

MatGuard™ Mat Manager

Description

The Safety Mat Manager is designed to monitor multiple safety mats, each with its own connection. The Safety Mat Manager accepts up to eight individual mats with four-pin micro quick disconnect connectors.

The Safety Mat Manager provides an LED status indication for each of the mat connections. Since the LEDs indicate whether the mat is shorted or open, troubleshooting and replacement of a damaged mat within a mat system, is much quicker when compared to a traditional mat system where multiple mats are wired in series.

An internal switch allows for the setting of the reset to automatic/manual or monitored manual. When set to automatic/manual, the reset circuit can be jumpered, connected auxiliary contacts, or connected to an unmonitored manual reset by adding a momentary normally open switch in the monitoring loop. When set to monitored manual, the monitoring circuit must be closed and then opened to activate the outputs.



Stepping on any one of the mats deactivates the safety outputs. The outputs include two or six normally open safety rated outputs used to shut down the machine and one normally closed or normally open auxiliary output to indicate the status of the Mat Manager. The safety outputs have independent and redundant internal contacts to support the safety function.

Features

- Accepts up to eight individual mats
- Two or six safety output contacts
- One auxiliary output contact
- Automatic/manual or monitored manual reset

LED Indicators

Green	Power
Green	Machine Enabled
Green	Auto Reset Mode
Green	Manual Reset Mode
Mat Status:	
Green	Run Condition
Red	Stop Condition, Mat Pressed
Off	Not Used/Mat Disabled

Specifications

Safety Ratings	
Standards	EN 1760-1, EN 954-1, ISO 13849-1, IEC/EN 60204-1, ANSI RIA R15.06, ANSI B11.19, AS 4024.5, E 1760-1
Safety Classification	Cat. 3 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 http://www.ab.com/safety/	PFH _D : < 2.59 x 10 ⁻⁹ MTTF _d : > 290 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 AC/DC, 115/230V AC 50/60 Hz
Power Consumption	12 W or 9 VA
Inputs	
Safety Inputs	8, 4-Pin Micro-QD M12 Inputs (4 wire mats)
Input Resistance, Max.	500 Ω
Mat Size [mm (in.)]	100 m ² (1076 ft ²) max.
Reset	Auto./Manual Monitored Manual
Power On Delay/ Recovery Time	3 s/48 ms
Response Time	35 ms
Outputs	
Safety Contacts	2 N.O. or 6 N.O.
Auxiliary Contacts	1 N.C. or 1 N.O.
Output Rating‡	B300, AC15, 4 A/250V AC; R300, DC13, 2 A/30V DC
Rated Impulse withstand Voltage	2500V
Switching Current @ Voltage, Min.	10 mA @ 10V
Fuses, Output	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 operations
Environmental and Physical Characteristics	
Enclosure Type Rating/ Terminal Protection	IP65 (NEMA 13) steel with polycarbonate face plate/ —
Operating Temperature [C (F)]	-25...45° (-13...113°)
Vibration	0.15 mm, 10...55 Hz
Shock	10 g, 11 ms, half-sine
Mounting	Surface (Wall) Mount
Weight [g (lb)]	3200 (7)
Conductor Size, Max.	0.2...2.5 mm ² (24...14 AWG), max.

* 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

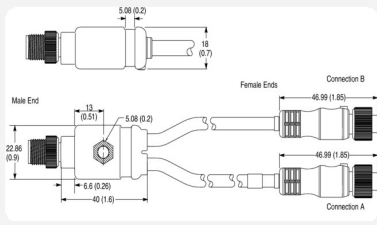
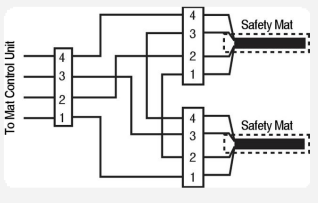
‡ Ratings vary due to output connectors. See installation instructions for details.

Product Selection

Safety Inputs	Safety Outputs	Aux. Outputs	Reset	Output Current	Connection Type	Power Supply	Cat. No.
8, 4-pin micro-QD M12 Inputs (4wire mats)	2 N.O.	1 N.C.	Auto./Manual Monitored Manual	4 A	12-pin Brad Harrison	24V DC	440F-C28011
						115V or 230V AC	440F-C28012
	6 N.O.	1 N.O.		4 A	24-pin Harting	24V DC	* 440F-C28021
						115V or 230V AC	440F-C28023
8 Cable Grips	2 N.O.	1 N.C.		2 A	8-pin Lumberg M12 Micro	24V DC	* 440F-C28024 440F-C28025
8, 4-pin micro-QD M12 Inputs (4wire mats)	2 N.O.	1 N.C.		4 A	12-pin M23	24V DC	440F-C28026

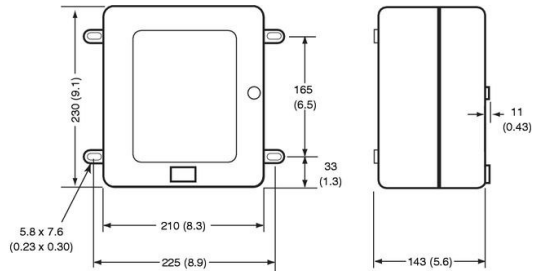
* Manual reset button located on front of unit.

Accessories

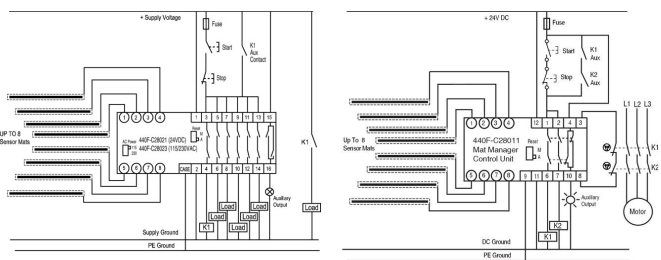
Description	Approximate Dimensions [mm (in.)]	Wiring	Cat. No.
Y-Cable			879D-F4ACDM-B0M3
Shorting Plug			440F-A28639
500 mA fuse			440R-A31562
Fuse, 1 A—Bussman Cat. No. ETF-1			440R-A70972

Approximate Dimensions

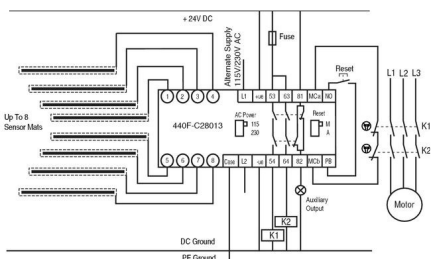
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



Typical Wiring Diagram



Safety Mat System, Automatic Reset, Dual Channel Output, Output Monitoring



Safety Mat System, Monitored Manual Reset, Dual Channel Output, Output Monitoring