

Sensing Edge Systems



ON THE «CUTTING-EDGE» OF SAFETY



Pressure Sensitive Sensing Edge

- 2- and 4-wire fail safe wiring options
- Safety Category 3 systems available
- Third party certified systems on request
- Choice of materials provides superior durability, abrasion and chemicals resistance
- Installs around curves and bends
- Active from top and sides
- Moisture resistant

Sensing Edge Design

Bircher SafeTec® sensing edge systems are designed around a pressure sensitive contact strip that is inserted into an outer rubber profile. A controller monitors the edge for actuation signals or leadwire failure and provides the interface to the machine controls.

CE Type Approval

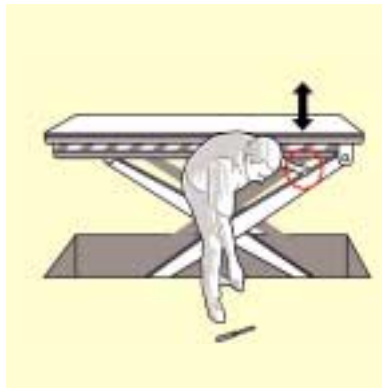
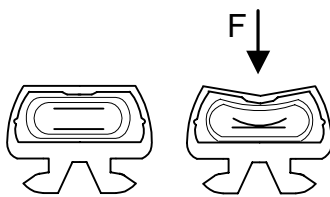
Edge systems are available to Safety Category 3 and EN 1760-2 requirements, with certain systems third party certified by TUV.

Switching Capacity

Bircher sensing edges are suitable for switching voltages up to 24 Volts AC or DC at 1 A maximum.

Signaling Applications

Rubber profiles without cushioning are selected when sensing edges are used as signaling or initiating devices. Located within easy reach of operators, they are typically actuated by deliberate hand or foot motion.



Operating Environment

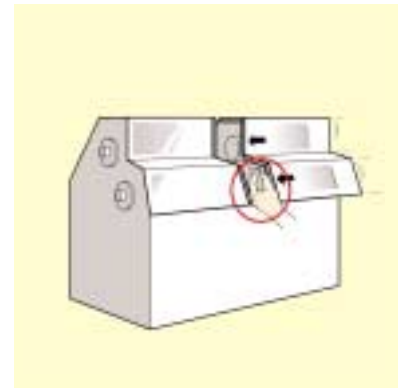
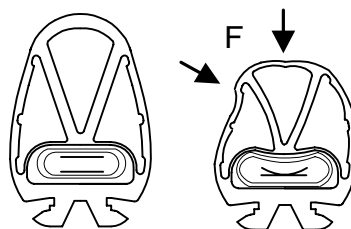
Bircher SafeTec® sensing edges offer superior moisture resistance and some of the available rubber materials resist many chemicals and oils.

Controllers

Available for safety categories 1 and 3. The power supply voltages are 24VAC or VDC, 115V or 230V.

Safety Applications

Rubber profiles with cushioning prevent collision damage or injury when sensing edges are used on moving machinery. The selection of the profile height is ideally based on speed and stopping distance of the hazardous motion.



Fail Safe Wiring

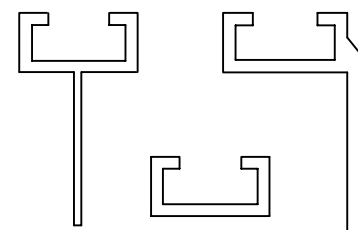
Use less cables and connections with 2-wire fail safe systems, ESR and ESD series controllers from Bircher monitor a resistor built into the sensing edge.

Delivery

An extensive stock and the modular edge design allow shipping of most orders within a matter of days .

Installation

Bircher SafeTec® sensing edges are installed and retained with mounting channels made of aluminum or PVC. Depending on the selected rubber profile, the edge either snaps or slides into the channel.





ESR and ESD Sensing Edge Controllers

- Safety Category 1 and 3 according to EN-954
- ESD-3 units are third party certified by BIA
- Fail safe wiring with only 2 wires
- DIN rail mount, direct or with 11-pin socket
- Multiple sensor inputs
- 24AC or DC, 110AC and 230AC power supply

Controller Function

The Bircher SafeTec® series of ESR and ESD controllers monitors for changes in the no-load current determined by an 8.2kOhm resistor built into, or externally connected to the sensor. With power to the ESR or 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.

Edge Specification

Contact Material	special brass
Oper. Temp.	- 20°C to +60°C - 4°F to +140°F varies according to rubber profile material selection
Design	normally open contact
Voltage	max. 24 Volt, 1A
Lead wires	2-conductor AWG 20, with twin PVC cover
Actuating F	is typically 10 to 15 lbs applied to a 80 mm / 3.125" diameter test piece



Applicable Standards

EN 1760-2, design and testing of pressure sensitive edges and EN 954-1, safety related parts of control systems.

ESD3 Controller Spec.

Isolation	IP 30 (IEC529)
Supply Volt.	24AC, 24DC, 110AC, 230AC
Sensor Inp.	2 sensor inputs, each monitors up to 30 m / 100 ft of edge
Oper. Temp.	0°F to 125°F -15°C to 50°C
Safety Outp.	2 outputs rated at 2A/250AC
LED's (4)	operation/safety stop/sensor error/system error
Reaction time	< 50 ms from edge actuation to change of state of the output relay

ESR-1 Controller Series

ESR-11

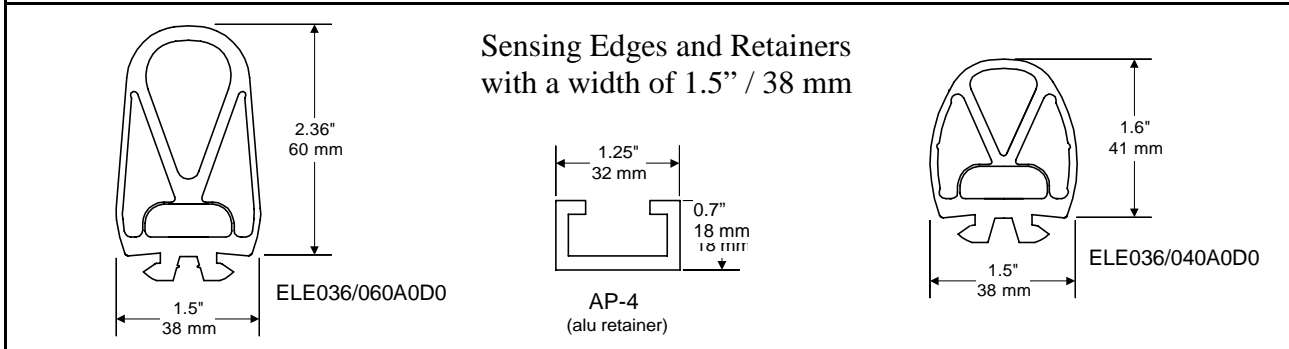
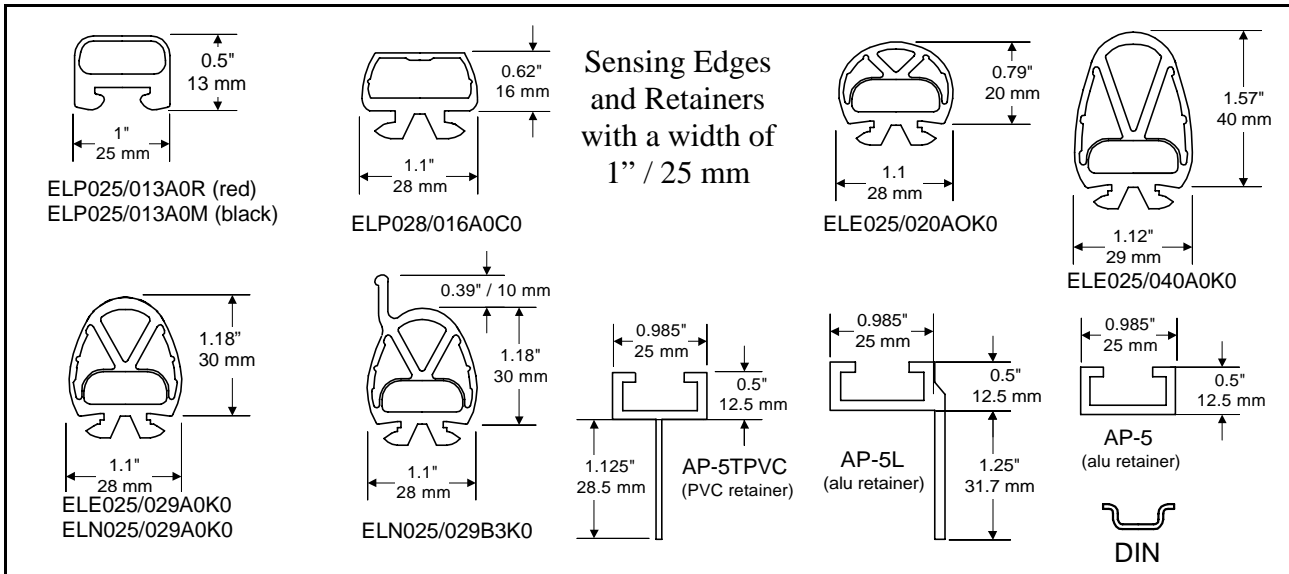
- Safety Category 1
- 2 sensor inputs
- 1 output
- Automatic reset

ESR-12

- Safety Category 1
- 2 sensor inputs
- 2 outputs, each sensor input has it's own output
- Automatic reset

ESD3 Controllers

- Safety Category 3
- BG certified
- DIN rail mount
- 2 NO safety outputs
- 1 NO or NC auxiliary and diagnostic output
- Positively guided relays
- Parts redundancy
- Automatic, manual and remote reset options



EL E 025 / 029 A0 K0 1 / 2570 / 0.5 / 00 / AP-5

Order Code

Electrical Sensing Edge
 Outer Rubber Material
 E = EPDM
 P = PVC
 N = Nitrile
 Rubber Profile Width in mm
 Rubber Profile Height in mm (without retainer or fin)
 With or without Fin
 A0 = none
 Foot Section to fit Retainer
 A = fits AP-1
 D = fits AP-4
 K = fits AP-5 or AP-5L or AP-5TPVC
 R = DIN (mini DIN rail TS-15)
 M = DIN (mini DIN rail TS-15)
 Wiring and Installation Configuration
 1 = 2-wire fail safe (requires initial cable only) with retainer
 2 = 4-wire fail safe (initial+2nd cable), multiple edge systems, with retainer
 4 = 2-wire fail safe (requires initial cable only), without retainer
 5 = 4-wire fail safe (initial+2nd cable), multiple edge systems, without retainer

Retainer
 enter retainer that fits the profile from Foot Section or enter
 wo = without retainer
 Length of 2nd Cable
 00 = edge has one cable
 0.5 = 0.5m (20")
 2 = 2m (6ft)
 4 = 4m (13ft)
 10 = 10m (32ft)
 Length of Initial Cable
 0.5 = 0.5m (20")
 2 = 2m (6ft)
 4 = 4m (13ft)
 10 = 10m (32ft)
 Edge Length
 2570 = if indicated in mm
 101.18" = if indicated in inch

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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