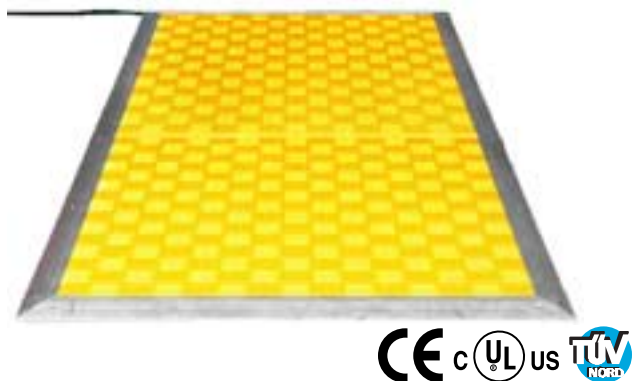


## Safety Mats

### MatGuard™ Mats



### Description

The MatGuard safety mat is a pressure sensitive safeguarding product that is designed to detect the presence of people on its sensing surface.

The MatGuard safety mat has two conductive hardened steel plates that are held apart by non conductive compressible separators. Each 4-wire mat, operating on only 24V DC, is pre-wired and connected in series with other mats to form a floor level guarding system for hazardous areas. The circuit through the mat is monitored by the MatGuard Control Unit which provides a signal to the machine control circuit when the area is clear.

When a mat is stepped on, the conductive plates touch and the resistance in the circuit falls to zero. This is monitored by the control unit, which sends a shutdown signal to the machine.

Since the MatGuard safety mat is completely sealed (IP67), water, liquids and coolants present no problem. In addition, the tough vinyl will resist bleaches, acids, salts and many industrial chemicals.

The unique moulding process ensures the long life and reliability of the mat.

### Features

- Hardened steel plate construction
- No dead spots
- 4-wire system to detect opens and shorts
- Can withstand a static pressure of 4500 psi
- IP67 rated (NEMA 6P)

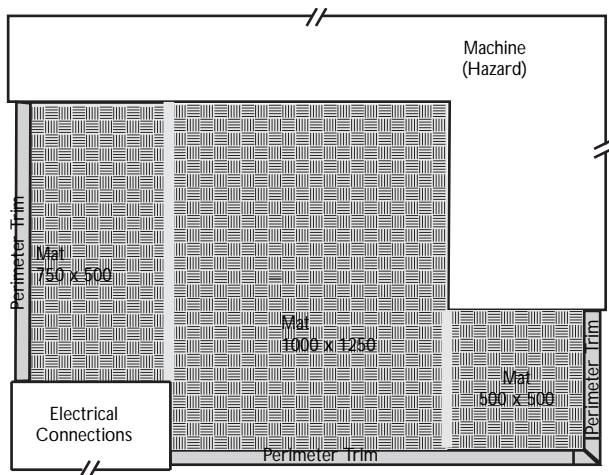
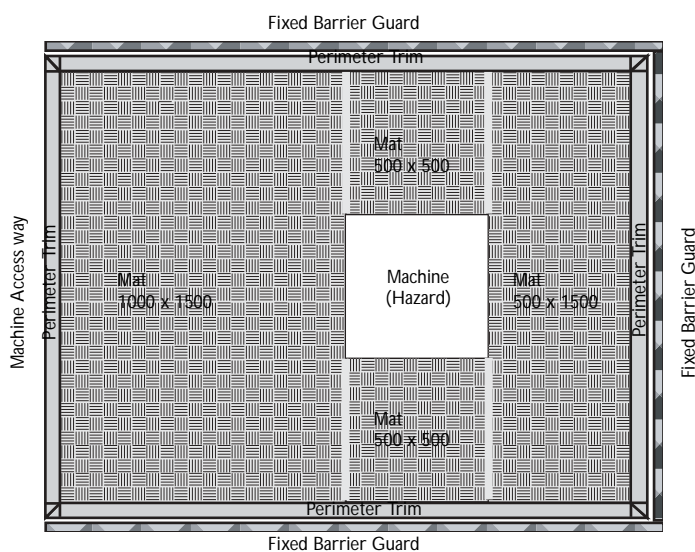
### Specifications

Standards	EN1760-1, EN954-1, ISO 13849-1, IEC/EN60204-1, ANSI RIA R15.06, ANSI/B11.19, AS4024.5
Category	Cat. 1 device per EN954-1 Suitable for Cat. 3 systems
Approvals	CE marked for all applicable directives and cULus
Operating Voltage	24V DC, -20% +10% provided by the control unit
Maximum length of connection wires	200m (656ft)
Standard Length of Cable	4.5m (15ft)
Minimum Detection Weight	27 kg (60 lbs) on an 80mm (3.125in) diameter circular disk
Maximum Pressure Applied to Mat	31,034 kPa (4500psi)
Maximum Detection Zone Size	100m <sup>2</sup> (1076 ft <sup>2</sup> )
Mechanical Life	10,000,000 operations
Operating temperature	-25°C to 55°C (-13°F to 131°F)
Humidity	100% RH
Degree of enclosure protection	IP67 (NEMA 6P)
Vibration	10-200Hz, 5g
Shock/Bump	11ms 10g /16ms 10g
Terminal isolation	IP20 DIN 0470
Conductor size	Wires 0.75mm <sup>2</sup> (18AWG) 2 wire Jacket OD 3.8mm x 7.4mm (0.15in x 0.29in)
Weight	10.9 kg/m <sup>2</sup> (2.2 lbs/ft <sup>2</sup> )
Material & colour	Mat Yellow, Black or Brown available on special order Platisol Vinyl Trim 6063 Aluminium
Mounting	Flat surface
Thickness	16mm (0.63in)

**Product Selection—Standard Mats**

Mat Size		Standard Perimeter Trim Kit	Safety Mat
millimetres	inches	Catalogue Number	
500 x 500	19.7 x 19.7	440F-T1010	440F-M1010BYNN
500 x 1500	19.7 x 59.1	440F-T1030	440F-M1030BYNN
750 x 500	29.5 x 19.7	440F-T1510	440F-M1510BYNN
750 x 750	29.5 x 29.5	440F-T1515	440F-M1515BYNN
750 x 1500	29.5 x 59.1	440F-T1530	440F-M1530BYNN
1000 x 500	39.4 x 19.7	440F-T2010	440F-M2010BYNN
1000 x 750	39.4 x 29.5	440F-T2015	440F-M2015BYNN
1000 x 1000	39.4 x 39.4	440F-T2020	440F-M2020BYNN
1000 x 1250	39.4 x 49.2	440F-T2025	440F-M2025BYNN
1000 x 1500	39.4 x 59.1	440F-T2030	440F-M2030BYNN
900 x 1800	35.4 x 70.9	440F-T1836	440F-M1836BYNN
Recommended control unit. For other control units see page 2-85 of this catalog.			440R-C23139

**Examples of Standard System Configurations**



**Bill of Materials**

Catalogue Number	Description	Qty.
440F-M2030BYNN	Mat	1
440F-M1010BYNN		2
440F-M1030BYNN		1
440F-T3210 ①	Perimeter Trim	2
440F-T3310 ①	Perimeter Trim	1
440F-T3220 ①	Uniting Trim	1
440F-C4000S	Controller	1
440F-T3012	Corner Trim	4

Catalogue Number	Description	Qty.
440F-M2025BYNN	Mat	1
440F-M1010BYNN		1
440F-M1510BYNN		1
440F-T3310 ①	Perimeter Trim	1
440F-T3012	Corner Trim	1
440F-T3020 ①	Uniting Trim	2
440F-C4000P	Controller	1

① Customer must cut trim to proper length.

# Safety Mats

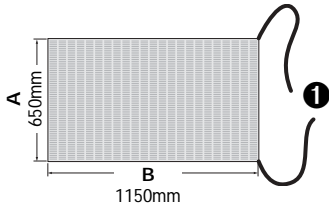
## MatGuard™ Mats

### Product Selection—Configurable Mats

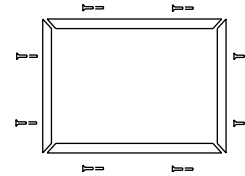
MatGuard safety mat and trim kit catalogue numbers can be configured by selecting the appropriate codes from the tables below.

Mats: 440F- M **13 23** A **Y** NN  
*a b c d e a b*

Trim Kit: 440F - I **13 23**



*a*



*e*

"A" Dimension—mm (inches)	
Code	Description
2 digit number	Length of the mat in millimetres/50 Must be in 50 (1.97) increments Min. allowed 150 (03); Max. allowed 1000 (20) The length of A must be equal to or shorter than B. The max. length of A is 900 (18) when B is greater than 1500 (30) e.g. 750 = 15, 1000 = 20

*b*

"B" Dimension—mm (inches)	
Code	Description
2 digit number	Length of the mat in millimetres/50 Must be in 50 (1.97) increments Min. allowed 200 (04); Max. allowed 1800 (36) The length of A must be equal to or shorter than B. The max. length of A is 900 (18) when B is greater than 1500 (30) e.g. 750 = 15, 1500 = 30

*c*

Cable Exit	
Code	Description
A	Two 4.5m (15ft) 2-wire cables—exit out the A corners
B	Two 4.5m (15ft) 2-wire cables—exit out the B corners
C	One 9.1m (30ft) 4-wire cable with M12 connector—exits out of upper left corner
D	One 9.1m (30ft) 4-wire cable without connector—exits out of upper left corner
F	One 0.76m (2.5ft) 4-wire cable with M12 connector—exits out the upper right corner.







*d*

Colour	
Code	Description
B	Black
Y	Yellow

Trim Options	
Code	Description
K	Cable Channel Trim
T	Standard Trim

❶ Order controller separately. See page 2-85 for selection details.

**Product Selection, Trim Options**


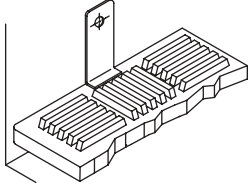
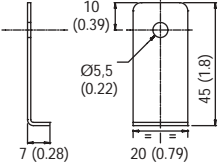
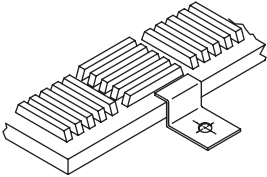
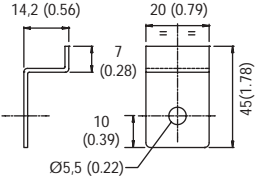
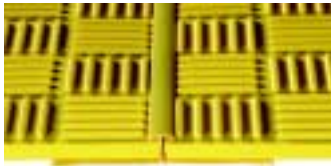



Type	Description	Approximate Dimensions	Catalogue Number
	Standard Perimeter Trim ❶ Aluminium For use with up to 3 cables running through channel	Square ends 2m length	440F-T3210
		Square ends 3m length	440F-T3310
	External Corner Standard Perimeter Trim Aluminium	page 2-82	440F-T3012
	Internal Corner Standard Perimeter Trim Aluminium	page 2-82	440F-T3013
	Perimeter Trim with Cable Channel ❶ Aluminium Used when up to 8 cables need to be fed through channel	Square ends 2m length	440F-T3211
		Square ends 4m length	440F-T3411
	External Corner Perimeter Trim with Cable Channel Aluminium	page 2-83	440F-T3014
	Internal Corner Perimeter Trim with Cable Channel	page 2-83	440F-T3015

❶ Mitred end, custom lengths available. Contact factory.




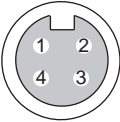
## Safety Mats

### MatGuard™ Mats

#### Accessories

Type	Description	Dimensions—mm (inches)	Catalogue Number
	Aluminum Right Angle Perimeter Trim	13 x 25 x 2m (½ x 1 x 6.6ft)	440F-T3216
		13 x 25 x 3m (½ x 1 x 9.8ft)	440F-T3316
	Stainless Steel Angle Clip Perimeter Trim 5 per package		440F-T102933
	Stainless Steel Z-Clip Perimeter Trim 5 per package		440F-T102935
	Active Uniting Trim Used to join two mats to ensure no dead spots	1m (3.28ft) length square ends	440F-T3120
		2m (6.5ft) length square ends	440F-T3220
		3m (9.8ft) length square ends	440F-T3320
	Vinyl Wire Guide	63.5 (2.5) width 2m (6.6ft) length	440F-A3230
	Accessories Kit for 440F-C4000S and 440F-C4000P 4 Butt Splices, 2 500mA Fuses, 1 Reset Lamp, 4 Wire Terminations	N/A	440F-A108433
	12 Philips Flat Head, Stainless Steel screws for 440FA-3211 and 440F-T3411 Channel Trim  Secures top to the bottom.	#6 x 9.5 (3/8)	440F-A17143

**Accessories (continued)**

Type	Description	Dimensions—mm (inches)	Catalogue Number
	12 Philips Flat Head, Stainless Steel Screws with Anchors for 440F-T3210, 440F-T3310 and 440F-T3510 Trim	#10 x 32 (1.25)	440F-A17141
	12 Flat Head, Stainless Steel Screws with Anchors for 440F-T3211 and 440F-T3411 Channel Trim	#10 x 32 (1.25)	440F-A17142
 	4 Pin M12 Straight Female Cordset 22AWG 300V 3A Yellow PVC Jacket, PUR Over mould  1 Brown 2 White 3 Blue 4 Black	2m (6.5ft)	889D-F4AC-2
		5m (16.4ft)	889D-F4AC-5
		10m (32.8)	889D-F4AC-10
		15m (49.2ft)	889D-F4AC-15
		20m (65.6)	889D-F4AC-20
		30m (98.4ft)	889D-F4AC-30

Presence Sensing Safety Devices

**Safety Mats**

**MatGuard™ Mats**

**Approximate Dimensions—mm (inches)**

*Dimensions are not intended to be used for installation purposes.*

**Mat System**

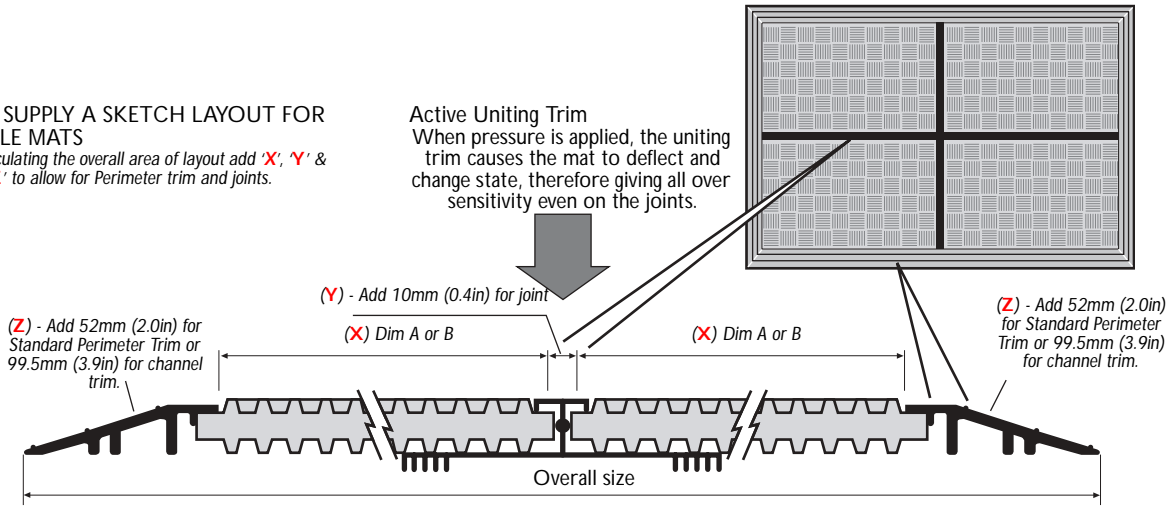
When more than one mat is needed to protect an area, use the dimensions below to determine how large of an area is covered.

PLEASE SUPPLY A SKETCH LAYOUT FOR MULTIPLE MATS

When calculating the overall area of layout add 'X', 'Y' & 'Z' to allow for Perimeter trim and joints.

**Active Uniting Trim**

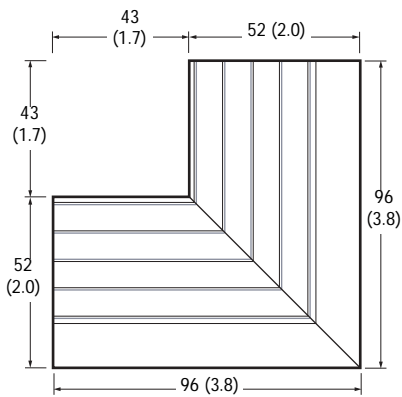
When pressure is applied, the uniting trim causes the mat to deflect and change state, therefore giving all over sensitivity even on the joints.



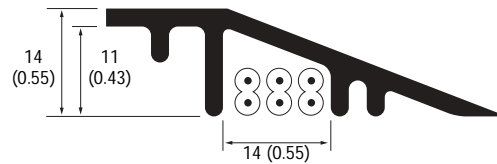
**IMPORTANT:** Use the Distance Calculation shown on page 2-75 to ensure adequate coverage around the hazard.

**Standard Perimeter Trim**

Internal and External Corners



Channel Dimensions

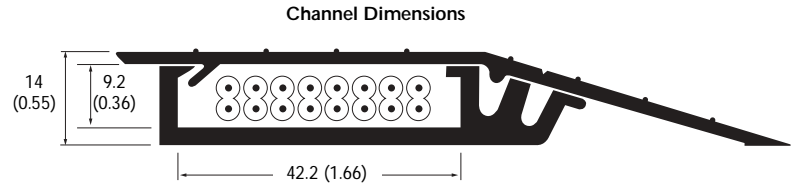
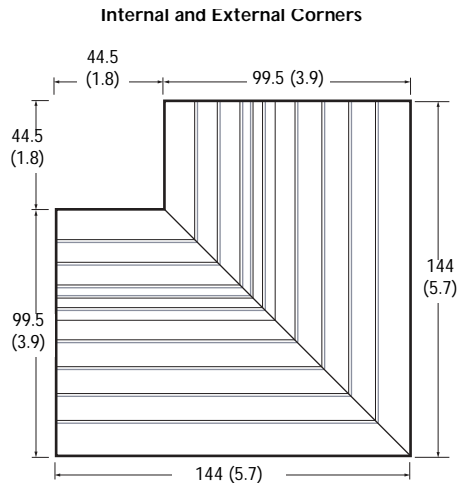


Standard perimeter trim holds three standard 2-wire mat cables or 2 4-wire cables. The equivalent of two cables are needed when connecting two mats in series.

**Approximate Dimensions—mm (inches)**

*Dimensions are not intended to be used for installation purposes.*

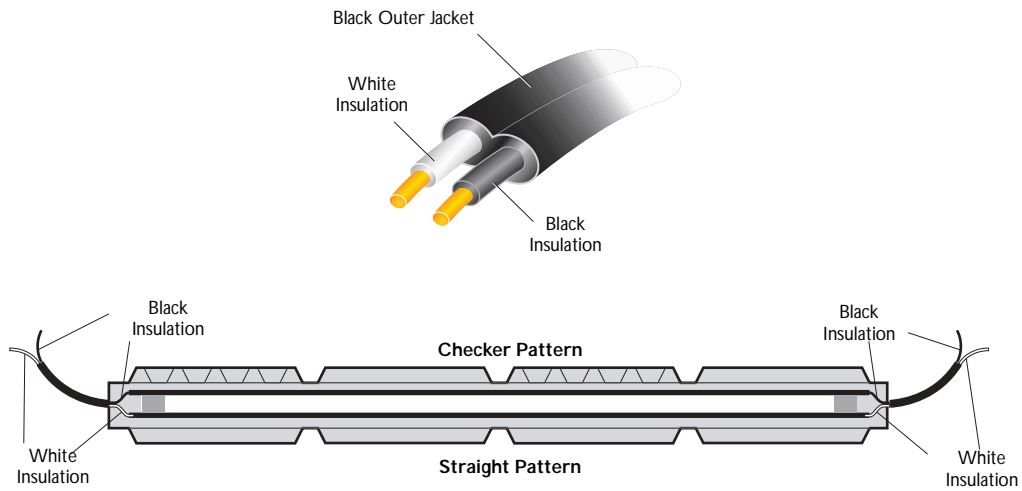
**Perimeter Trim with Cable Channel**



Cable channel trim holds up to 8 standard 2-wire mat cables or 7 4-wire cables even when going around corners.

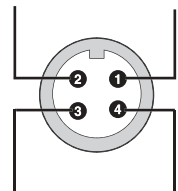
**Typical Wiring Diagrams**

**Two-Wire Cable Option**

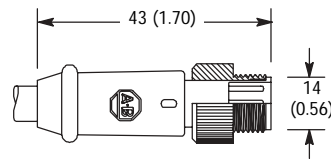


**4-Pin Micro M12 Connector Option**

Chequered Rib Side of Mat



Straight Rib Side of Mat



*Straight Male*