

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

			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
Part Number	Price	Drawing	✓ ALLOWABLE																		
			Applications							Input Signals				Start Conditions		Output Contacts					
SRB-E-201LC	\$171.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓		2				1
SRB-E-201ST	\$257.00	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓		2				1
SRB-E-201ST-CC	\$269.00	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓		2				1
SRB-E-301ST	\$216.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	3				1	
SRB-E-301ST-CC	\$228.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	3				1	
SRB-E-402EM	\$191.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	4				2	
SRB-E-232ST	\$366.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓		2	3		1	1
SRB-E-232ST-CC	\$378.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓		2	3		1	1
SRB-E-322ST	\$366.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	3			2	1	1
SRB-E-322ST-CC	\$378.00	PDF	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	3			2	1	1
SRB-E-204ST	\$272.00	PDF	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		2				4
SRB-E-204ST-CC	\$284.00	PDF	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		2				4
SRB-E-204PE	\$147.00	PDF	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			2				4
Combination Module for Two Protective Devices																					
SRB-E-402ST	\$338.00	PDF	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	2	2			1	1
SRB-E-402ST-CC	\$350.00	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-204

Configurable Safety Relays

**SRB-E-204ST**

Features

- Pluggable screw terminals or cage clamps
- 2 safety outputs
- 4 signal outputs
- Cascadable to add additional inputs to a safety system

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)	$\leq 2.66 \times 10^{-9}/h$

Schmersal SRB-E-204 Selection Chart

Part Number	Price	Type	Voltage	Connection	Configurations	Safety Input	Safety Output	Monitoring Outputs	Drawing
<u>SRB-E-204ST</u>	\$272.00	Safety relay	24 VDC	Pluggable screw terminals	14	4 pair digital	2 OSSD	4 status	<u>PDF</u>
<u>SRB-E-204ST-CC</u>	\$284.00		24 VDC	Push-in cage clamp	14				<u>PDF</u>
<u>SRB-E-204PE</u>	\$147.00	Safety input extension	24 VDC	Pluggable screw terminals	15				<u>PDF</u>

Schmersal SRB-E-204 Specifications

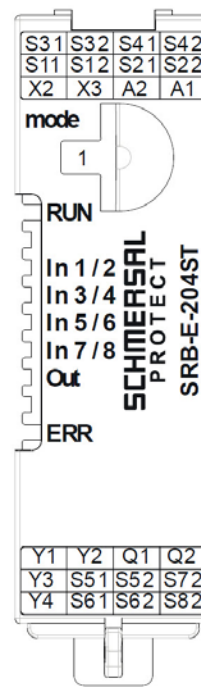
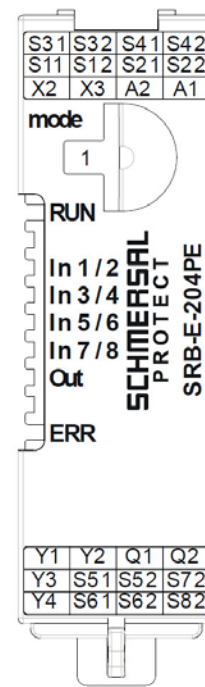
Input/Output Specifications	
Operating Temperature	-25°C [-13°F] to 60°C [140°F]
Storage Temperature	-40°C [-40°F] to 85°C [185°F]
Altitude	2000m [6562ft] max
Vibration Resistance	Tested to EN 60068-2-6
Degree of Protection	IP40
Housing	Glass-fiber reinforced thermoplastic, ventilated
Weight	150g [5.29 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	1 Hz
Input/Output Specifications	
Operating Voltage Range	19.2 to 28.8 VDC
Maximum Consumption	3W (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	Safety outputs Q: 24VDC, max 2A Y1 through Y4: 24VDC / 100mA

Schmersal SRB-E-204

Configurable Safety Relays

Terminal Descriptions	
Pin	Function
A1	Operating voltage +24VDC
A2	Operating voltage 0VDC
X2	Input of start circuit / cascading
X3	Input feedback circuit / cascading
S11/S21 S31/S41 S51/S61	Test pulse outputs
S12 S22	Input channel 1 Input channel 2
S32 S42	Input channel 1 Input channel 2
S52 S62	Input channel 1 Input channel 2
S72 S82	Input channel 1 Input channel 2
Y1	Signalling output, sensor 1
Y2	Signalling output, sensor 2
Y3	Signalling output, sensor 3
Y4	Signalling output, sensor 4
Q1/Q2	Safety outputs

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
In 5/6	High level at S52 / S62
In 7/8	High level at S72 / S82
Out	Outputs activated
NOTE: For flash codes, refer to product manual	

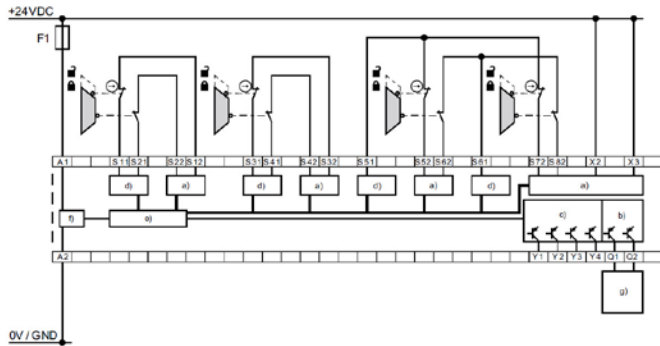
**SRB-E-204ST****SRB-E-204PE**

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SRB-E-204PE Configurable Safety Relays



Application Example for SRB-E-204PE

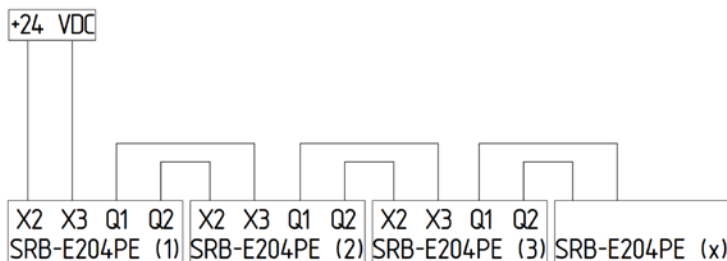


Key

- a) Safety inputs
- b) Safety outputs
- c) Signalling outputs
- d) Clock outputs
- e) Processing
- f) Power
- g) Safety modules

Safe signal processing, e.g. by PROTECT SRB-E-series with start and reset functions as well as feedback circuit monitoring

Application Example Cascading Wiring Example



NOTE: While there is not a limit to the number of modules that can be wired in series, it is important to note that the response time of the system will change as more modules are added. For example, one unit will have a response time of less than 10ms. But if the user uses 10 modules in series (for a total of 40 inputs) then the response time of the system will be less than 100ms.

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SRB-E-204PE Configurable Safety Relays



Configuration Selection					
Rotary Knob Position	Cross-Wire Monitoring Active	Input Number	Input / Sensor Configuration	Monitoring of Sensor Channels For Synchronization	Function Signalling Outputs Y1 - Y4
C	Configuration mode				
1	Yes	1-4	NC / NC	Yes	NO Sensor = 0 Output = 0 Sensor = 1 Output = 1
2	Yes	1-4	NC / NC	No	
3	No	1-4	NC / NC	Yes	
4	No	1-4	NC / NC	No	
5	Yes	1-4	NC / NO	Yes	
6	Yes	1-4	NC / NO	No	
7	Yes	1	NC / NC	No	
	No	2			
	No	3			
	No	4			
8	Yes	1	NC / NC	No	
	Yes	2			
	No	3			
	No	4			
9	Yes	1	NC / NC	No	
	Yes	2			
	Yes	3			
	No	4			
10	Yes	1-4	NC / NO	No	NC Sensor = 0 Output = 1 Sensor = 1 Output = 0
11	Yes	1-4	NC / NC	No	
12	No	1-4	NC / NC	No	
13	Yes	1	NC / NC	No	
	No	2			
	No	3			
	No	4			
14	Yes	1	NC / NC	No	
	Yes	2			
	No	3			
	No	4			
15	Yes	1	NC / NC	No	
	Yes	2			
	Yes	3			
	No	4			

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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