



Description

The MSR230P is an output expansion module for the modular Minotaur MSR200 family of monitoring safety relays. It can be connected to either the MSR210P or MSR211P base unit to provide additional outputs.

Up to two MSR230P output modules can be connected to one 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 MSR230P as well as a check on its status. The terminators must be inserted into the final output module.

The MSR230P has four safety rated outputs that work in parallel with the safety outputs of the base unit. When the output of the base unit is activated, the outputs of the MSR230P are also activated.

The outputs are four normally open safety rated outputs. The safety outputs have independent and redundant internal contacts to help support the safety function.

Features

- Four N.O. safety outputs
- Two diagnostic LEDs
- Removable terminals

LED Indicators

Green	Channel 1 Output ON
Red	Channel 1 Output OFF
Green	Channel 2 Output ON
Red	Channel 2 Output OFF

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, AS 4024.1	
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 ★ Note: For up-to-date information, visit http://www.ab.com/Safety/	PFH _D : < 2.3 x 10 ⁻¹⁰ MTTF _d : > 454 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	1.5 W	
Inputs		
Response Time	Does not add additional response time to base module	
Outputs		
Safety Contacts	4 N.O.	
Thermal Current/I _{th}	2 x 6 A or 3 x 5 A or 4 x 4 A (nonswitching)	
Rated Impulse withstand Voltage	2500V	
Switching Current @ Voltage, Min.	10 mA @ 10V DC	
Fuses, Output	External 6 A slow blow or 10 A fast acting	
Electrical Life (Operations)	220V AC/4 A/880VA cosφ = 0.35...0.1 M 220V AC/1.7 A375VA cosφ = 0.6...0.5 M 30V DC/2 A/60 W = 1 M 10V DC/0.01 A/0.1 W = 2 M	
Mechanical Life	2,000,000 cycles	
Utilization Category		
Resistive: AC-1	6 A @ 250V AC	
Resistive: DC-1	6 A @ 24V DC	
Inductive: AC-15	3 A @ 250V AC	3 A @ 125V AC
Inductive: DC-13	2.5 A @ 24V DC	
UL	3 x B300, P300 or 4 x C300 2 x 6 A or 3 x 5 A or 4 x 4 A Resistive	
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	35 mm DIN Rail	
Weight [g (lbs)]	215 (0.47)	
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

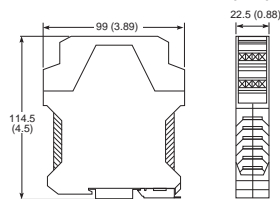
Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
NA	4 N.O.	—	Removable	—	24V DC from the base unit (terminals only)	440R-H23180

Accessories

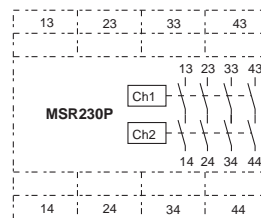
Description	Cat. No.
Bag of 4, 4-Pin Screw Terminal Blocks	440R-A23209
Bag of 4, 4-Pin Spring Clamp Terminal Blocks	440R-A23228

Approximate Dimensions

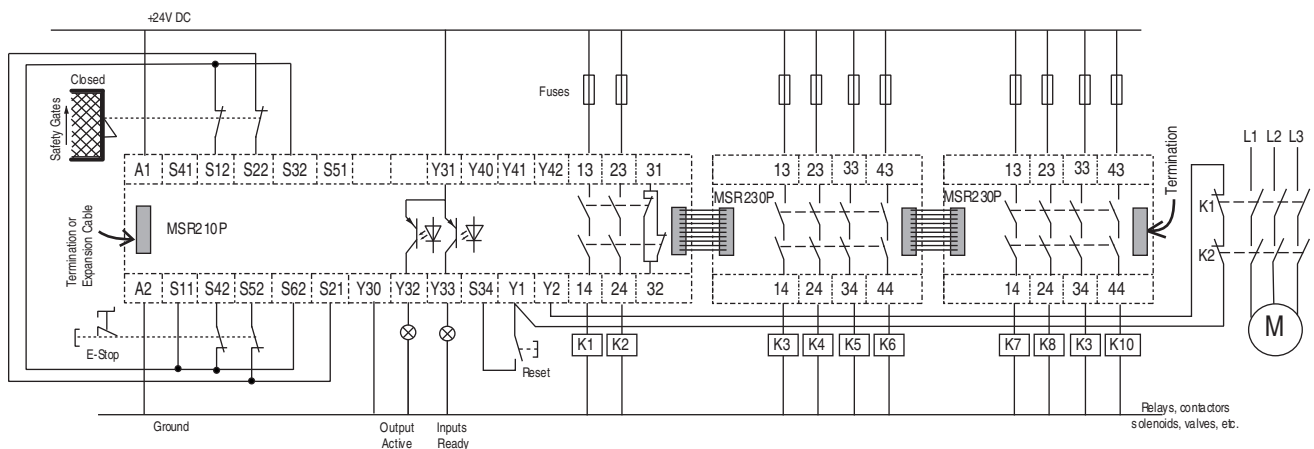
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



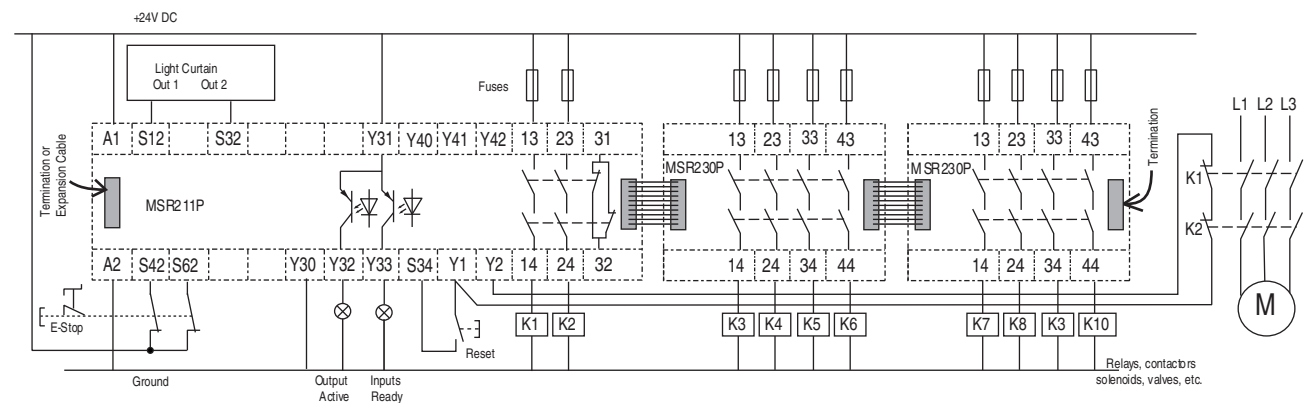
Block Diagram



Typical Wiring Diagrams



Dual Channel Safety Gate and E-Stop, Monitored Manual Reset, Monitored Output



Light Curtain and Dual Channel E-Stop, Monitored Manual Reset, Monitored Output