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-402 Configurable Safety Relays

SRB-E-402ST

Features

- Pluggable screw terminals or cage clamps
- SAFE STOP 0 function
- 2 separate 1- or 2-channel controls
- 2 separate start button/autostart inputs
- 2 separate safety contacts
- 2 separate safety outputs

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)	≤ $2.66x10^{-9}$/h

Schmersal SRB-E-402 Selection Chart

Part Number	*Price*	*Type*	*Voltage*	*Connection*	*Configurations*	*Safety Input*	*Safety Output*	*Monitoring Outputs*	*Drawing*
SRB-E-402ST	$06c9d:	Safety relay	24 VDC	Pluggable screw terminals	22	2 pair digital	2 NO and 2 OSSD	1 NC and 1 status	PDF
SRB-E-402ST-CC	$06c9e:		24 VDC	Push-in cage clamp					PDF

Schmersal SRB-E-402 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	190g [6.70 oz]
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
Maximum Consumption	3.6 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	Q1 and Q2: 24VDC, max 2A Y1 and Y2: 24VDC / 100mA NO dry contacts: max 250V / 6A

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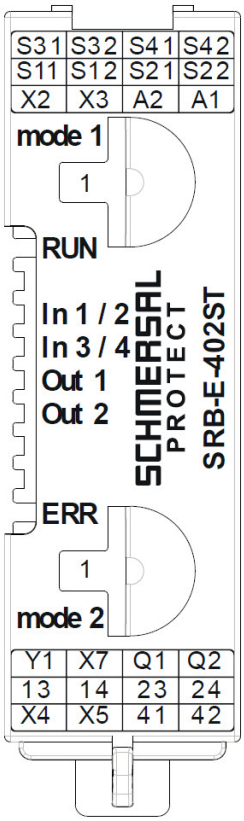
Schmersal SRB-E-402 Configurable Safety Relays

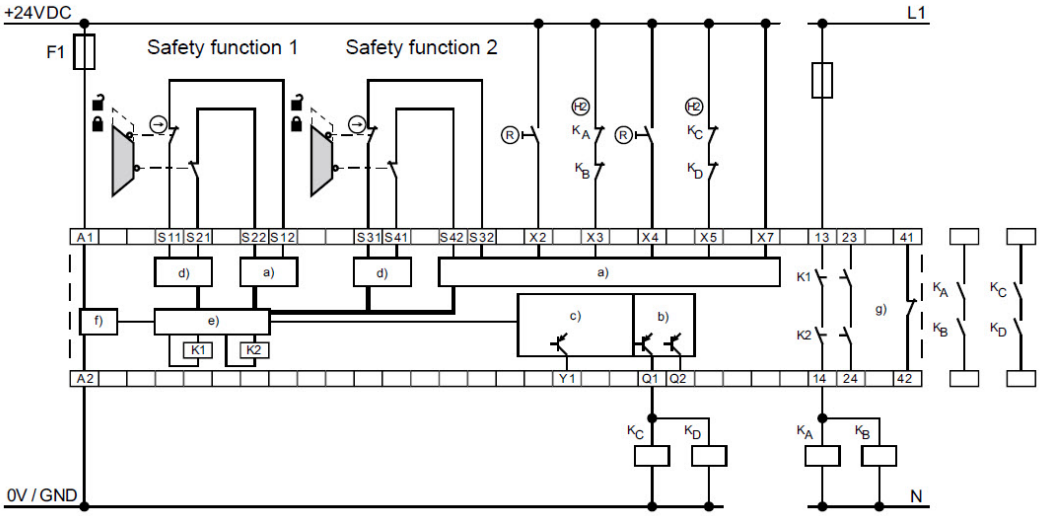
Terminal Descriptions	
Pin	***Function***
A1	Operating voltage +24VDC
A2	Operating voltage 0VDC
X2/X4	Inputs start circuit
X3/X5	Inputs feedback circuit
X7	Input release signal
S11/S21 S31/S41	Test pulse outputs
S12 S22	Input channel 1 Input channel 2 (safety function 1)
S32 S42	Input channel 1 Input channel 2 (safety function 2)
Y1	Signalling output (NC)
41/42	Signalling contact (NC)
13/14 23/24	Safety outputs (safety function 1)
Q1/Q2	Safety outputs (safety function 2)

LED Indication Descriptions	
LED	***Function***
RUN	Operating voltage OK RUN mode
ERR	Error code
In 1/2	High level at S12 / S22
In 3/4	High level at S32 / S42
Out 1	Outputs activated
Out 2	Outputs activated
NOTE: For flash codes, refer to product manual	



SRB-E-402ST

Application Example for SRB-E-402ST



Key

a) Safety inputs
b) Safety outputs
Safety function 2
c) Signalling outputs
d) Clock outputs
e) Processing
f) Power
g) Safety function 1

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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 (only on rotary Mode Switch 2)		NC/NO, NC/NO	Yes
12	Function two-hand control type IIIA (only on rotary Mode Switch 2)		NO / NO	Yes

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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