Tapeswitch™

A full spectrum of sensing and signaling products for protection, detection, and safety

Celebrating 50 Years of Excellence
1957 50 2007
In Safety and Sensing

SWITCH PRODUCTS

SAFETY & SIGNAL MATS

SENSING EDGES

SENSING BUMPERS

INTERFACE CONTROLLERS

LIGHT CURTAINS

CUSTOM DESIGNS

Welcome to Tapeswitch

We design and manufacture innovative sensing, switching, and control products for use in a wide range of safety and non-safety applications. Our products include ribbon switches, sensing edges and bumpers, safety mats, touch pads, controllers, and light curtains.

If a standard product just won't do the job, we offer extensive custom design services. We manufacture many specially-designed products, so if you do not find precisely what you need within our standard product offering, we can still most likely meet your exact application needs.

Whether you have an immediate requirement or are planning a long-term project, you can count on our mechanical and electrical engineers to come through for you.

If you would like to speak to someone, give us a toll-free call at **1-800-234-8273**. For general product information, ask for Customer Service, or if you have a specific application that requires technical assistance, ask for Application Engineering. You will get a person and not an automated menu.

Because we are constantly improving our products, specifications are subject to change without notice.

CONTENTS

Pressure-Sensitive Sensing Edges

Specialty & Custom Sensing Edge Products

Interface Controllers

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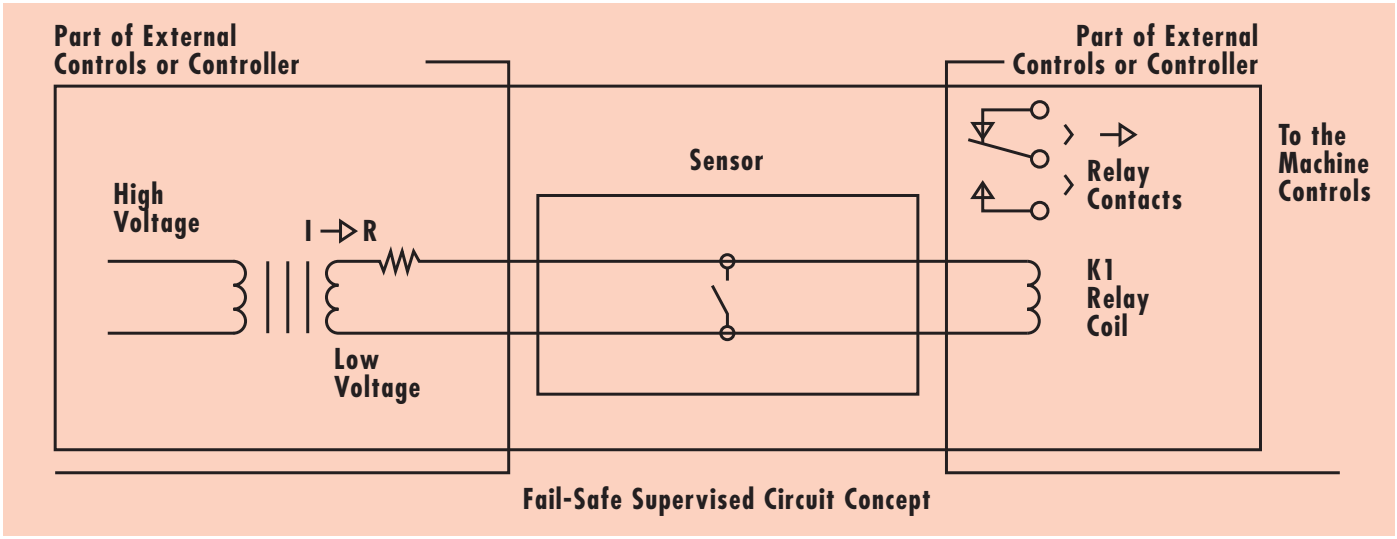
How sensing edges work
Understanding the fail-safe concept

Tapeswitch pressure-sensitive edges are used to protect personnel and equipment. When pushed or struck, they provide a contact closure that can be used to signal a machine controller. These edges are highly sensitive and feature press-at-any-point actuation. Properly installed and connected, they continuously monitor the protected area. However, to properly function as safety devices, edges must be installed with a fail-safe monitoring circuit as shown below or with an equivalent fail-safe methodology. **Tapeswitch Offers Controllers that Employ the Fail-Safe Concept.**

Understanding and Implementing the 4-wire Fail-Safe Concept

Principle of Safety

The fail-safe concept monitors the sensor status at all times. In the event of a failure, the fail-safe concept will simulate a protected position. The "protected" position is when the sensor is activated (closed) and the "normal" or "run" position is when the sensor is not activated (open).



Fail-Safe Supervised Circuit Concept

- Normal Conditions – constant current flow (I) holding relay coil (K1) energized
- Loss of Power – no current flow (I) and relay coil (K1) is de-energized
- Actuation of Sensor – relay coil (K1) is shorted and de-energized
- Failure of Sensor in the closed position – relay coil (K1) is shorted and de-energized
- Failure of Sensor in the open position – (broken wire, severed switch or conductor) leaves no path for current flow (I) and relay coil (K1) is de-energized
- Resistor R – limits current flow through the sensor when actuated

Fail-Safe (4-wire)

Fail-Safe is a shorthand term used to mean Fail to a Safe condition. In machinery with known hazards, the system is fail-safe when any failure leaves the machinery in a safe condition. The 4-wire fail-safe concept is illustrated in the figure above. A small current is constantly flowing through the sensor at all times, holding the relay coil energized at all times. The machine controls, interrupt, or stop circuitry is connected to the contacts of this relay. If the sensor is actuated, the relay coil will be shorted, causing the relay to de-energize. A resistor in series provides current limiting from overdrawing the power supply and limits the current through the sensor in the actuated position. If the sensor fails in the closed position the relay will be shorted and cannot be energized until the failure is corrected. If the sensor fails in the open position, the current path for the relay coil no longer exists and the relay coil cannot be energized until the current path is restored and the failure corrected.

In addition to the safety aspects achieved with Fail-Safe, it also provides:

- Isolation of the machine controls and sensor(s)
- Isolation of high amperage and high voltage machine switching from the low voltage sensors
- Conversion of a normally open switch to required normally closed machine controls

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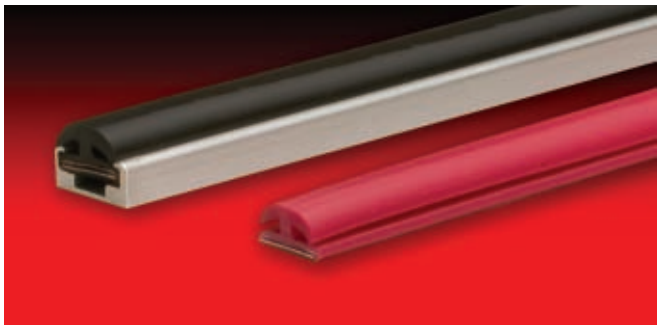
Lowest profile with high sensitivity
Immediate actuation, no overtravel

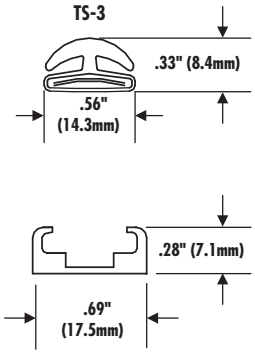
The **TS-3 Micro Sensing Edge** is one of the most compact safety edges available. Only 1/2 inch wide and 5/16 inch high, it provides reliable sensing in minimum space. This edge can be mounted with double-faced tape or using aluminum channel.

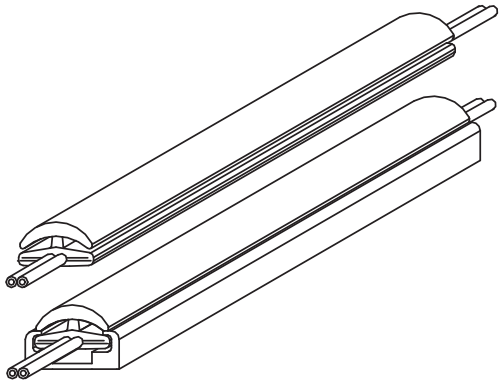
The **TS-3** is available in lengths from 6 in. to over 100 ft, making it suitable for pressure-sensitive detection, signaling, or emergency stops on long assembly lines or conveyor systems. The PVC housing is resistant to water, oil, hydraulic fluids, and coolants. The internal switching element is rated for 3 million operations at any point. All **TS-3 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.



Features & Benefits

- Lowest profile fits limited space
- High sensitivity for immediate activation
- Good side sensitivity for off-angle activation
- Standard 4-lead fail-safe wiring





The TS-3 is available in Black, Red, Yellow

Typical Applications

- Pinch protection on scissor lifts
- Obstruction detection on automatic doors
- Foot-operated stop switches for shop floor
- Impact detection on machinery edges
- Patient protection on medical tables
- General space-limited sensing applications

Specifications

Actuation Force	3.0 lbs (13 N) nominal (no channel) 4.0 lbs (18 N) nominal (in channel)
Overtravel	None
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	PVC
Environment	IP67, -10 to 145 °F (-23 to 63 °C)
Mounting Options	Aluminum channel (slide-in), or double-faced tape

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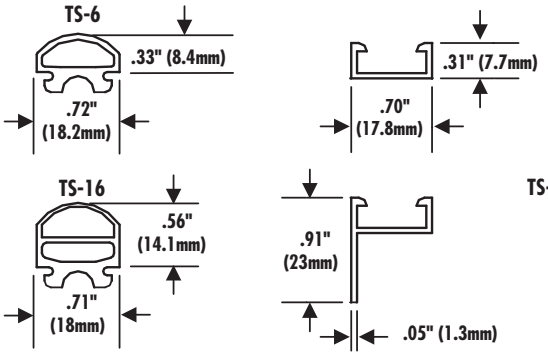
Low profile with high sensitivity
Immediate actuation, no overtravel (TS-6)
Immediate actuation, 1/4" overtravel (TS-16)

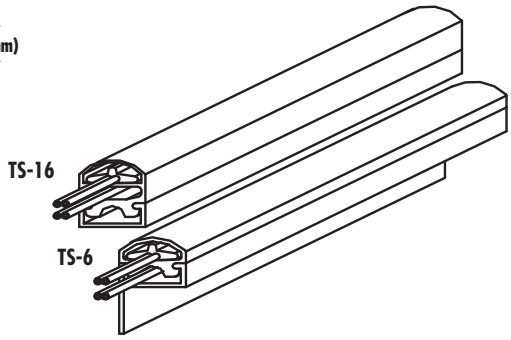
TS-6 & TS-16 Mini Sensing Edges are designed for limited space applications requiring high-sensitivity. These two products differ mainly in height and sensitivity. The **TS-6** is 0.33" high and requires only 1.5 lbs to activate, while the **TS-16** is 0.56" high and requires 2.2 lbs to activate.

These edges have PVC housings, which are resistant to water, oil, hydraulic fluids, and coolants. The internal switching elements are rated for 3 million operations at any point. They mount in snap-in channel that is available in two configurations: flat (aluminum or PVC) or with a right-angle mounting edge (aluminum only). All **TS-6 and TS-16 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.

Features & Benefits

- Low profile for limited space applications
- High sensitivity, low compliance for immediate activation
- Some overtravel allows compression after activation
- Standard 4-lead fail-safe wiring





The TS-6 is available in Black, Red, Orange

The TS-16 is available in Black, Red, Yellow, Orange

Typical Applications

- Pinch protection on scissor lifts
- Obstruction detection on automatic doors
- Personnel protection on automated storage systems
- Impact detection on machinery edges
- Patient protection on medical tables
- Residential and commercial sensing applications

Specifications

Actuation Force	1.5 lbs (6.7 N) nominal for TS-6 2.2 lb (9.8 N) nominal for TS-16
Overtravel	0.04" (1 mm) after activation for TS-6 0.20" (5 mm) after activation for TS-16
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	PVC
Environment	IP67, -10 to 145 °F (-23 to 63 °C)
Mounting Options	Aluminum channel (flat or angle). PVC channel (flat only)

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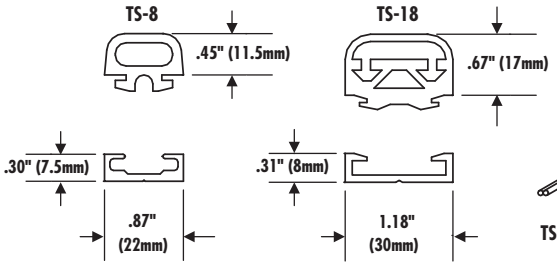
Low profile, end caps available
Immediate actuation, no overtravel (TS-8)
Immediate actuation, 1/4" overtravel (TS-18)

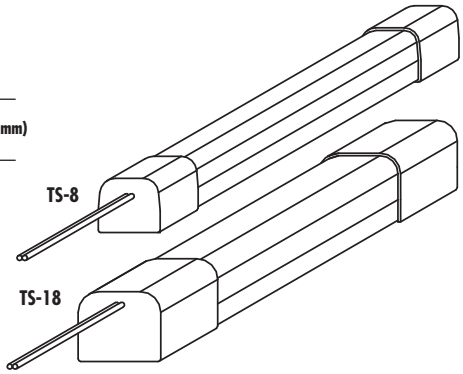
TS-8 & TS-18 Mini Sensing Edges are designed for limited space applications where end caps are desirable for cosmetic or environmental reasons. These two products differ mainly in housing material: PVC for the **TS-8** and EPDM for the **TS-18**. The EPDM housings have better chemical resistance and have a wider temperature range than PVC.

Mounting for both edges is by means of snap-in aluminum channel. The internal switching element is rated for 3 million operations at any point. All **TS-8 & TS-18 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.

Features & Benefits

- Low profile for limited space applications
- End caps for cosmetic or environmental concerns
- Some overtravel allows compression after activation
- Standard 4-lead fail-safe wiring





The TS-8 & TS-18 are available in ■ Black

Typical Applications

- Pinch protection on machinery edges
- Obstruction detection on medical tables
- Signaling on machining centers
- Personnel protection from moving equipment
- Activation or deactivation of powered storage systems
- Applications requiring a large active switching surface

Specifications

Actuation Force	2.5 lbs (11 N) nominal for TS-8
	3.0 lb (13 N) nominal for TS-18
Overtravel	0.10" (3 mm) after activation for TS-8
	0.25" (6 mm) after activation for TS-18
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	PVC for TS-8
	EPDM for TS-18
Environment	IP67, -10 to 145 °F (-23 to 63 °C) for TS-8
	IP67, -30 to 170 °F (-34 to 77 °C) for TS-18
Mounting Options	Flat aluminum channel

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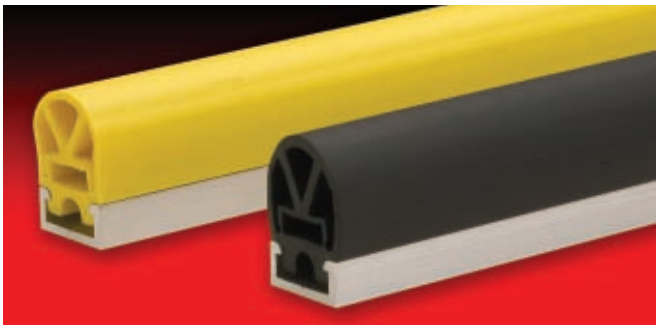
Medium profile, end caps available
Immediate actuation, 3/8" overtravel

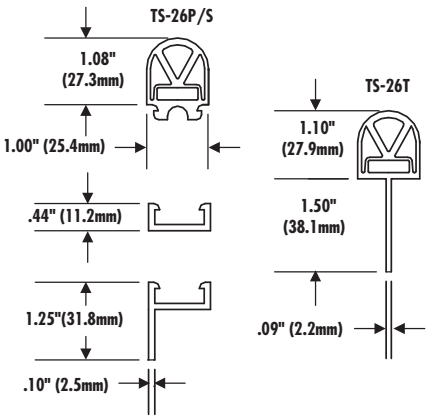
The **TS-26 Sensing Edge** is a general-purpose, medium-profile, pressure-sensitive edge. It provides immediate activation with minimal compliance, and about 3/8" of overtravel cushioning after activation. This product is excellent for applications requiring side activation. **TS-26 Edges** are available in two mounting configurations: snap-in channel-mount (flat or angle) and clamp-mount.

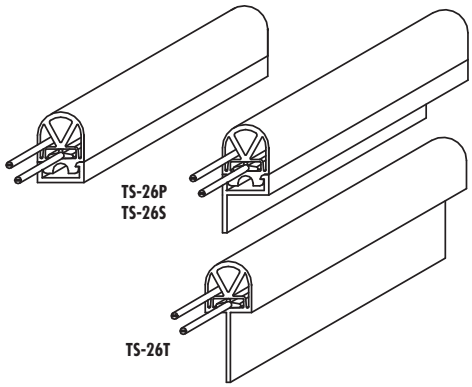
Housings are available in PVC (TS-26P) or Santoprene (TS-26S and TS-26T). Both materials are resistant to water, oil, hydraulic fluids, and coolants. The internal switching elements are rated for 3 million operations at any point. All **TS-26 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.



Features & Benefits

- Low compliance for immediate activation
- 35% overtravel after activation
- Excellent side activation properties
- Standard 4-lead fail-safe wiring





The TS-26 S & TS-26 P are available in: Black, Red, Yellow

The TS-26 T is available in: Red

Typical Applications

- Pinch protection on machinery edges
- Obstruction detection on medical tables
- Collision sensors on AGVs
- Obstruction detection on automatic doors and gates
- Contact sensing on large moving machinery
- Applications requiring side activation

Specifications

Actuation Force	4.5 lbs (20 N) nominal
Overtravel	0.35" (9 mm) after activation
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	PVC for TS-26P Santoprene TPE for TS-26S and TS-26T
Environment	-10 to 145 °F (-23 to 63 °C) for TS-26P -30 to 170 °F (-34 to 77 °C) for Santoprene TS-26S and TS-26T
Mounting Options	Aluminum channel (flat or angle) for TS-26P and TS-26S PVC channel (flat only) for TS-26P and TS-26S Clamp mounting for TS-26T only
End Caps	For TS-26P only (End caps are black)

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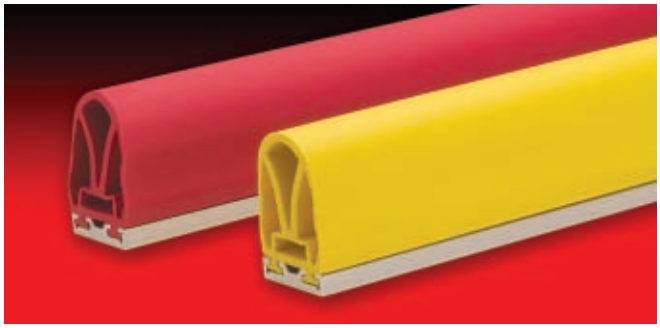
Medium profile, crimp-on mounting
Compliance before actuation, 3/4" overtravel

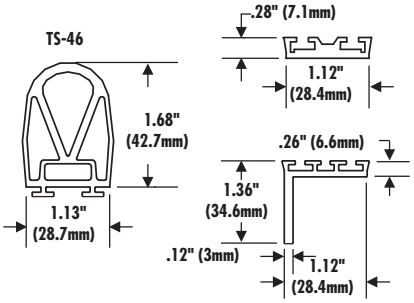
The **TS-46 Sensing Edge** is a general purpose, medium profile edge. It has some compliance before activation, eliminating nuisance tripping, and provides about 3/4" of overtravel cushioning after activation. This edge also exhibits excellent side activation. Mounting is in crimpable aluminum channel (flat or angle), which is more tamper-resistant than snap-in channel.

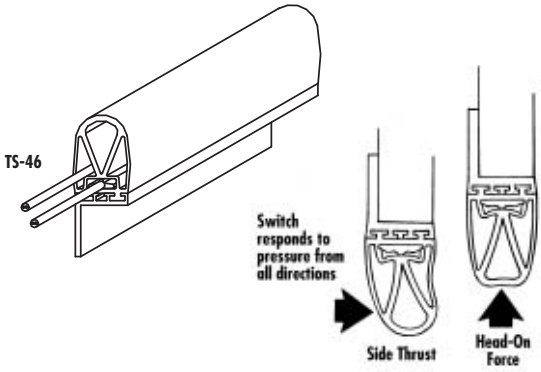
The Santoprene TPE housing is resistant to water, oil, hydraulic fluids, and coolants. The internal switching element is rated for 3 million operations at any point. All **TS-46 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.



Features & Benefits

- Compliance before activation eliminates nuisance tripping
- 3/4" overtravel provides cushioning after activation
- Excellent side activation properties
- Standard 4-lead fail-safe wiring





The TS-46 is available in Black, Red, Yellow

Typical Applications

- Obstruction detection on powered doors and gates
- Collision detection on moving platforms
- Positioning control on moving conveyors
- Pinch protection on stage lifts
- Collision sensors on AGVs
- General applications for small sensing bumpers

Specifications

Actuation Force	10 lbs (44 N) nominal
Overtravel	0.75" (19 mm) after activation
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	Santoprene TPE
Environment	IP67, -30 to 170 °F (-34 to 77 °C)
Mounting Options	Aluminum crimpable channel (flat or angle)

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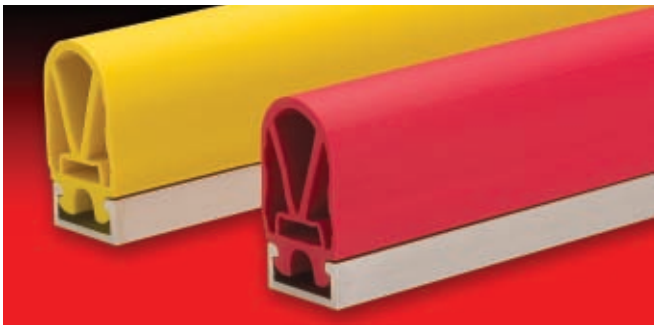
Medium profile, snap-in mounting
Compliance before actuation, 3/4" overtravel

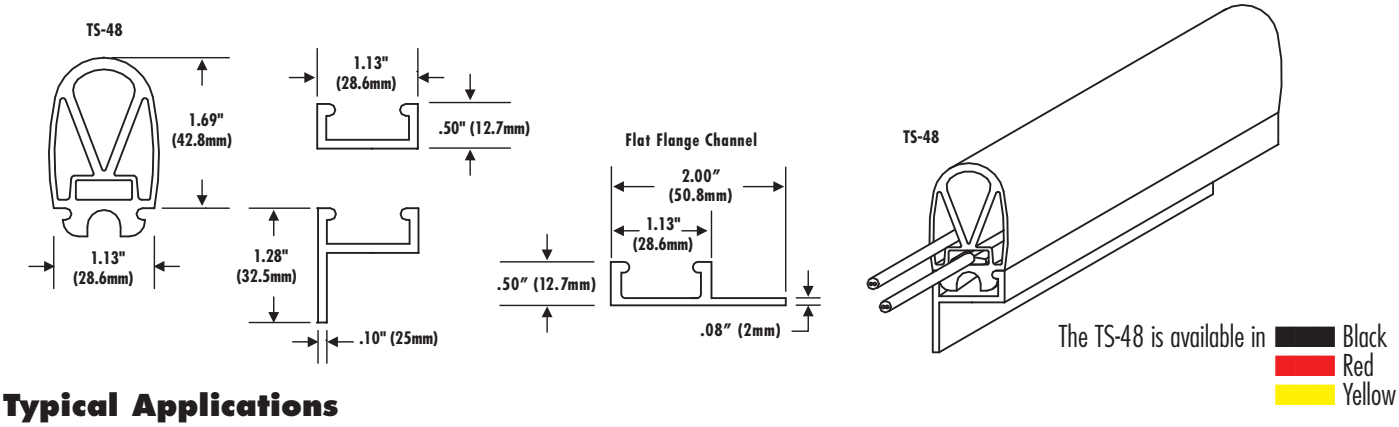
The **TS-48 Sensing Edge** is a general purpose, medium profile edge. It activates after some compliance, eliminating nuisance tripping, and provides about 3/4" of overtravel cushioning after activation. Mounting is by means of snap-in channel that is available in three configurations: Flat (aluminum or PVC) and with a straight or right angle flange (aluminum only).

The Santoprene TPE housing is resistant to water, oil, hydraulic fluids, and coolants. The internal switching element is rated for 3 million operations at any point. All **TS-48 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.



Features & Benefits

- Compliance before activation eliminates nuisance tripping
- 3/4" overtravel provides cushioning after activation
- Excellent side activation properties
- Standard 4-lead fail-safe wiring



Typical Applications

- Obstruction detection on powered doors and gates
- Collision detection on moving platforms
- Positioning control on moving conveyors
- Pinch protection on stage lifts
- Collision sensors on AGVs
- General applications for small sensing bumpers

Specifications

Actuation Force	10 lbs (44 N) nominal
Overtravel	0.75" (19 mm) after activation
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	Santoprene TPE
Environment	IP67, -30 to 170 °F (-34 to 77 °C)
Mounting Options	Aluminum channel (flat or flanged), PVC channel (flat only)

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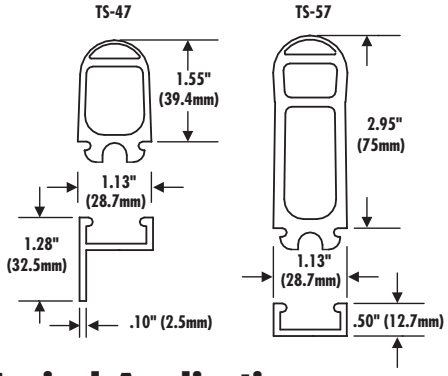
High sensitivity, no compliance for fastest activation
Substantial overtravel for maximum cushioning

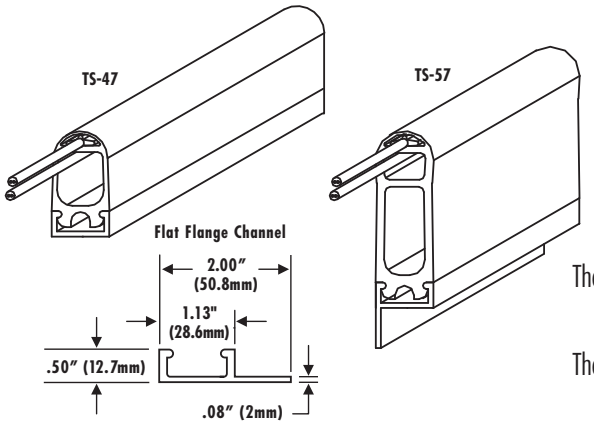
The **TS-47 & TS-57 Sensing Edges** are designed for powered doors and other applications requiring the most sensitive switching and the fastest activation. These two products differ mainly in overall height and the amount of overtravel cushioning. Mounting is by means of snap-in channel that is available in three configuration: Flat (aluminum or PVC) and with a straight or right-angle flange (aluminum only).

The Santoprene TPE housings are resistant to water, oil, hydraulic fluids, and coolants. The internal switching elements are rated for 3 million operations at any point. All **TS-47** and **TS-57 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.

Features & Benefits

- High sensitivity with no compliance for fastest activation
- Substantial overtravel provides maximum cushioning after activation
- Specifically designed for powered doors and gates
- Standard 4-lead fail-safe wiring





The TS-47 is available in Black, Red

The TS-57 is available in Black, Red, Yellow

Typical Applications

- Personnel protection from power driven doors and gates
- Side bumpers on AGVs and mobile platforms or machinery
- Obstruction detection on high-speed, gym doors, and moving partitions
- General sensing applications requiring fast response and protective cushioning

Specifications

Actuation Force	1.2 lbs (5.3 N) nominal
Overtravel	1.0" (25 mm) after activation for TS-47 2.4" (61 mm) after activation for TS-57
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	Santoprene TPE
Environment	IP67, -30 to 170 °F (-34 to 77 °C)
Mounting	Aluminum channel (flat or flanged), PVC channel (flat only)

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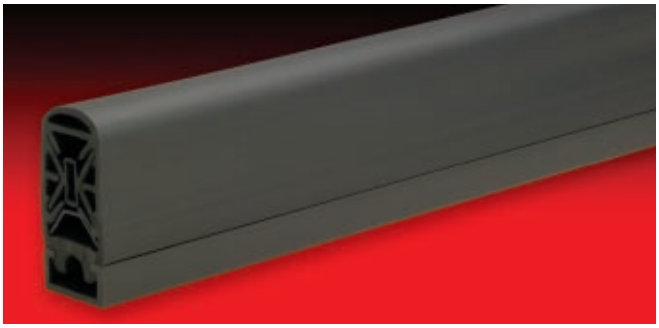
TS-67 OMNI-DIRECTIONAL SENSING EDGE

High sensitivity from any direction
Immediate actuation with 1" overtravel

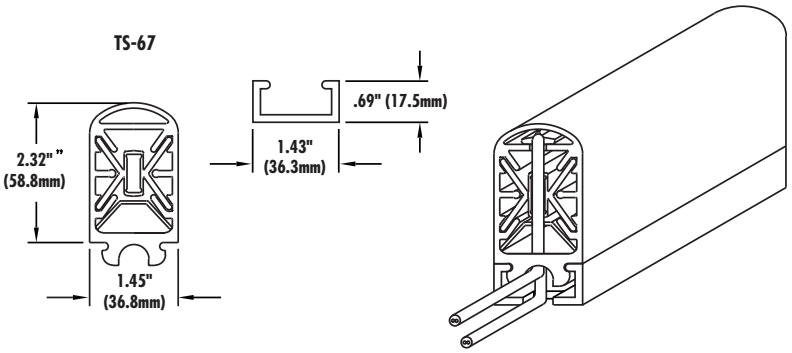
The **TS-67 Sensing Edge** is a unique, dual-switch product that exhibits uniform high sensitivity when deflected in any direction – top, side, or at an angle. After actuation, it provides 1" of protective overtravel cushioning. Mounting is by means of snap-in PVC channel. The internal switching elements are rated for 3 million operations at any point.

Originally designed for the specialized requirements of revolving doors, the TS-67 is suitable for any application requiring a highly sensitive and flexible edge. It is especially appropriate when the direction of impact is unpredictable. TS-67 Sensing Edges are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.



Features & Benefits

- Dual-switch design for high sensitivity in all directions
- Immediate activation for maximum protection
- 1" overtravel provides cushioning after activation
- Standard 4-lead fail-safe wiring



The TS-67 is available in Black

Typical Applications

- Revolving doors or swinging gates
- Swinging doors on machinery
- Pinch protection on sliding surfaces
- Fast-moving powered closures
- Impact detection on moving machinery
- Applications requiring multi-directional sensing

Specifications

Actuation Force	6.0 lbs (27 N) nominal
Overtravel	1.0" (25 mm) after activation
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	Santoprene TPE
Environment	IP67, -30 to 170 °F (-34 to 77 °C)
Mounting Options	PVC snap-in channel

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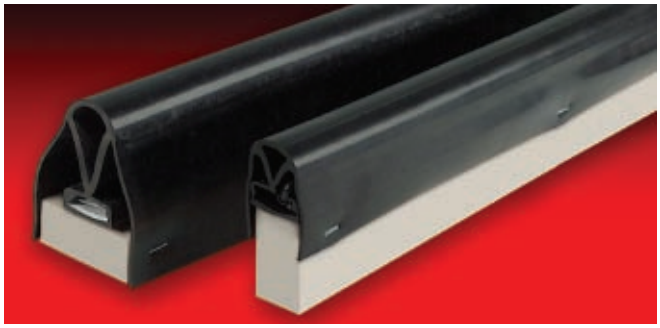
Self-mounting, side activation, 50% overtravel
For residential and commercial applications

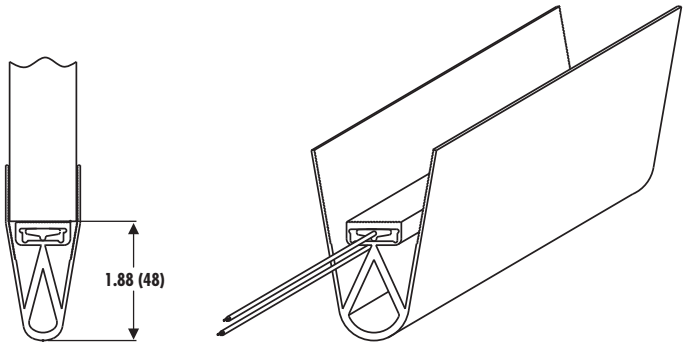
The **TS-108 & TS-109 Sensing Edges** are designed for mounting directly on door or stage edges without using channel. They have excellent side activation and about 50% overtravel cushioning. The **TS-109** fits edges from 3/4" to 1-1/4" thick, and the **TS-108** fits edges from 7/8" to 2-1/4" thick.

The EPDM rubber housings are rugged and weatherproof. The sealed ribbon switch sensing elements are rated for a long life of 3 million operations at any point, and are field replaceable, just in case. All **TS-108 & TS-109 Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.

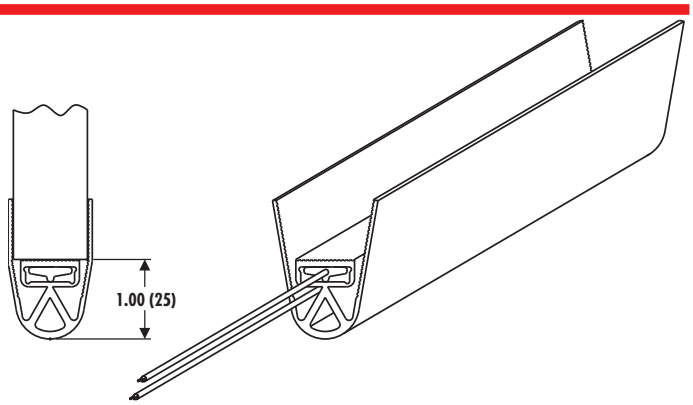


Features & Benefits

- Self-mounting eliminates need for channel
- Side activation maximizes protection
- Replaceable switching element simplifies maintenance
- Standard 4-lead fail-safe wiring



The TS-108 fits edges 7/8 " to 2-1/4" thick



The TS-109 fits edges 3/4" to 1-1/4" thick

The TS-108 & TS-109 are available in ■ Black

Typical Applications

- Personnel protection from power driven doors, gates, and partitions
- Pinch point protection on stage lifts and scenery elevators
- General residential and commercial sensing applications

Specifications

Actuation Force	5 lbs (22 N) nominal
Overtravel	1.0" (25 mm) after activation for TS-108 0.5" (12 mm) after activation for TS-109
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	EPDM rubber
Environment	IP67, -10 to 145 °F (-23 to 63 °C)
Mounting Options	Contact cement, tacks, staples, batten strip or molding

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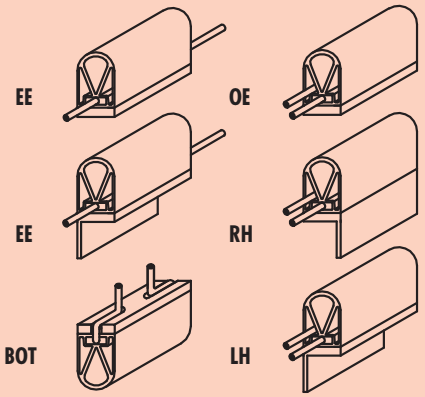
Step-by-step guide to the ordering process

When ordering a sensing edge, you need to specify the following items:

1. Product model number
2. Sensing edge color
3. Sensing edge length
4. Mounting channel type
5. Lead style (fail-safe or single lead)
6. Lead exit location
7. End caps (optional)
8. Quick disconnect (optional)

EE	one lead from Each End
OE	both leads from One End
RH	both leads from Right Hand end (angle channel only)
LH	both leads from Left Hand end (angle channel only)
BOT	both lead ends on Bottom, recessed in U-slot



TS-46 profile shown

Use the lead illustration above and the table on the facing page to generate a product description as shown in the following example.
For lead style, use **F/S for fail-safe** and **S/L for single lead**.

Example:

For a **TS-26S** edge, in **red**, that is **12 ft long** and mounted in **aluminum flat channel**, has **fail-safe leads** with **leads out one end**, the description code would be as follows:

TS-26S, R, 12 ft, AF, F/S, OE

Example:

For a **TS-46** edge, in **black**, that is **10 ft long** and mounted in **aluminum angle channel**, has **fail-safe leads** with **leads out one end** (select left or right hand with angle channel) with a **quick disconnect**, the description code would be as follows:

TS-46, B, 10 ft, AA, F/S, RH, Quick Disconnect

Definition of terms

Profile
The cross-section of the sensing edge. It varies in height and width, number of compartments, and mechanical elements, all of which determine the actuation characteristics.

Actuation Force
The amount of force necessary to cause a contact closure of the switching element inside the sensing edge using an object of specific size. Tapeswitch actuation forces are measured using a 3/4" diameter disc.

Compliance
The amount of deformation of the sensing edge before the switch actuates. Low compliance is desirable when immediate actuation is required. Higher compliance gives some immunity to false or inadvertent actuations.

Overtravel
The amount of deformation of the sensing edge after the switch actuates. Overtravel determines the amount of cushioning after an impact with the edge.

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HOW TO ORDER SENSING EDGES

Use the Product Chart below as guide in specifying your sensing edge.

Product Type	Housing Colors	Available Lengths	Standard Lead Exit*	Standard Lead Wire	Channel Type Option	End Cap
TS-3	B-Black R-Red Y-Yellow	6 in - 10 ft	EE - Each End	22/2 AWG 18" long	AF-Aluminum Flat	Not Available
TS-6	B-Black O-Orange R-Red	6 in - 16 ft	OE - One End	22/2 AWG 18" long	AF-Aluminum Flat AA-Aluminum Angle* PF-PVC Flat	Available
TS-16	B-Black O-Orange R-Red Y-Yellow	6 in - 16 ft	OE - One End	22/2 AWG 18" long	AF-Aluminum Flat AA-Aluminum Angle* PF-PVC Flat	Available
TS-8 TS-18	B-Black	6 in - 16 ft	EE - Each End	22/2 AWG 18" long	AF-Aluminum Flat	Available
TS-26P TS-26S	B-Black R-Red Y-Yellow	6 in - 16 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	AF-Aluminum Flat AA-Aluminum Angle* PF-PVC Flat	For PVC only
TS-26T	B-Black	6 in - 16 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	None required	Not Available
TS-46	B-Black R-Red Y-Yellow	6 in - 16 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	AF-Aluminum Flat AA-Aluminum Angle*	Available
TS-48	B-Black R-Red Y-Yellow	6 in - 16 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	AF-Aluminum Flat AA-Aluminum Angle* AS-Aluminum Flange* PF-PVC Flat	Available
TS-47 TS-57	B-Black R-Red Y-Yellow (TS-57)	6 in - 16 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	AF-Aluminum Flat AA-Aluminum Angle* AS-Aluminum Flange* PF-PVC Flat	Not Available
TS-67	B-Black	6 in - 9 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	PF-PVC Flat	Not Available
TS-108 TS-109	Black	6 in - 10 ft	OE - One End	20/2 AWG Dri-Run 72" long, 3/16" dia.	None required	Not Available

* When using angle or flange channel, specify LH or RH lead exit.

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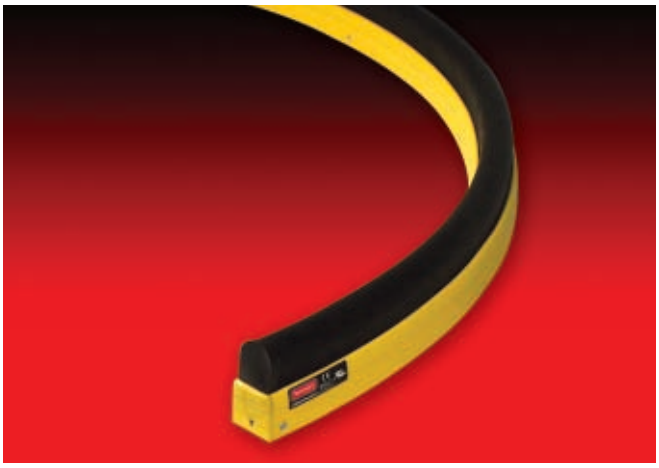
SENSOR-RING™ CIRCULAR SENSING EDGE

Exact fit for circular geometries
Available as a full or partial circle

The **Sensor-Ring™ Circular Sensing Edge** offers a unique and effective solution for applications requiring a large curved or circular sensing element. It replaces multi-piece, multi-switch products with a single curved sensor that provides contact closure at any point. The hollow-ring design permits pass-through of wires, components, or personnel.

The **Sensor-Ring™** is constructed with a Santoprene TPE housing which is resistant to water, oil, hydraulic fluids, and coolants. It is available in partial or full circle models with diameters up to 5 ft. Mounting can be customized to suit the application.



Features & Benefits

- Exact fit for circular geometries
- Diameters 2.5 to 5 ft. in partial or full circle
- Continuous switch activates at any point
- 0.75 in. of cushioned overtravel
- Standard 4-lead fail-safe wiring

Typical Applications

- Medical scanners
- Large rotating machinery
- Multi-station turntables
- Automatic inspection equipment
- Any curved sensing application

Options

- Sensing on up to 3 sides
- Multiple sensing zones
- Application-dependent mounting options
- Choice of back, end or side lead exit
- Stainless steel armored cable available

Specifications

Diameter	2.5 ft to 5.0 ft
Circular Segment	10 to 360 degrees
Actuation Force	Less than 10 lb (44 N) nominal for activation at any point
Overtravel	0.75" (19 mm) after activation
Recommended Voltage & Current	28 Vac or Vdc at 1.0 amps max.
Exterior Housing	Santoprene TPE
Environment	IP67, -10 to 140 °F (-23 to 60 °C)

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FLEXION™ CURVABLE SENSING EDGE SYSTEM

Follows application contours, curved or serpentine
Choice of profile, sensitivity, and color

The **Flexion™ Curvable Sensing Edge System** offers a simple solution for situations where a sensing edge is required to curve laterally. The innovative interlinked mounting channel provides the flexibility to follow the natural contours of a mounting surface, including those with an "S" curve.

The **Flexion™** system offers a choice of several sensing edge types with various profiles, sensitivities and colors. Each sensing edge is composed of a continuous length of sealed ribbon switch encased in a rugged extruded housing. All **Flexion™ Sensing Edges** are supplied with 4-lead, fail-safe wiring and are compatible with Tapeswitch Interface Controllers.

Features & Benefits

- Curvable mounting channel follows application contours, including serpentine shapes
- Choice of profile, sensitivity, and color to match application
- Rugged extruded housing is chemical and water resistant for long life
- Modular design for easy installation
- Standard 4-lead fail-safe wiring

Typical Applications

- Medical tables
- Curved sliding doors
- Theatrical stage lifts
- Curved pinch points
- S-curve closures
- Any contoured sensing application

Specifications

Sensing Edge Type	TS-26	TS-47	TS-48	TS-57
Actuation Force	4.5 lb (20N)	1.2 lb (5.3N)	10 lb (44N)	1.2 lb (5.3N)
Overtravel	0.35 in (9mm)	1.0 in (25.4mm)	0.75 in (19mm)	2.4 in (61mm)
Recommended Voltage & Current	28 VAC or VDC at 1.0 amps max.			
Exterior Housing	TPE or PVC	TPE	TPE	TPE
Color	black, yellow, red	black, red	black, yellow, red	black, yellow, red
Operating Temperature (for all types)	IP-67, -30 °F to 170 °F (-34 °C to 77 °C) for TPE IP-67, -10 °F to 145 °F (-23 °C to 63 °C) for PVC			

Contact Tapeswitch with your application requirements.

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Custom Sensing Edges for unusual or difficult applications Edges designed to solve specific problems

While most companies offer little to no customization of sensing and safety edge products, Tapeswitch offers many design options and a track record of innovative products for unique applications. Changes may be as simple as a color change or material variation, or as complex as a custom profile with unique operating characteristics.

Tapeswitch specializes in custom sensing edges for unusual or difficult applications. If you do not find precisely what you need within our standard product offering, we can still most likely meet your exact application needs. Below are two examples of our capabilities.

This **Circular Sensing Ring** is used for pinch protection on a medical scanner.

Special Characteristics:

- Pressure-sensitive on the top and outside
- Molded outer housing
- Special materials
- Color-coordinated to match equipment

This **Sensing Edge Assembly** is used on a moving, extendable conveyor system.

Special Characteristics:

- Multiple sensing edges
- Multi-angle, wide area collision detection
- Mounting plate with painted components
- Special abrasion-resistant covers

Whether you have an immediate requirement or are planning a long-term project, you can count on our mechanical and electrical engineers to come through for you. We have built our reputation on rapid response, customer commitment, and sensible solutions.

If you would like to speak to someone, give us a toll-free call at **1-800-234-8273**. For general product information, ask for Customer Service, or if you have a specific application that requires technical information, ask for Application Engineering.

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INTERFACE CONTROLLERS FOR SENSING EDGES

Compatible controllers for safety applications

Tapeswitch manufactures interface controllers that are compatible with all of the **Sensing Edge** products shown in this catalog. These devices provide an interface between the low-voltage **Sensing Edge Switches** and the machine or device being controlled. Be certain to select the appropriate controller for the application. For detailed specifications, see our catalog for Interface Controllers, or visit www.tapeswitch.com.

Safety applications require the use of both a fail-safe sensing edge and a fail-safe rated interface controller. For non-safety applications, any mix of fail-safe and non-fail-save devices may be used.

C6 Multifunction Interface Controller

- Fully fail-safe for hazardous applications
- Self-contained, supports up to 6 zones
- Detects sensor, cabling or internal faults
- NEMA enclosure with LED status display

PRSU/4 Control Unit

- Fully fail-safe for hazardous applications
- Detects sensor, cabling or internal faults
- Uses 24 Vac or Vdc supply
- DIN rail mounting

PSSU Control Unit

- Fully fail-safe for highest-risk applications
- Detects sensor, cabling or internal faults
- 100/240 Vac or 24 Vdc
- DIN rail or wall mounting options

PSCU Control Unit

- Suitable for low-risk applications only
- 100/240 Vac or 24 Vdc
- 11-pin plug-in or DIN rail mounting

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A sample of industries we serve.

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Please refer to our web site to locate your nearest representative.

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