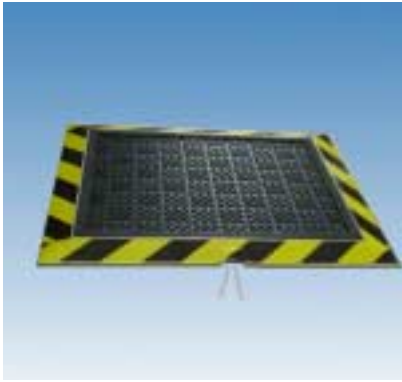


# Safety Mat Systems



ON THE «CUTTING-EDGE» OF SAFETY



## Pressure Sensitive Safety Mat

- 2-wire and 4-wire fail safe wiring options
- Meets or exceeds current US or CE standards
- Custom sizes and shapes available
- Multiple zone mats
- Safety Category 3 systems available, on request with BG certificate, third party approved by BIA

### Safety Mat Design

Bircher SafeTec® safety mats are designed pressure sensitive. Copper clad epoxy plates are encapsulated in a black polyurethane compound. Copper, the selected contact material offers superior corrosion resistance compared to commonly used safety mat contact plates.

### Active Edge

The unique edge design of standard size mats, and mats for multiple mat systems, ensures intrusion detection across mat to mat joints without the use of joining trim – thereby reducing installation time.

### Actuating Force

Bircher SafeTec® mats meet the actuating force requirements defined in EN 1760-1 and ANSI/RIA 15.06. The mat or mat system shall respond to a force of 30kg or 66 lbs applied to a flat disc of diameter 80 mm or 3.125”, placed anywhere on the effective sensing area.

### Custom Mats

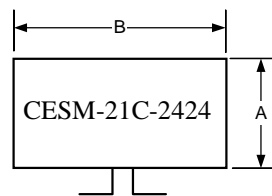
Where standard size mats do not fit, customized solutions are available. Bircher SafeTec® mats can be manufactured in custom sizes to almost any shape with cut-outs, miters and multiple zones.



### Standard Mat Sizes

These sizes are available from stock, dimensions in inch :

24x24, 24x30, 24x36, 24x42, 24x48, 24x60, 24x72, 30x30, 30x36, 30x42, 30x48, 30x60, 30x72, 36x36, 36x42, 36x48, 36x60, 36x72, 42x42, 42x48, 42x60, 42x72, 48x48, 48x60.

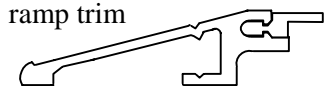


Standard size mats have two 2-conductor leads, both exiting the mat on the longer side.

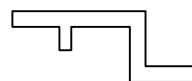
### Securing Trim

Safety mats are secured to the floor to prevent stumbling hazards and easy relocation that could defeat the safety function of a mat system.

ES-S ramp trim



ES-SZ machine side trim



Bircher SafeTec® mat trim is made of extruded aluminum. Black and yellow striped tape applied to the ramp trim provides an awareness barrier.



## ESD-3 Safety Mat Controller

- Meets Safety Category 3 with the safety mat, on request available with BG certificate from BIA
- Fail safe wiring with only 2 wires
- DIN rail mount
- Multiple sensor inputs
- Manual, automatic or remote reset options

### Controller Function

The Bircher SafeTec® series of ESD controllers monitors for changes in the no-load current determined by an 8.2kOhm resistor built into, or externally connected to the sensor. This way, fail safe wiring is achieved using only 2 wires.

With power to the ESD unit, the output relays are energized and closed.

The output relays open with the sensor activated — resulting in a resistance drop towards zero Ohm, or — with a wire failure — resulting in a resistance increase towards indefinite Ohm.



### Applicable Standards

When properly sized, installed and monitored, Bircher SafeTec® safety mat systems will enable users to meet safeguarding requirements up to a category 3 level. Applicable standards : ANSI B11.19-1990, ANSI/RIA 15.06, EN 60204-1 and EN 954-1.

### Safety Distance

Depending on the application and risk assessment, minimum safety distance requirements may apply. Guidelines pertaining to safety distance calculations can be found in ANSI B11.19-1990, ANSI/RIA 15.06-1999 and EN-999 standards.

### Mat Specification

Material	Polyurethane Compound
Color	Black
Weight	approx 4 lbs/sq. ft 20 kg/m <sup>2</sup>
Oper.Temp.	32°F to 125°F 0°C to 50°C
Design	normally open contact
Voltage	max. 24 volt, 0.5A
Lead wires	AWG 20 with twin PVC cover
Actuating F	< 30kg / 66lbs as required by EN 1760-1 and ANSI/RIA 15.06 typical force is 10-23 lbs

### Controller Specification

Isolation	IP 30 (IEC529)
Supply Volt.	24ACDC, 110AC, 230AC
Sensor Inp.	2 sensor inputs, each monitors 5 m <sup>2</sup> / 54sq.feet
Oper. Temp.	0°F to 125°F -15°C to 50°C
Safety Outp.	2 outputs rated at 2A/250AC
Diagnostics	1 output rated at 1A/30VAC
LED's (4)	operation/safety stop/sensor error/system error
Reaction time	< 50 ms from mat actuation to change of state of the output relay

## Order Information

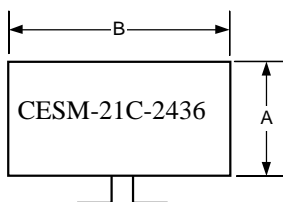
Safeguarding requirements for the majority of safety mat applications can be met by the products listed below with their respective order codes. Additional information on stand-alone mats, mats with built-in resistor or other custom made designs is available from your local Distributor or Bircher America Inc.

### Multiple Mat Systems

A layout drawing should accompany inquiries and orders.

### Standard Size Mats

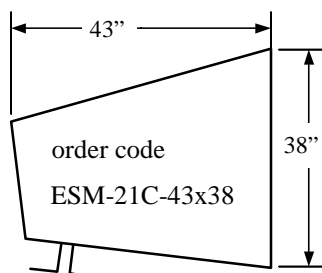
Order code for the below shown mat is CESM-21C-2436 :



CESM-21 standard size mat with two 12 ft long 2-conductor leads, located in the middle of the long (B) side  
 C black color with C pattern top surface  
 2436 A=24" width by B=36" length

### Custom Mats

Custom size or shape mats are usually manufactured with two 2-conductor leads, located at least 2" from a corner, and only on sides that will not be joined against another mat. Drawings are required to avoid dimensional and lead wire location errors.



### Custom Mat Trim

ES-S10 order code for 10ft section of ramp trim, to be cut to size on site  
 ES-S order code for ramp trim, shipped pre-cut to fit mats, requires layout drawing  
 ES-SZ10 order code for 10ft section of machine side trim to be cut to size on site  
 ES-SZ order code for ramp trim shipped pre-cut to fit mats, requires layout drawing

### Standard Mat Ramp Trim

The order code for ES-S ramp trim kits for all four sides of a standard size mat is : ES-S followed by the dimension. For example ES-S2436.

## Safety Mat Controller

**ESD3 - 01 - 24VADC GB**

version (see table on right)

supply voltage

24VADC  
115VAC  
230VAC

label language

D - German  
E - Spanish  
F - French  
GB - English

ESD3 version	Reset Options			Aux. & Diagnostic Output Options		
	manual, on the unit	automatic	remote	system operative	sensor actuated	wire failure no voltage
01	X			closed	closed	open
02	X			closed	open	open
03		X		closed	closed	open
04*		X		closed	open	open
05			X	closed	closed	open
06*			X	closed	open	open
07	X			open	closed	closed
08		X		open	closed	closed
09			X	open	closed	closed
01C	X			open	open	closed
03C		X		open	open	closed
05C			X	open	open	closed

\* 24VADC GB and 115VAC GB versions in stock

Bircher America offers a complete line of pressure sensitive presence sensing devices. For more detailed information on Bircher SafeTec® safety mat systems, sensing bumper and edge systems, please contact your local Distributor .



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