

## Safety Relays

# Modular Monitoring Safety Relays

## Minotaur 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 2 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 4 normally open safety rated outputs. The safety outputs have independent and redundant internal contacts to help ensure the safety function.

### Features

- 4 N.O. safety outputs
- 2 Diagnostic LEDs
- Removable terminals

### Specifications

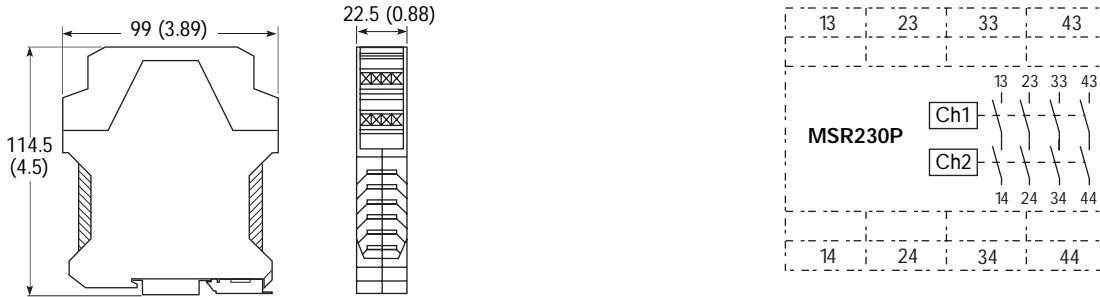
Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-4-1, IEC 60947-5-1, ANSI B11.19, AS4024.1
Approvals	C-Tick, CE marked for all applicable directives, cULus, & TÜV
Category	Cat. 4 per EN954-1 (ISO13849-1)
Power Supply	24V DC from the base unit
Power Consumption	1.5W
Fuses Output (external)	6A Slow Blow or 10A Quick Blow
Outputs	4 N.O. Safety
Output Utilization per IEC60947-4-1 (Resistive)	AC-1: 6A/250V AC DC-1: 6A/24V DC
① Output Utilization per IEC 60947-5-1 (Inductive)	B300, AC-15 3A/250V AC, 3A/125VAC P300, DC-13 2.5A/24V DC
Thermal Current (non switching)	1x6A, 2x4A
Output, Solid State	20mA @ 30V DC
Min. Switched Current/Voltage	10ma/10V DC
Contact Material	AgSnO <sub>2</sub> + 2μAu
Response Time	Does not add additional response time to base module
Indication LEDs	Green = CH1 Output Active Green = CH2 Output Active
Impulse Withstand Voltage	2500V
Pollution Degree	2
Operating Temperature	-5°C to +55°C (+23°F to 131°F)
Humidity	90% RH
Enclosure Protection	IP40 (NEMA 1)
Terminal Protection	IP20
Conductor Size	0.2–4mm <sup>2</sup> (24–12 AWG)
Torque Settings—term. screws	0.4–0.5 Nm (3.54–4.43lb•in)
Case Material	Polyamide PA 6.6
Mounting	35mm DIN rail
Weight	215g (0.47lbs)
Electrical Life	222V AC/4A/880VA cosφ=0.35 220V AC/1.7A/375VA cosφ=0.6 30V DC/2A/60W 10V DC/0.01A/0.1W
Mechanical Life	2,000,000 cycles
Vibration	10-55 Hz, 0.35mm
Shock	10g, 16ms, 100 shocks

① See Output Ratings on page 1-29 for details. Consult factory for ratings not shown.

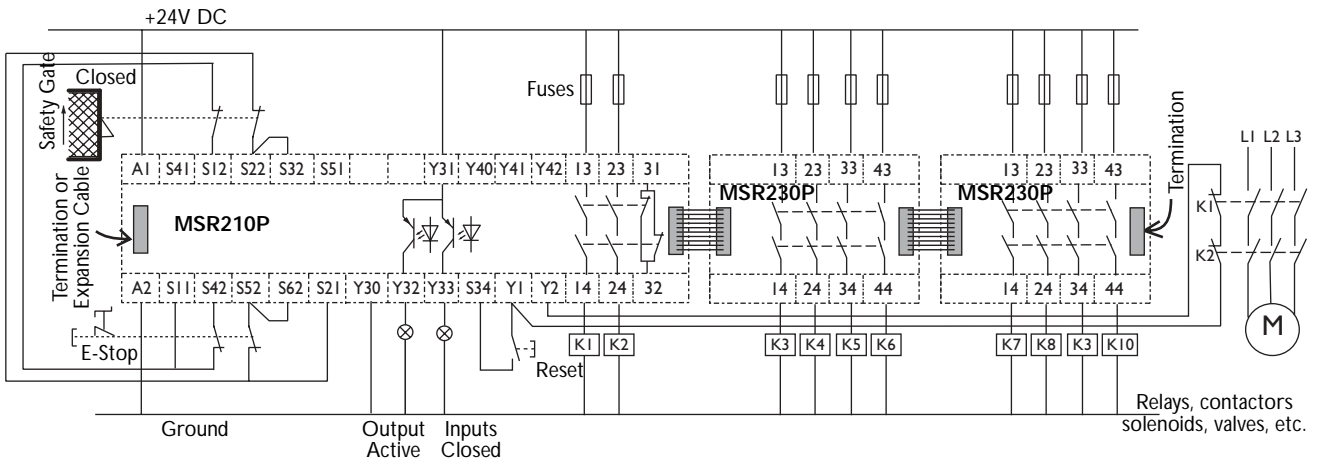
**Product Selection**

<b>Safety Outputs</b>	<b>Catalogue Number</b>
4 N.O.	440R-H23180

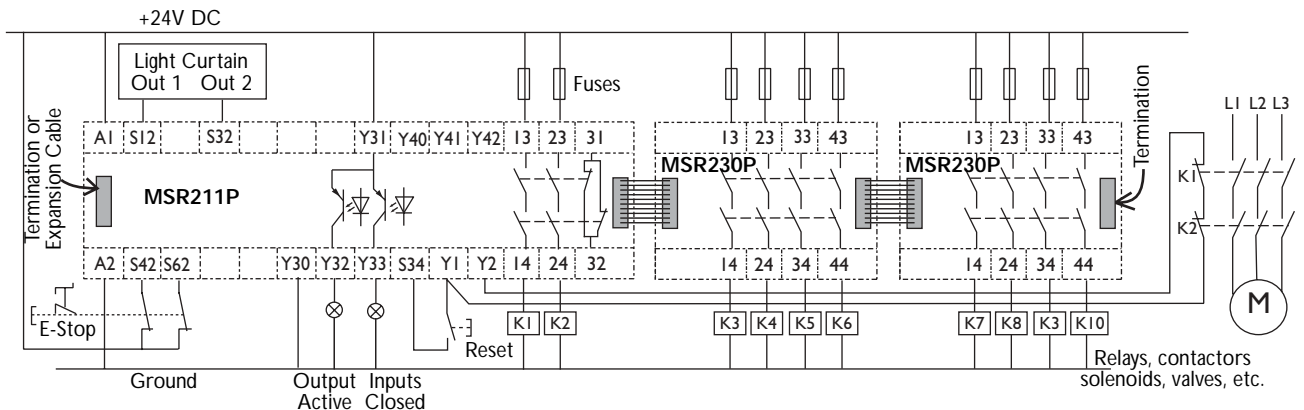
**Dimensions—mm (inches) Block Diagram**



**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*