

# MSR35H/HP

## Description

The Minotaur MSR35H/HP is a microprocessor-based, two-hand control monitoring safety relay, with safety-rated, solid-state outputs.

The input of the MSR35H/HP accepts two switches, each containing one normally open and one normally closed. Both switches must be actuated within 0.5 seconds of each other.

The MSR35 can alternatively be wired with two switches with normally open contacts to a Category IIIA application per EN 574.

The reset capability of the MSR35H/HP allows it to be set up for manual or automatic reset.

The outputs include two normally-open safety-rated outputs that can be connected to loads up to 2 A at 24V DC. These outputs can be used to send a safety stop signal to a machine or manufacturing system.

The MSR35H/HP also has one solid-state normally-closed auxiliary output, which must only be used to indicate the status of the MSR35H/HP.

## Features

- Category 4 per EN 954-1
- Category IIIC or IIIA per EN 574
- Two solid-state safety outputs
- One solid-state auxiliary output
- Two-hand control input

## LED Indicators

Green	Power (Pwr)
Green	K1 Energized
Green	K2 Energized

## Specifications



Housing with removable terminals shown.

Safety Ratings	
Standards	EN 954-1, ISO 13849-1, EN 574, IEC/EN 60204-1, ANSI B11.19, 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 ★ Note: For up-to-date information, visit <a href="http://www.ab.com/safety/">http://www.ab.com/safety/</a>	PFH <sub>D</sub> : < 9.2 x 10 <sup>-10</sup> MTTF <sub>d</sub> : > 631 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 SELV
Power Consumption	3 W
Inputs	
Safety Inputs	1 N.C. & 1 N.O. or 2 N.O.
Input Simultaneity	0.5 s
Input Resistance, Max.	200 Ω
Reset	Automatic
Power On Delay/ Recovery Time	3 seconds/20 ms
Response Time	15 ms
Outputs	
Safety Contacts	2 N.O., 2 A @ 24V DC
Auxiliary Contacts	1 N.O., 50 mA @ 24V DC
Fuses, Output	External 6 A slow blow or 10 A fast acting
Power LED Diagnostics	3 s Blink: Initialization Constant: Normal Operation 2 Blinks: Configuration change during operation 4 Blinks: Solid state output switch fault Continuous blinking: Internal fault
Environmental and Physical Characteristics	
Enclosure Type Rating/ Terminal Protection	IP40 (NEMA 1), DIN 0470/ 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	35 mm DIN Rail
Weight [g (lb)]	130 (0.287)
Conductor Size, Max.	0.2...2.5 mm <sup>2</sup> (24...14 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

Product Selection

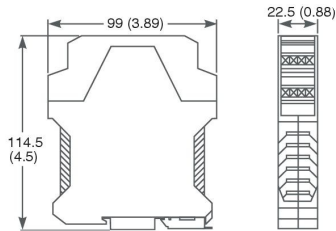
Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
2 x 1 N.C. + 1 N.O. (Two-Hand Control) or 2 x N.O.	2 N.O. Solid State Safety; 1 N.O. Solid State Auxiliary	1 N.O. Solid State	Fixed	Automatic	24V DC SELV	440R-D23201
			Removable			440R-D23202

Accessories

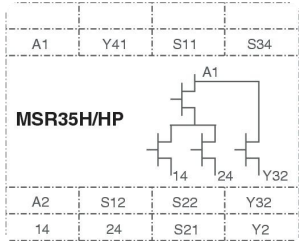
Description	Cat. No.
Bag of 4, 4-Pin Screw Terminal Blocks	440R-A23209
Bag of 4, 4-Pin Spring Clamp Terminal Blocks	440R-A23228

Approximate Dimensions

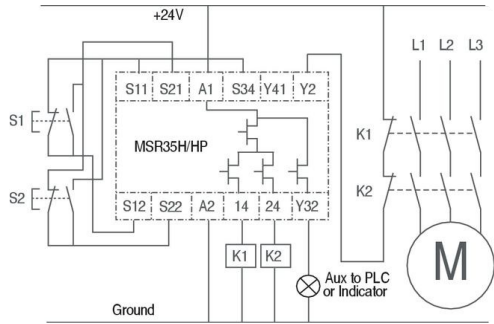
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



# **Block Diagram**



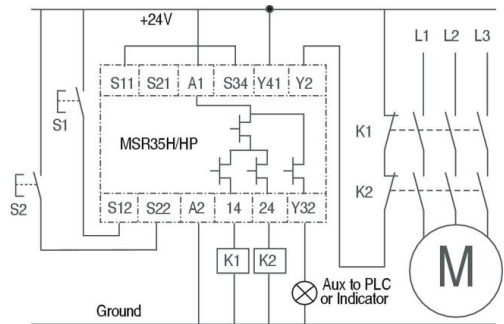
# **Typical Wiring Diagrams**



Switch connection to pulsed signals from S11 and S21, connection between S11 and S34.

*Two-Hand Control, Dual Channel Outputs, Output Monitoring*

**Note:**EN 574 IIIC when wired with two sets of N.O./N.C., EN 574 IIIA when wired with two sets of N.O. contacts.



Switch connection direct to 24V DC supply, Y41 to +24V DC, connection between S11 and S34.

*Two-Hand Control, Dual Channel Outputs, Output Monitoring*

**Note:**Connect Y41 to +24V to disable pulse testing.