MSR238DP

Description

The MSR238 is an time-delayed output expansion module for the modular Minotaur MSR200 family of monitoring safety relays. It can be connected to either the MSR210 or MSR211 base unit or to the MSR230 output module to provide time-delayed outputs.

Up to two 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 MSR238 as well as a check on its status. The terminators must be inserted into the final output module.

The MSR238 has two safety rated outputs that work in parallel with the safety outputs of the base unit. When the output of the base unit is de-activated, the outputs of the MSR238 are de-activated after the time delay expires. The time delay is set by connecting jumpers to the wiring terminals.

The outputs are two normally open safety rated outputs. The safety outputs have independent and redundant internal contacts to help support the safety function. The delayed normally closed output is an auxiliary signal that must only be used to indicate the status of the MSR238.

Features

- Category 3 per EN 954-1
- Stop category 1
- Two diagnostic LEDs
- Removable terminals
- Two N.O. delayed safety outputs
- One N.C. delayed auxiliary output

LED Indicators

Green	CH1 Output Active
Green	CH2 Output Active

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, AS4024.1
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: < 7.7 x 10-9 MTTFd: > 373 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	2.5 W
Outputs	
Safety Contacts	2 N.O.
Auxiliary Contacts	1 N.C.
Thermal Current I_{th}	1 x 6 A or 2 x 4 A (nonswitching)
Rated Impulse withstand Voltage	2500V
Switching Current @ Voltage, Min.	10 mA @ 10V DC
Fuses, Output	Recommended 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	10,000,000 cycles
Utilization Category	
Resistive: AC-1	6 A @ 250V AC
Resistive: DC-1	6 A @ 24V DC
Inductive: AC-15	5 A @ 250V AC
Inductive: DC-13	3 A @ 24V DC
UL:	1 x B300, P300 or 2 x C300, 1 x 6 A or 2 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...2.5 mm2 (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
- Functional test at least once within six-month period

Product Selection

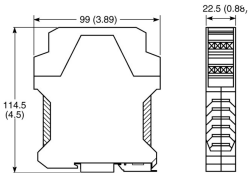
Delayed Safety Outputs	Delayed Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
2 N.O.	1 N.C.	Removable	–	24V DC from the base unit	440R-H23196

Accessories

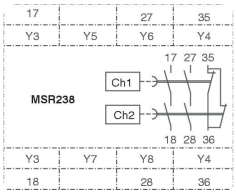
Description	Cat. No.
Bag of 4, 4-Pin Screw Terminal Blocks	440R-A23209
Bag of 4, 4-Pin Spring Clamp Terminal Blocks	440R-A23228

Approximate Dimensions

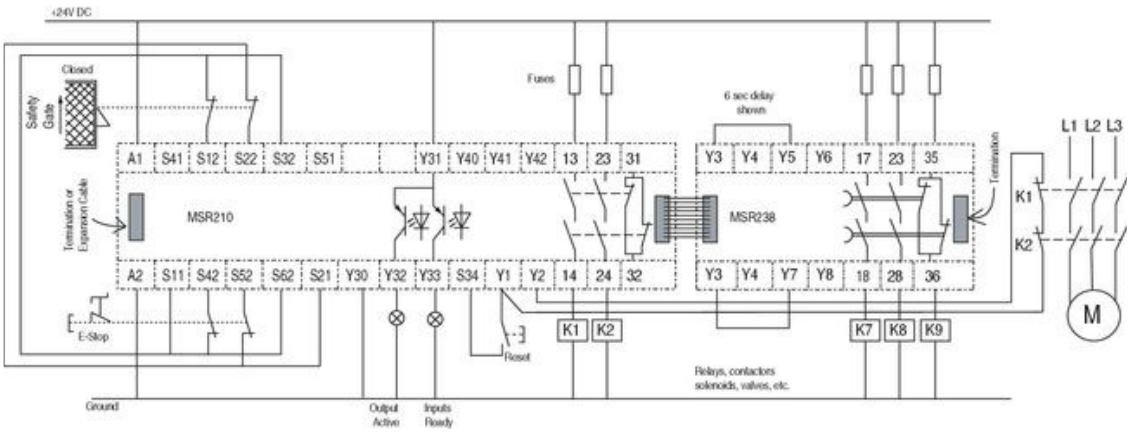
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



Block Diagram



Typical Wiring Diagrams



Application Details (Typical)

Apply jumpers (links) on the terminals identified to achieve the desired off delay.

Delay (s)	Jumper	Jumper	Delay (s)	Jumper	Jumper	Delay (s)	Jumper	Jumper
0	None	None	8	Y3-Y6	Y3-Y7	50	Y3-Y6	Y3-Y8
0.5	Y3-Y5	None	9	Y4-Y5	Y3-Y7	60	Y4-Y5	Y3-Y8
1	Y4-Y6	None	10	None	Y4-Y8	80	None	Y4-Y7
1.5	Y3-Y6	None	12	Y3-Y5	Y4-Y8	100	Y3-Y5	Y4-Y7
2	Y4-Y5	None	15	Y4-Y6	Y4-Y8	120	Y4-Y6	Y4-Y7
3	Y3-Y5	Y4-Y6	18	Y3-Y6	Y4-Y8	160	Y3-Y6	Y4-Y7
4	Y3-Y6	Y4-Y5	21	Y4-Y5	Y4-Y8	200	Y4-Y5	Y4-Y7
5	None	Y3-Y7	26	None	Y3-Y8	250	Y3-Y5, Y4-Y6	Y3-Y7
6	Y3-Y5	Y3-Y7	30	Y3-Y5	Y3-Y8	300	Y3-Y5, Y4-Y5	Y3-Y7
7	Y4-Y6	Y3-Y7	40	Y4-Y6	Y3-Y8			