Schmersal Configurable Safety Relays

SRB-E Electronic Safety Relays

The SRB-E modules are a series of multi-functional, configurable electronic safety relays. Each module can be adjusted to one of multiple preset configurations, which include selecting the type of reset, activating or deactivating cross-wire monitoring, and selecting the monitored contact configuration – all via the rotary dial on the front of the unit.

The SRB-E series provides a higher level of diagnostic capabilities with LEDs for both controller status as well as error fault codes, assisting with troubleshooting safety circuits.

Once the configurations have been set, the lid may be closed and sealed to prevent tampering with the settings.

Features

- Modules with safe PNP outputs
- Modules with safe relay outputs
- Modules with monitoring of two-hand controls
- Modules with monitored input expansion up to Cat 4 PLe
- Fast cycle times (60 switching cycles/ min)
- Modules with high 5.5A PNP switching capacity
- Snap-in blank equipment labels
- Removable terminal blocks for easy wiring

Schmersal SRB-E Electronic Safety Relays Selection Chart

Part Number	Price	Drawing	Emergency stop monitoring	Safety guard monitoring	Pull wire emergency stop	Magnetic safety sensors	Light curtains	Input expander module for up to 4 sensors	Two hand control panels	Input signals: 1 channel	Input signals: 2 channel	Input signals: antivalent	Cross-wire detection	Start button/ autostart	Start button with edge detection	Safe Stop 0 dry contact	Safe Stop 0 semiconductor	Safe Stop 1 dry contact	Safe Stop 1 semiconductor	Not safe dry contact	Not safe semiconductor
			✓ ALLOWABLE																		
			Applications							Input Signals				Start Conditions		Output Contacts					
SRB-E-201LC	$06c91:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓		2				1
SRB-E-201ST	$06c92:	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓		2				1
SRB-E-201ST-CC	$06c93:	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓		2				1
SRB-E-301ST	$06c94:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	3				1	
SRB-E-301ST-CC	$06c95:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	3				1	
SRB-E-402EM	$06c96:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	4				2	
SRB-E-232ST	$06c97:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓		2	3		1	1
SRB-E-232ST-CC	$06c98:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓		2	3		1	1
SRB-E-322ST	$06c99:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	3			2	1	1
SRB-E-322ST-CC	$06c9a:	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	3			2	1	1
SRB-E-204ST	$06c9b:	PDF	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		2				4
SRB-E-204ST-CC	$06c9c:	PDF	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		2				4
SRB-E-204PE	$;06c9f:	PDF	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			2				4
Combination Module for Two Protective Devices																					
SRB-E-402ST	$06c9d:	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	2	2			1	1
SRB-E-402ST-CC	$06c9e:	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	2	2			1	1

Notes:

Stop Category 0 (Stop 0) means immediate loss of power. This is often referred to as an uncontrolled stop.

Stop Category 1 (Stop 1) means there is a delay before the loss of power. The control system should bring the machine to a stop prior to the loss of power. This is often referred to as a controlled stop with removal of power.

Schmersal SRB-E-201 and SRB-E-301 Configurable Safety Relays

SRB-E-301ST

Features

- Pluggable screw terminals or cage clamps
- SAFE STOP 0 function
- 1 or 2-channel control
- Start button / auto-start
- High 5.5 A PNP switching capacity (201ST only)
- Safe PNP outputs (201LC and 201ST only)
- Safe relay outputs (301ST only)
- Monitoring of two-hand controls (201ST only)

Safety Data Values per EN ISO 13849-1, EN 62061, IEC 61508	
Performance Level	Up to e
DC Average	High
SIL CL	Up to 3
HFT (Hardware Failure Tolerance)	1
PFH(D)	≤ 2.66×10^{-9}/h (valid for dual channel and 60% load)

Schmersal SRB-E-201 and SRB-E-301 Selection Chart

Part Number	*Price*	*Type*	*Voltage*	*Connection*	*Configurations*	*Safety Input*	*Safety Output*	*Monitoring Outputs*	*Drawing*
SRB-E-201LC	$06c91:	Safety relay	24 VDC	Pluggable screw terminals	10	1 pair digital	2 OSSD	1 status	PDF
SRB-E-201ST	$06c92:		24 VDC		11				PDF
SRB-E-201ST-CC	$06c93:		24 VDC	Push-in cage clamp	11				PDF
SRB-E-301ST	$06c94:		24 VAC/VDC	Pluggable screw terminals	12		3 NO	1 NC	PDF
SRB-E-301ST-CC	$06c95:		24 VAC/VDC	Push-in cage clamp	12				PDF

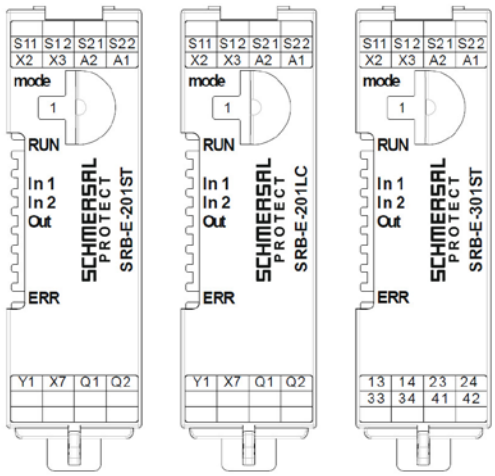
Schmersal SRB-E-201 and SRB-E-301 Specifications

Input/Output Specifications	
Operating Temperature	-25°C [-13°F] to 60°C [140°F]
Storage Temperature	-40°C [-40°F] to 85°C [185°F]
Altitude	2000m [6562ft] max
Vibration Resistance	Tested to EN 60068-2-6
Degree of Protection	IP40
Housing	Glass-fiber reinforced thermoplastic, ventilated
Weight	130g [4.59 oz] for 201ST and 201LC 175g [6.17 oz] for 301ST
Agency Approvals and Standards	CE, UL (listed number E57648)
Terminal Designation per EN 50005	EN 60947-1
Wire Fixing	Plug-in terminals
Cable Section Min/Max	0.25 mm^2 [24 AWG] – 2.5 mm^2 [14 AWG]
Switching Frequency, Max	0.3 Hz
Input/Output Specifications	
Operating Voltage Range	19.2 to 28.8 VDC for 201ST and 201LC 19.2 to 28.8 VAC/VDC for 301ST
Maximum Consumption	2.4 W (plus load of semiconductor outputs)
Overvoltage Protection	Category III
Control Voltage on S11 etc.	24VDC
Control Current Over S12 etc.	8mA
Mechanical Life	10^7 operations
Contact Type	Ag-Ni, self-cleaning, positive drive
Operating Delay (Pull-In Delay)	<150ms
Release Delay (Drop-Out Delay)	<10ms
Switching Capacity	201ST: 24VDC, max 5.5 A 201LC: 24VDC, max 2.0 A 301ST: dry contacts, max 250V / 6A

Schmersal SRB-E-201 and SRB-E-301 Configurable Safety Relays

Terminal Descriptions

Pin	Function
A1	Operating voltage + 24 VDC 24 VAC (SRB-E-301ST)
A2	Operating voltage 0 V 24 VAC (SRB-E-301ST)
X2	Input of start circuit
X3	Input feedback circuit
X7	Input release signal
S11/S21	Test pulse outputs
S12	Input channel 1
S22	Input channel 2
Y1	Signalling output (NC)
41/42	Signalling contact (NC)
Q1/Q2 13/14 23/24 33/34	Safety outputs



SRB-E-201ST SRB-E-201LC SRB-E-301ST

LED Indication Descriptions

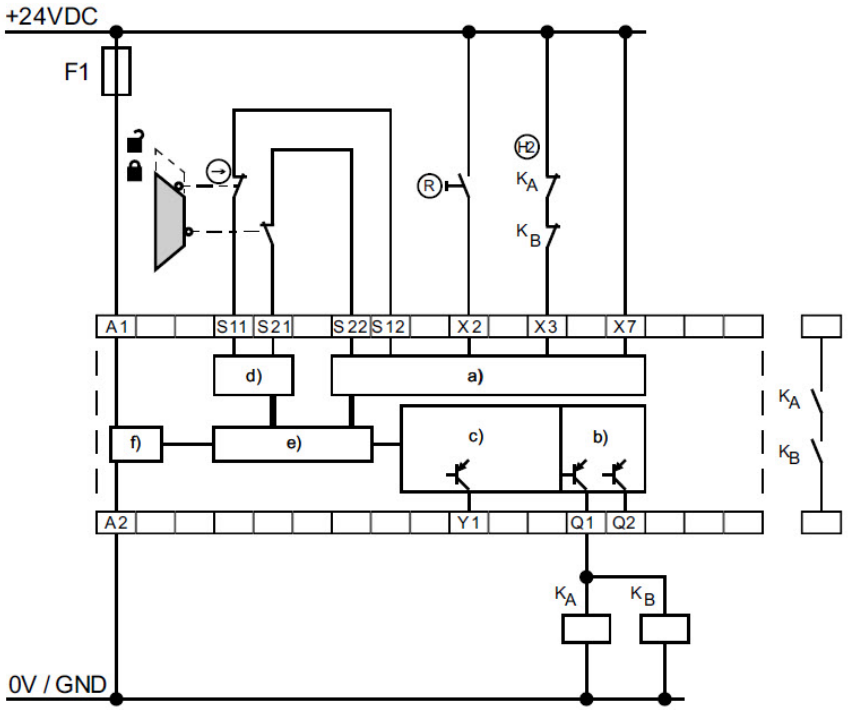
LED	Function
RUN	Operating voltage OK – RUN mode
ERR	Error code
In 1	High level at S12
In 2	High level at S22
Out	Outputs activated
NOTE: For flash codes, refer to product manual	

Configuration Selection

Rotary Knob Position	Reset Button	Cross-Wire Monitoring Active	Input / Sensor Configuration	Monitoring of Sensor Channels For Synchronization
C	Configuration Mode			
1	Trailing Edge	Yes	NC / NC	Yes
2	Trailing Edge	Yes	NC / NC	No
3	Trailing Edge	No	NC / NC	Yes
4	Trailing Edge	No	NC / NC	No
5	Trailing Edge	Yes	NC / NO	Yes
6	Autostart	Yes	NC / NO	No
7	Autostart	Yes	NC / NC	Yes
8	Autostart	Yes	NC / NC	No
9	Autostart	No	NC / NC	Yes
10	Autostart	No	NC / NC	No
11	Function two-hand control type IIIC (SRB-E-201ST)		NC/NO, NC/NO	Yes
SRB-E-301ST: Evaluation of safety mats SMS				
12	Autostart	No	NC / NC	No
13	Trailing Edge	No	NC / NC	No

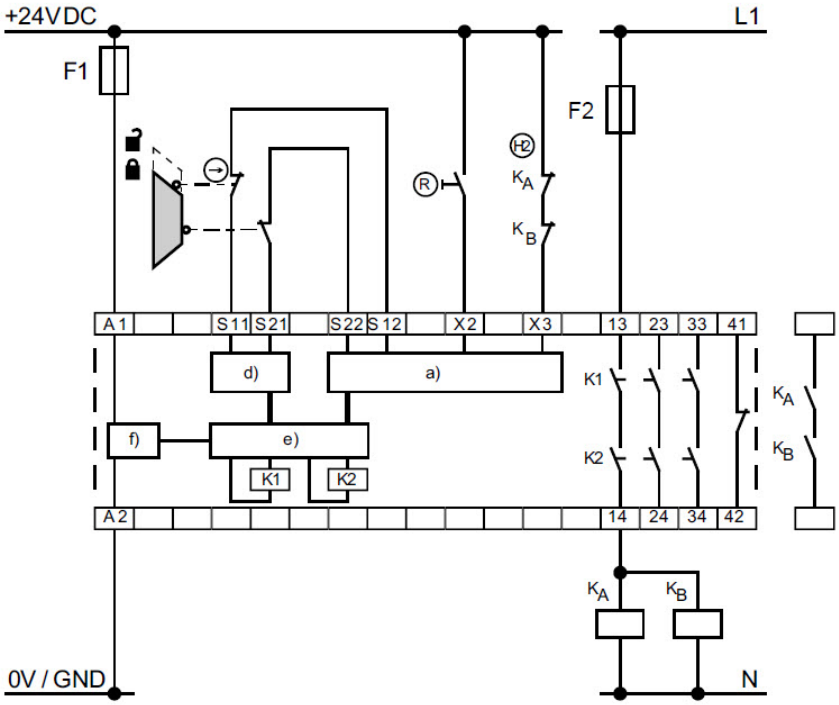
Schmersal SRB-E-201 and SRB-E-301 Configurable Safety Relays

Application Example for SRB-E-201ST and SRB-E-201LC



Key
a) Safety inputs
b) Safety outputs
c) Signalling outputs
d) Clock outputs
e) Processing
f) Power

Application Example for SRB-E-301ST



Key
a) Safety inputs
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f) Power

Safety Products

Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.

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