

MSR230P

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 $\cos\phi = 0.35...0.1$ M 220V AC/1.7 A375VA $\cos\phi = 0.6...0.5$ 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
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 (lb)]	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

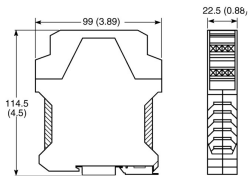
Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
NA	4 N.O.	—	Removable	—	24V DC from the base unit (terminals only)	440R-H23180

Accessories

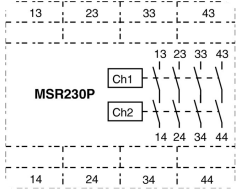
Description	Cat. No.
Bag of 4, 4-Pin Screw Terminal Blocks	440R-A23209
Bag of 4, 4-Pin Spring Clamp Terminal Blocks	440R-A23228

Approximate Dimensions

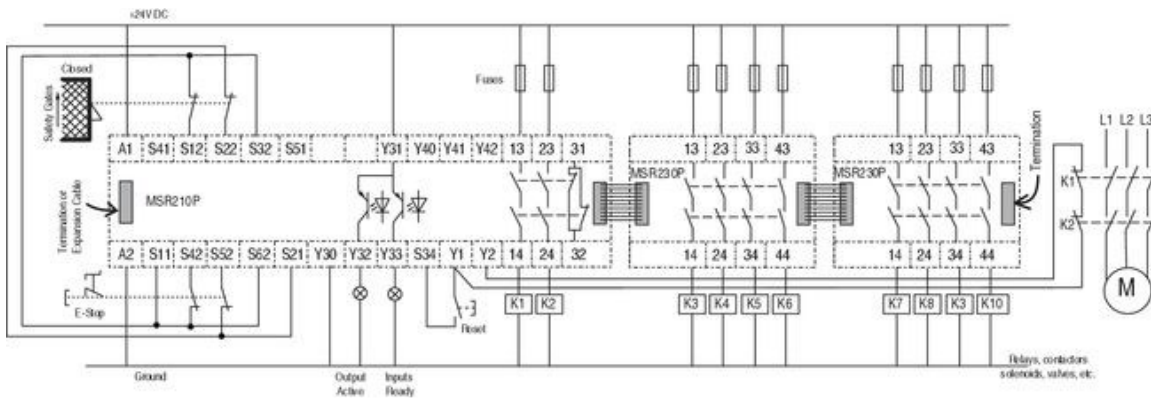
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



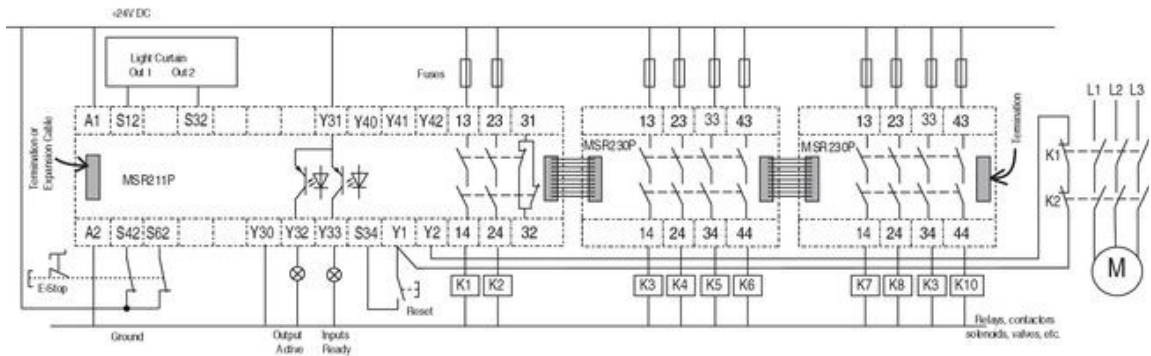
Block Diagram



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