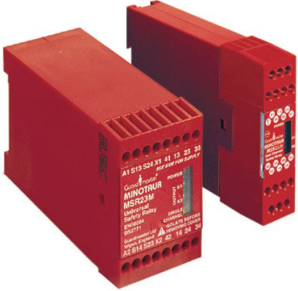


MSR23M

Description

The MSR23M control unit is designed to monitor four-wire safety mats that are connected together to form a safeguarded zone. The size of the safeguarded zone is limited by the total input impedance (100 ohms maximum) created by the wiring and connections. The controller is designed to interface with the control circuit of the machine and includes two safety relays to help provide control redundancy.



The controller detects a presence on the mat, a short circuit, or an open circuit. Under each of these conditions, the safety output relays turn off. When interfaced properly, the machine or hazardous motion receives a stop signal, and an auxiliary output turns ON.

Features

- Category 4
- Stop category 0
- Removable terminals
- Monitored or automatic/manual reset
- Four-wire safety mats sensing

LED Indicators

Power: Green	Ready, Red = Mat Activated
K1: Green	K1 Closed. If K1 alone is lit, check for short across reset button.
K2: Green	K2 Closed

Specifications

Safety Ratings		
Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-5-1, ANSI B11.19, AS 4024.5	
Safety Classification	Cat. 3 per EN 954-1 (ISO 13849-1), SIL CL2 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 : See website MTTF _D : See website 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, BG, and CSA (24V only)	
Power Supply		
Input Power Entry	24V AC/DC or 115V AC	
Power Consumption	2 W	
Inputs		
Safety Inputs	2 N.C., 4-Wire SM	
Input Resistance, Max.	100 Ω	
Reset	Auto./Manual or Monitored Manual	
Power On Delay Time	40 ms (Manual Reset); 200 ms (Auto Reset)	
Response Time	15 ms	
Outputs		
Safety Contacts	2 N.O.	
Auxiliary Contacts	1 N.C.	
Thermal Current I_{th}	1 x 8 A or 2 x 7 A nonswitching	
Switching Current @ Voltage, Min.	1 mA/10V	
Fuses, Output	6 A fast acting (external)	
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	10,000,000 operations	
Utilization Category (Inductive)		
N.O.—B300 AC-15	3 A @ 250V AC	3 A @ 120V AC
P300 DC-13	3 A @ 24V DC	
N.C.—B300 AC-15	2 A @ 250V AC	2 A @ 120V AC
DC-13	2 A @ 24V DC	
Environmental and Physical Characteristics		
Enclosure Type Rating/ Terminal Protection	IP40 (NEMA 1) DIN 0470/ IP20, DIN 0470	
Operating Temperature [C (F)]	-15...+55 ° (5...131 °)	
Vibration	10 g 10...55 Hz	
Shock	30 g, 11 ms half-sine	
Mounting	22.5 mm housing, 35 mm DIN Rail	
Weight [g (lb)]	220 (0.485)	
Conductor Size, Max.	1 x 2.5 mm ² (14 AWG) stranded, 1 x 4 mm ² (12 AWG) solid	

* Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the following assumptions:

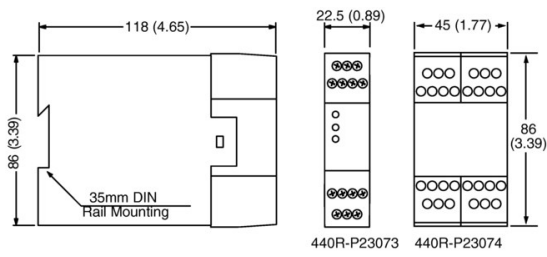
- Mission time/Proof test interval of 20 years
- Functional test at least once within six-month period

Product Selection

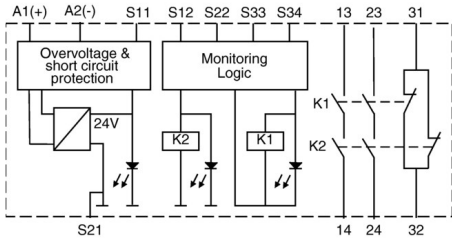
Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
4-Wire Safety Mat	2 N.O.	1 N.C.	Fixed	Automatic/Manual Monitored Manual	24V AC/DC	440R-P23073
					115V AC	440R-P23074

Approximate Dimensions

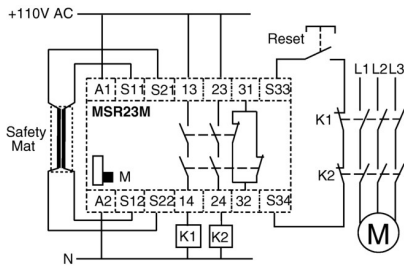
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



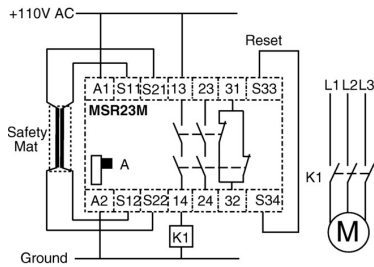
Block Diagram



Typical Wiring Diagrams



Safety Mat Input, Monitored Manual Reset, Dual Channel Output, Monitored Output



Safety Mat Input, Automatic Reset, Single Channel Output, No Monitored Output

Application Details

Disconnect power. Use a screwdriver to pop open cover to reveal internal switches.

