

MatGuard™ Controllers

Description

The MatGuard Control Unit monitors all of the mats which are connected together to form a safeguarded zone. The safeguarded zone can be up to a total of 100 m² and made from any number of mats. 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 will receive a stop signal, and an auxiliary output relay turns ON.

The controller comes in two different package styles, a plastic case for surface or wall mounting, and a steel case for surface or wall mounting. Each style offers many of the same basic features. Each controller accepts power supplies of 24V AC/DC, and 110/230V AC. The plastic and steel-cased styles include reset buttons. The steel-cased controller offers extra protection against inadvertent impacts.

Alternatively, see the Product Selection table for safety relays that can also control and monitor safety mats.

Features

- Selectable voltage supply
- Auto/manual reset
- Four-wire system to detect opens and shorts
- Third party approval—AMTRI, TÜV

LED Indicators

Green	Power
Green	Auto Reset Mode
Green	Manual Reset Mode
Green	Machine Enabled

Specifications



Safety Ratings	
Standards	EN1760-1, EN 954-1, ISO13849-1, IEC/EN 60204-1, ANSI RIA R15.06, 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, cULus, and TÜV
Power Supply	
Input Power Entry	24V AC/DC or 115/230V AC
Power Consumption	6 W, 9V A
Inputs	
Safety Inputs	Safety Mats
Reset	Monitored Manual or Automatic/Manual
Response Time	35 ms, Mat pressed to output open
Outputs	
Safety Contacts	2 N.O.
Auxiliary Contacts	1 N.C.
Switching Current @ Voltage, Min.	10 mA @ 10V
Fuses, Output	5 A fast acting (external)
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/	4000P: IP65 (NEMA 13); 4000S: IP62 (NEMA 12)/
Terminal Protection	IP20, DIN 0470
Operating Temperature [C (F)]	-10...+45 ° (14...113 °)
Vibration	0.15 mm, 10...55 Hz
Mounting	Surface (Wall) Mount
Weight [g (lb)]	4000P: 880 (1.94); 4000S: 3200 (7.05)
Conductor Size, Max.	4000P, 4000S: 1 x 1.5 mm2 (16 AWG), max.

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

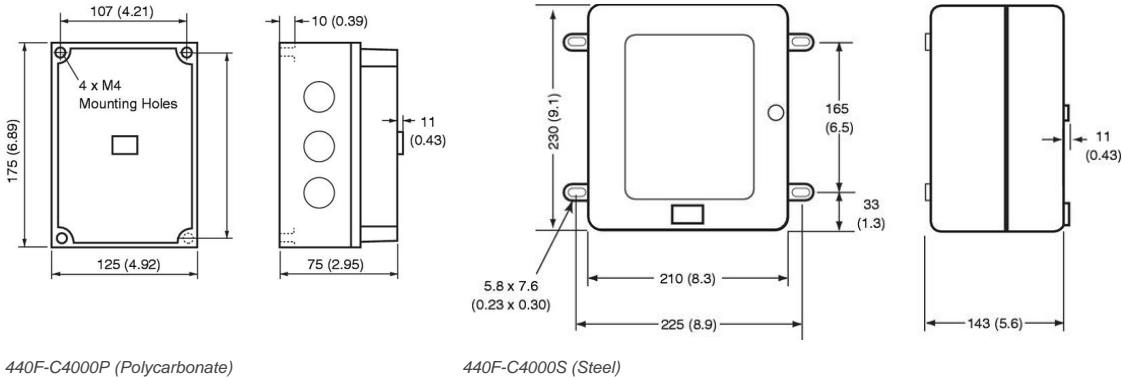
- Mission time/Proof test interval of 20 years
- Functional test at least once within six-month period

Product Selection

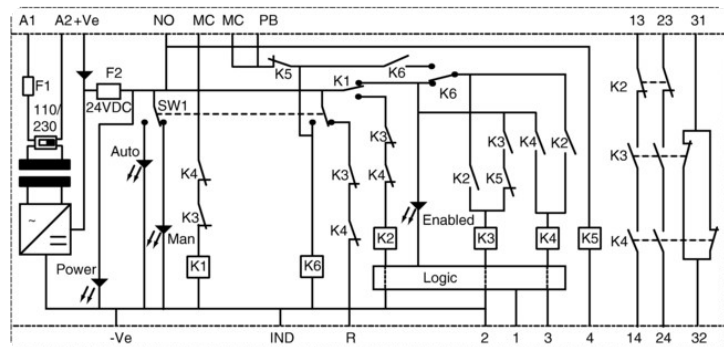
Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
SM	2 N.O.	1 N.C.	NA	Monitored Manual or Automatic/Manual	24V AC/DC or 115/230V AC	440F-C4000P
						440F-C4000S

Approximate Dimensions

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



Block Diagram



Typical Wiring Diagrams

