



Description

The MSR220P is an input expansion module for the modular Minotaur MSR200 family of monitoring safety relays. It can be connected to either the MSR210P or MSR211P to provide additional inputs.

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 MSR220P as well as a check on its status. The terminators must be inserted into the final output module. The input modules to a base unit can be either MSR220P or MSR221P in any combination or order.

The MSR220P has two independent inputs, which can be wired in one of five ways: one normally closed, two normally closed, three normally closed, one normally closed and one normally open or a safety mat. When used with the MSR210 base unit, the inputs to the MSR220 are continuously pulse-checked for shorts to power, ground and across inputs. Connecting a single device (must be at least dual channel) to each input meets the requirements of Category 4 per EN 594-1.

Four LEDs provide status information on the inputs. Green indicates the input is closed and red indicates the input is open.

Features

- Category 4 per EN 954-1
- Stop category 0
- 17.5 mm DIN Rail housing
- Two input circuits: safety gate, E-stop or safety mat
- Four diagnostic LEDs
- Removable terminals

LED Indicators

Green	Input 1 Closed
Red	Input 1 Open
Green	Input 2 Closed
Red	Input 2 Open

Specifications

Safety Ratings	
Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-4-1, IEC 60947-5-1, ANSI 11.19, AS4024.1
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 *	PFH _D : < 3.7 x 10 ⁻¹⁰ MTTF _D : > 825 years Note: For up-to-date information, visit http://www.ab.com/Safety/ 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 BG
Power Supply	
Input Power Entry	24V DC from the base unit
Power Consumption	2 W
Inputs	
Safety Inputs	1 N.C. or 2 N.C. or 3 N.C. or 1 N.C. + 1 N.O. or SM
Input Simultaneity	Infinite
Input Resistance, Max.	900 Ω
Reset	See base unit
Power On Delay/Recovery Time	See base unit
Response Time	See base unit
Environmental and Physical Characteristics	
Enclosure Type Rating/Terminal Protection	IP40 (NEMA 1)/IP20
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 (lbs)]	90 (0.20)
Conductor Size, Max.	0.2...4 mm ² (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

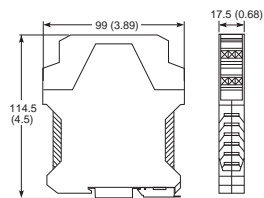
Inputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
Two Independent Inputs: 1 N.C., 2 N.C., 3 N.C., 1 N.C. + 1 N.O., or SM	—	Removable	—	24V DC	440R-H23178

Accessories

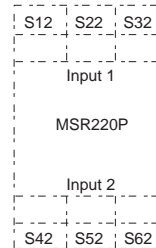
Description	Cat. No.
Bag of 4, 3-Pin Screw Terminal Blocks	440R-A23210
Bag of 4, 3-Pin Spring Clamp Terminal Blocks	440R-A23229

Approximate Dimensions

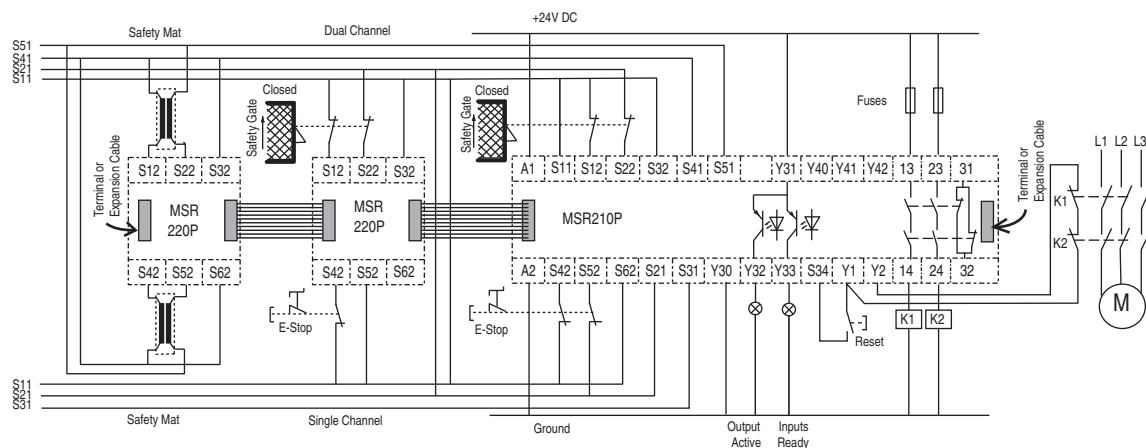
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



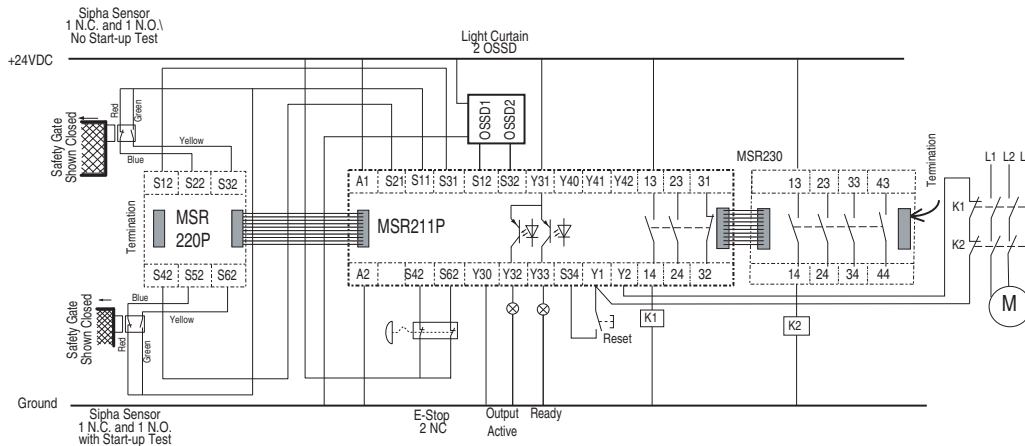
Block Diagram



Typical Wiring Diagrams



MSR220P Expanding an MSR210P



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