MSR320P

Description

The MSR320P is an input expansion module for the modular MSR300 family of monitoring safety relays. Up to ten input modules can be connected to a base unit by simply removing the terminator, included with each base unit, and connecting the ribbon cables of the neighboring module. The connecting ribbon cable provides power to the MSR320P as well as a check on its status. The terminator removed from the base module must be inserted into the input module furthest to the left.

Although the base module of the MSR300 system holds all of the configuration information, the input modules are the devices that actually configure the base module. The input modules select both the type of inputs connected and the outputs or groups those inputs will control.

The MSR320P has two independent inputs, which are configured by the rotary switches on the side of the module. There are two switches, for redundancy, so both must be set to the same value. An example of the switch settings is to the right. The selection of the switch setting signifies to the base module what inputs to expect and what to test for. Connecting a single device (must be at least dual channel) to each input meets the requirements of Category 4 per EN594-1. Below is a list of supported inputs.

The MSR320P Input module supports up to three group outputs. Two rotary switches, for redundancy, on the side of the module select the output group or groups the connected inputs will control. Below is an example of the possible group settings.

When three channel N.C. inputs are not chosen, functions switch setting three, one solid-state output is available for each input to provide annunciation for that input.

Two LEDs provide the status information on the inputs. Green indicates the input is closed and red indicates the input is open. Three LEDs provide information regarding which output groups are controlled by this input module.

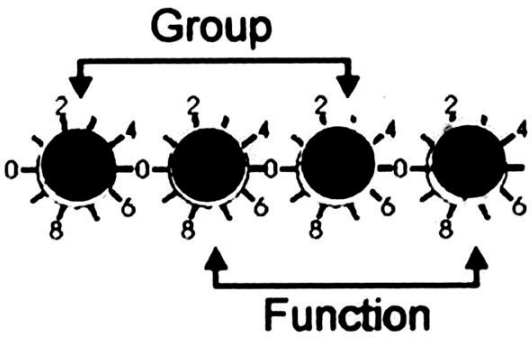
Features

- Category 4 per EN 954-1
- SIL3 IEC 61508
- EN 574 Type IIIC
- Stop category 0
- 17.5 mm DIN Rail housing
- Five diagnostic LEDs
- Configurable inputs
- Output group configurable
- Removable terminals

LED Indicators

2x input status	Input Closed
Green	Input Open; 3x output switch group assignment

Specifications



Group

0. Logic function
1. Group 1
2. Group 2
3. Group 1+2
4. Group 3
5. Group 1+3
6. Group 2+3
7. Group 1+2+3
8. Muting - Robotcell
9. Add Safe Area

Function

1. 1-channel 1N/C
2. 2-channel 2N/C, Safety Mat
3. 3-channel 3N/C
4. Safety gate with startup-test 1N/C 1N/O
5. Safety gate 1N/C 1N/O
6. Light curtain 2OSSD
7. Two-hand control 2 sets of 1N/C+1N/O
8. Input1: 2-channel Input2: Light curtain
9. Input1: Safety gate Input2: Light curtain

Safety Ratings	
Standards	IEC/EN 60204-1, ISO TR 12100, EN 61508, ISO 13849-1, EN 574 Cat IIIC
Safety Classification	Cat. 4 per EN 954-1 (ISO 13849-1), SIL CL3 per EN IEC 62061, PLe per ISO 13849-1
Functional Safety Data ⋆ **Note**: For up-to-date information, visit http://www.ab.com/safety/	PFH_D: < 3.1 x 10-10 MTTFd: > 835 years Suitable for performance levels Ple (according to ISO 13849-1:2006) and for use in SIL3 systems (according to IEC 62061) depending on the architecture and application characteristics
Certifications	CE Marked for all applicable directives, cULus, c-Tick, and TÜV
Power Supply	
Input Power Entry	24V DC from the base unit
Power Consumption	3 W
Inputs	
Safety Inputs	1 N.C., 2 N.C., or 3 N.C., 1 N.C and 1 N.O., LC, SM, or two-hand control
Input Simultaneity	3 seconds or infinite
Input Resistance, Max.	900 Ω
Reset	Selected on base module
Outputs	
Auxiliary Contacts	2 PNP, 24V DC @ 50 mA
Environmental and Physical Characteristics	
Enclosure Type Rating/ Terminal Protection	IP40 (NEMA 1)/ IP20, DIN 0470
Operating Temperature [C (F)]	-5…+55 ° (23…131 °)
Vibration	10…55 Hz, 0.35 mm
Shock	10 g, 16 ms, 100 shocks
Mounting	17.5 mm housing, 35 mm DIN Rail
Weight [g (lb)]	110 (0.24)
Conductor Size, Max.	0.2…2.5 mm2 (24…12 AWG)

⋆ Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the following assumptions:
- Mission time/Proof test interval of 20 years
- Functional test at least once within six-month period

Product Selection

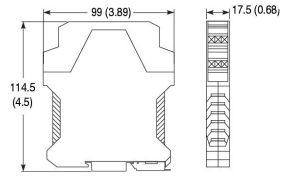
Safety Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
1 N.C., 2 N.C., or 3 N.C., 1 N.C and 1 N.O., LC, SM, or two-hand control	–	2 PNP Solid State	Removable	–	24V DC from the base unit	440R-W23218

Accessories

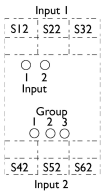
Description	Cat. No.
Bag of 4, 3-Pin Screw Terminal Blocks	440R-A23210
Bag of 4, 3-Pin Spring Clamp Terminal Blocks	440R-A23229

Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



Block Diagram



Typical Wiring Diagrams