



Description

The MSR338 is an time-delayed output expansion module for the configurable Minotaur MSR300 family of monitoring safety relays. Up to six 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 MSR338DP output modules can be used in any combination and order also together with the instant modules MSR330P when connected to the MSR300 system. The connecting ribbon cable provides power to the MSR338DP as well as a check on its status. The terminator must be inserted into the final output module.

There are three different MSR338P modules, one for each group. In most instances, the output group module is not specific to each application. The exceptions are robot cell applications and logic OR functions which correspond with group three outputs.

The MSR338 has three safety rated outputs that work in parallel with the immediate safety outputs of the MSR330P outputs modules. When the output signal from the base unit is de-activated, the outputs of the MSR338 are de-activated after the time delay expires. The time delay is set by connecting jumpers to the wiring terminals. The outputs are three normally open and one normally closed safety rated outputs. The safety outputs have independent and redundant internal contacts to help support the safety function.

Features

- Category 3 per EN 954-1 performance
- Level D per ISO 13849-1 Stop category 1
- Three N.O. safety outputs
- One N.C. safety output
- Three group modules available
- Diagnostic LED 22.5 mm
- DIN rail housing
- Removable terminals

LED Indicators

Off	Output Inactive
Green	Output Active

Specifications

Safety Ratings	
Standards	EN 954-1, EN IEC 62061, ISO 13849-1, IEC/EN 60204-1, ISO 12100, IEC 60947-4-1, IEC 60947-5-1, 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 *	$PFH_D = < 2.37 \times 10^{-9}$ $MTTFd = > 48166$ years Suitable for Performance Levels Pl _e (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 base unit
Power Consumption	2.5 W
Inputs	
Safety Inputs	Configured on base unit
Reset	Configured on base unit
Outputs	
Safety Contacts	3 N.O.
Auxiliary Contacts	1 N.C.
Thermal Current _{I_{th}}	2 x 5 A, 3 x 4 A (nonswitching)
Rated Impulse withstand Voltage	2500V
Switching Current @ Voltage, Min.	10 mA @ 10V DC
Fuses, Output	6 A Slow Blow or 10 A Quick Blow (external recommended)
Electrical Life (Operations)	220V AC/4 A/880V A cosφ=0.35: 100,000 220V AC/1.7 A/375V A cosφ=0.6: 500,000 30V DC/2 A/60 W: 1,000,000 10V DC/0.01 A/0.1 W: 2,000,000
Mechanical Life	10,000,000 cycles
LED Indicators	Output: Green = Output active
Output Utilization	
Resistive:	AC-1: 6 A/250V AC; DC-1: 6 A/24V DC
Inductive:	AC-15: 5 A/250V AC; DC-13: 3 A/30V DC
UL:	B300, R300, 2 x 5 A or 3 x 4 A res 250V
Environmental and Physical Characteristics	
Enclosure Type Rating/ Terminal Protection	IP 40 (NEMA 1)/ IP 20
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 (lbs)	205 (0.45)
Conductor Size, Max.	0.2...2.5 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

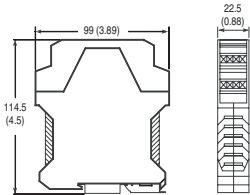
Group No.	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
1	3 N.O., 1 N.C.	—	Removable	—	24V DC from the base unit	440R-W23224
2						440R-W23225
3						440R-W23226

Accessories

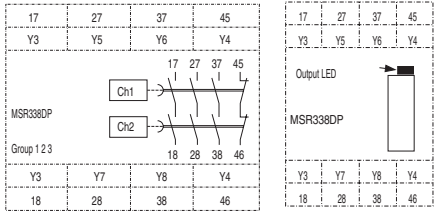
Description	Cat. No.
Bag of 4, 4-Pin Screw Terminal Blocks	440R-A23209
Bag of 4, 4-Pin Spring Clamp Terminal Blocks	440R-A23228

Approximate Dimensions—mm (inches)

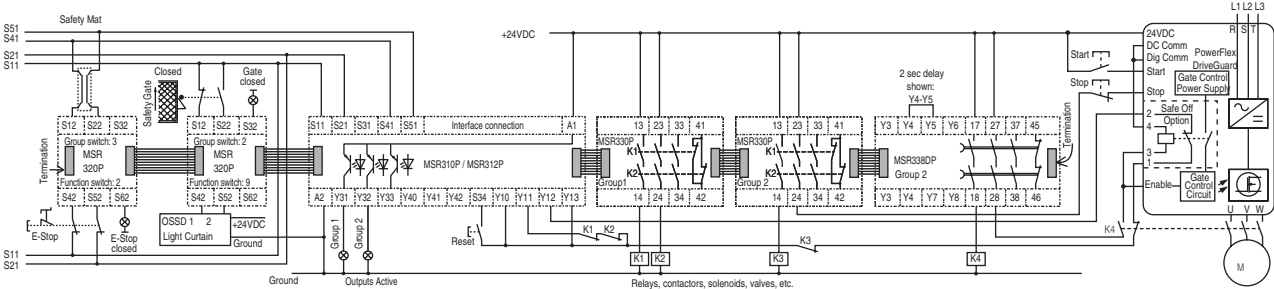
Dimensions are not intended to be used for installation purposes.



Block Diagram



Typical Wiring Diagrams



MSR 300 system with various Inputs. Two Output Groups with common monitored reset, each Group with monitored contactors Safety Mat or E-Stop shut down both Groups, Safety Gate and Light Curtain only shut down the Group 2 modules: Controlled Stop via instant contacts, delayed Safe Off and Power removal via MSR338DP

Off-Delay Time Table

Delay(s)	Jumper	Jumper	All jumpers (links) on the terminals identified to achieve the desired off delay.					
			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	Y4-Y7
6	Y3-Y5	Y3-Y7	30	Y3-Y5	Y3-Y8	300	Y3-Y6, Y4-Y5	Y4-Y7
7	Y4-Y6	Y3-Y7	40	Y4-Y6	Y3-Y8			