRB 402 EM is suitable for contact reinforcement or multiplication of the connected safety relay module.
- Terminals X1 and X2 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1/K2

Note

The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.

Output expander

AZR 600 EO



- Expander module for contact expansion
- 6 enabling paths, Stop 0
- Control category 4 to EN 954-1 depending on the used safety relay module

Technical data

Standards:	IEC/EN 60204-1; EN 954-1; BG-GS-ET-20
Stop category	6x Stop 0 (depending on the connected safety relay module)
Control category:	max. 4 (depending on the connected safety relay module)
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	plug-in, screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC – 15 % / + 20 %, residual ripple max. 10%
I _e :	max. 0.10 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	2.4 W
Max. fuse rating:	External protection of operating voltage: M 0.25 A
Drive circuits:	S14/A2: max. 28 VDC
Enabling contacts:	6 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 30 ms
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Weight:	870 g
Dimensions:	83 x 90 x 127 mm

Approvals



Ordering details

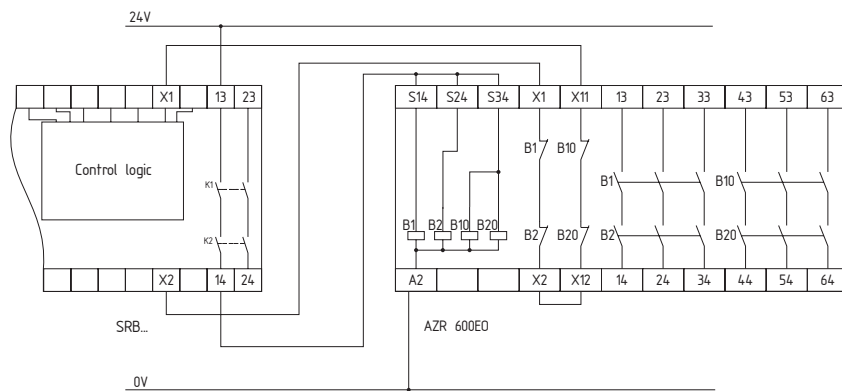
AZR 600 EO

Output expander

Note

- Power level: 1-channel control of the expander module is suitable for contact reinforcement or multiplication of the connected safety relay module.
- Terminals X1 and X2 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module.

Wiring diagram



Note

The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.

Output expander

AZR 401 EO



- Expander module for contact expansion
- 4 enabling paths, Stop 0
- 1 indication contact (NC)
- Control category 4 to EN 954-1 depending on the used safety relay module

Technical data

Standards:	IEC/EN 60204-1; EN 954-1; BG-GS-ET-20
Stop category	4x Stop 0 (depending on the connected safety relay module)
Control category:	max. 4 (depending on the connected safety relay module)
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	plug-in, screw terminals
Cable section:	min. 0.6 mm ² , max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	115 VAC 230 VAC – 15 % / + 6 %
I _e :	max. 0.5 A
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	1.2 VA
Max. fuse rating:	External protection of operating voltage: M 0.25 A
Drive circuits:	S13/S14, S23/S24: max. 28 VDC
Enabling contacts:	4 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Fuse rating:	enabling paths: 6 A gG D-fuse
Max. switching frequency:	5 Hz
Contact material:	AgNi, AgSnO, self-cleaning, positive action
Contact resistance:	max. 100 mΩ in new condition
Pull-in delay:	≤ 20 ms
Drop-out delay:	≤ 20 ms
Air clearances and creepage distances:	DIN VDE 0110-1 (04.97), 4 kV/2
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	– 25 °C ... + 45 °C (Derating curve on request)
Mechanical life:	10 million operations
Weight:	410 g
Dimensions:	83 x 90 x 127 mm

Approvals



Ordering details

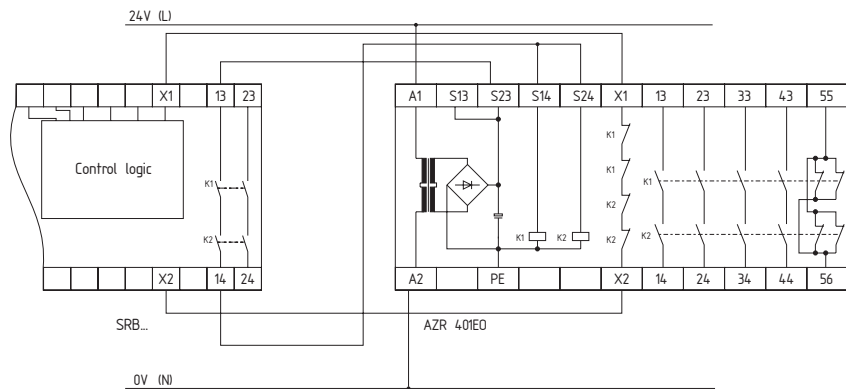
AZR 401 EO

Output expander

Note

- Power level: 1-channel control of the expander module is suitable for contact reinforcement or multiplication of the connected safety relay module.
- Terminals X1 and X2 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module.

Wiring diagram



Note

The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.

Output expander

AZR 62 A2



- Expander module for contact expansion
- 6 enabling paths, Stop 0
- 2 potential-free indication contacts:
2 NC contacts in series;
2 NC contacts in parallel
- Available for various operating voltages
- LEDs to show operating conditions
- Removable terminal block
- Control category 4 to EN 954-1 depending on the used safety relay module

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category:	6x Stop 0 (depending on the connected safety relay module)
Control category:	max. 4 (depending on the connected safety relay module)
Enclosure:	polycarbonate
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² (incl. conductor ferrules)
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
U _e :	24 VDC
	24 VAC
	110 VAC ± 15 %
	230 VAC ± 15 %
Power consumption:	< 3 W
Inputs:	S13/14 and S23/24 potential-free NC contacts
Enabling contacts:	6 enabling paths
Utilisation category:	AC-15, DC-13
Switching capacity:	6 A / 250 VAC
	3 A / 24 VDC
Fuse rating:	6 A gG D-fuse
Signalling output:	2 NC contacts
Switch-on time:	< 30 ms
Switch-off time:	< 150 ms
Indications:	green LED's for control voltage and output
Max. switching frequency:	5 Hz
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C
Function display:	3 LED
Weight:	510 g
Dimensions:	100 x 73.2 x 121 mm

Approvals



Ordering details

AZR 62 A2 ①

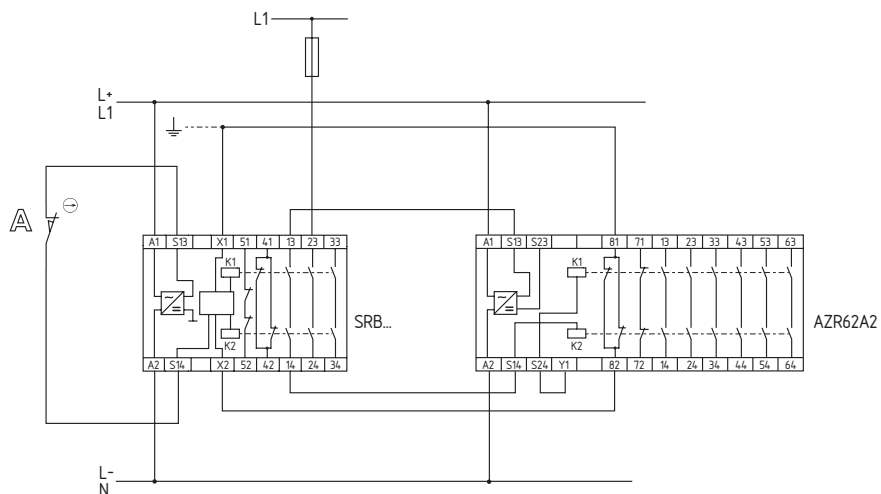
No.	Replace	Description
①	24VDC	24 VDC
	24VAC	24 VAC
	110VAC	110 VAC
	223VAC	230 VAC

Output expander

Note

- Power level: 1-channel control of the expander module is suitable for contact reinforcement or multiplication of the connected safety relay module.
- Terminals 81 and 82 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module.

Wiring diagram



Note

The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.

Output expander

AZR 32 V1



- Expander module for contact expansion
- 3 enabling paths, Stop 1 (Drop-out delay 0 ... 15 s)
- Drop-out delay can be set between 0 to 15 s in 1 second steps
- 2 potential-free indication contacts
- Available for various operating voltages
- LEDs to show operating conditions
- Control category 4 to EN 954-1 depending on the used safety relay module

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	6x Stop 1
Control category:	max. 4 (depending on the connected safety relay module)
Drop-out delay:	0 ... 15 s
Feedback circuit:	yes
Enclosure:	polycarbonate
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² (incl. conductor ferrules)
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
U _e :	24 VDC 24 VAC 110 VAC ± 15 % 230 VAC ± 15 %
I _e :	0.13 A (DC version)
Power consumption:	< 3 W
Inputs:	potential-free NC contacts (S13/14), potential-free feedback input (X1/X2)
Enabling contacts:	3 enabling paths, delayed
Utilisation category:	AC-15, DC-13
Switching capacity:	6 A / 250 VAC 3 A / 24 VDC
Fuse rating:	6 A gG D-fuse
Signalling output:	1 NC contact, delayed 1 NO contact
Switch-on time:	< 30 ms ... max. 3 s
Switch-off time:	< 150 ms ... max. 15 s (setting in 1 second steps)
Indications:	green LED's for control voltage and output
Max. switching frequency:	5 Hz
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C
Function display:	2 LED
Weight:	450 g
Dimensions:	45 x 73.2 x 121 mm

Approvals



Ordering details

AZR 32 V1 ①

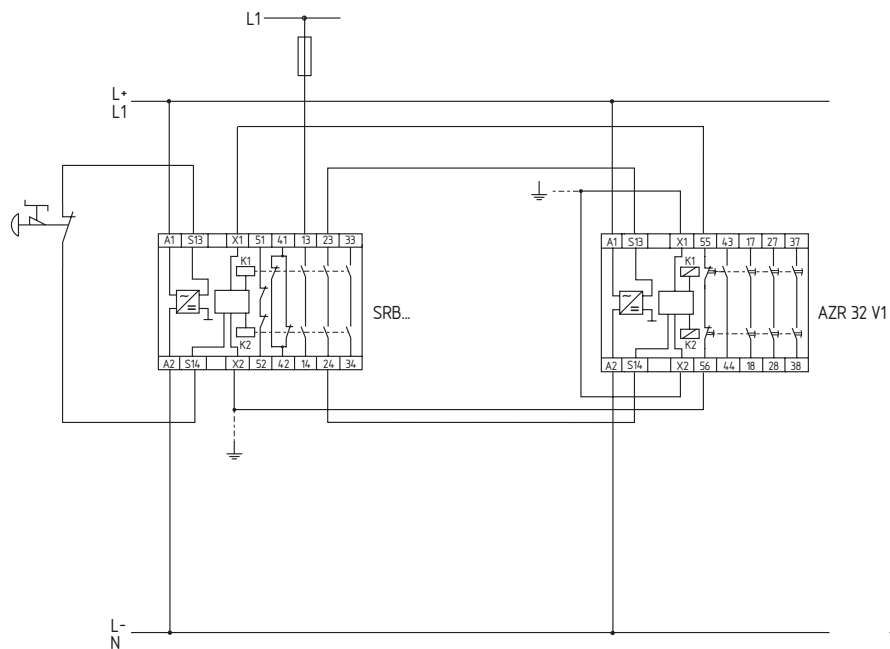
No.	Replace	Description
①	24VDC	24 VDC
	24VAC	24 VAC
	110VAC	110 VAC
	223VAC	230 VAC

Output expander

Note

- Power level: 1-channel control of the expander module is suitable for contact reinforcement or multiplication of the connected safety relay module.
- Terminals 55 and 56 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module.

Wiring diagram



Note

The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.

Output expander

AZR 63 V2



- Expander module for contact expansion
- 6 enabling paths, Stop 1 (Drop-out delay 0 ... 30 s)
- Drop-out delay can be set between 0 to 30 s in 2 second steps
- 3 potential-free indication contacts:
 - 1 undelayed NO contact,
 - 2 delayed NC contacts in series,
 - 2 NC contacts in parallel
- Available for various operating voltages
- LEDs to show operating conditions
- Removable terminal block
- Control category 4 to EN 954-1 depending on the used safety relay module

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Stop category	6x Stop 1
Control category:	max. 4 (depending on the connected safety relay module)
Drop-out delay:	0 ... 30 s
Enclosure:	polycarbonate
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² (incl. conductor ferrules)
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
U _e :	24 VDC 24 VAC 110 VAC ± 15 % 230 VAC ± 15 %
Power consumption:	< 3 W
Inputs:	S13/14 and S23/24 potential-free NC contacts
Enabling contacts:	6 enabling paths, delayed
Utilisation category:	AC-15, DC-13
Switching capacity:	6 A / 250 VAC 3 A / 24 VDC
Fuse rating:	6 A gG D-fuse
Signalling output:	1 NC contact, delayed; 1 NO contact
Switch-on time:	< 30 ms ... max. 3 s
Switch-off time:	< 150 ms ... max. 30 s (setting in 2 second steps)
Indications:	green LED's for control voltage and output
Max. switching frequency:	5 Hz
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	- 25 °C ... + 45 °C
Function display:	3 LED
Weight:	610 g
Dimensions:	100 x 73.2 x 121 mm

Approvals



Ordering details

AZR 63 V2 ①

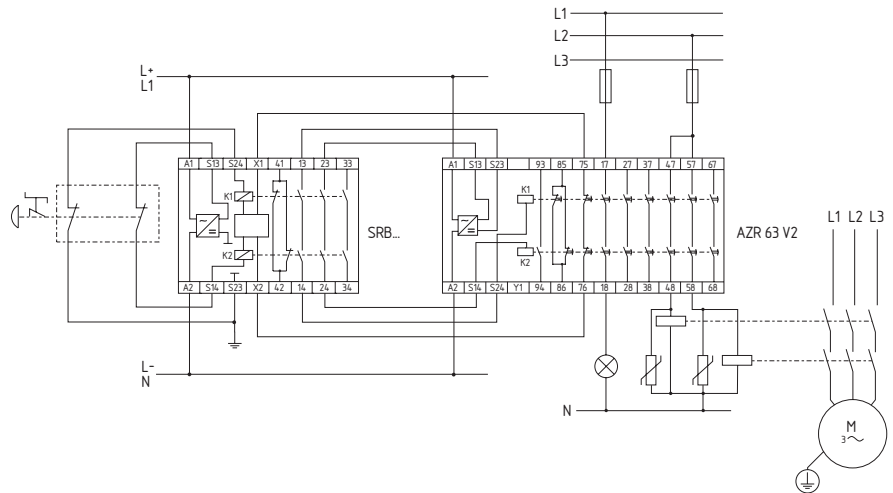
No.	Replace	Description
①	24VDC	24 VDC
	24VAC	24 VAC
	110VAC	110 VAC
	223VAC	230 VAC

Output expander

Note

- Power level: 1-channel control of the expander module is suitable for contact reinforcement or multiplication of the connected safety relay module.
- Terminals 75 and 76 of the expander module must be connected to the feedback circuit or reset circuit of the safety relay module.

Wiring diagram



Note

The wiring diagram shows the control of the expander module by a SRB... safety relay module with the guard doors closed and in de-energised condition.