



# Tapeswitch-based Products



Supplied By





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### **History**

Tapeswitch Ltd is one of five Tapeswitch companies worldwide, manufacturing products based on Tapeswitch's ribbon-switch technology. The original Tapeswitch company was formed in the USA in 1959 and acquired by Indel in 1986. The group of companies has expanded as a result of the continued successful application of the technology.

### **Innovative & Versatile**

We at Tapeswitch Ltd have a skilled staff of engineers, designers and application experts that have developed a comprehensive range of ribbon-switch systems suitable for a wide variety of applications. However, due to the versatility of the product and expertise of our engineers, we can work with our customers to provide innovative solutions specifically to their requirements.

### **Sales**

Our sales team have vast knowledge of applications and can offer their expert advice on the best possible solution. They have the ability to look beyond the obvious and help customers achieve solutions far and beyond their expectations. Building a good relationship and working closely with the customer throughout the procurement process ensures that the most suitable products are selected.

### **Manufacturing**

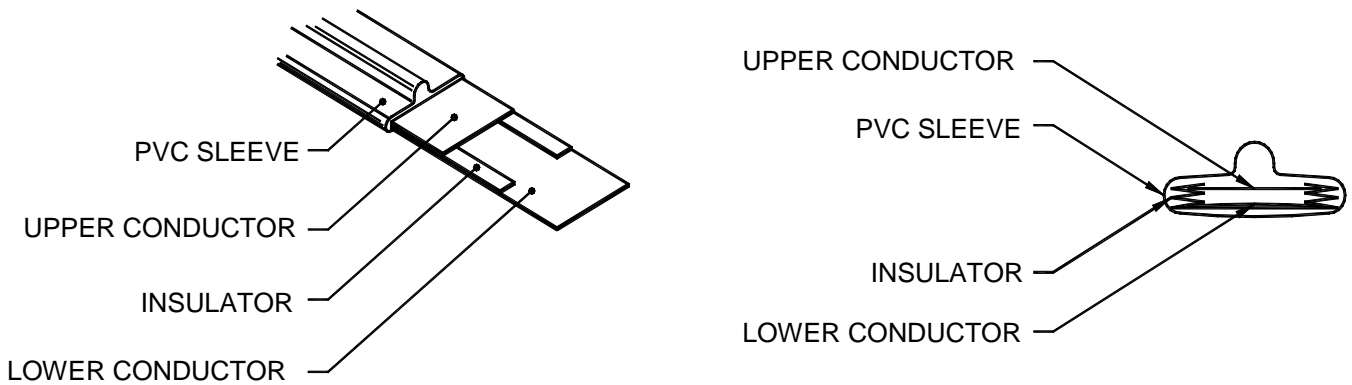
The modern factory based in Chorley, Lancashire was purpose-built in 1997 to house Tapeswitch's UK production facilities. Our manufacturing processes, from receiving an order right through to the despatch of the goods, are designed to be accurate and efficient. This enables us to deal with the most demanding delivery schedules. Our QMS Certification to ISO 9001: 2008 ensures that we provide products to the highest quality.

### **Customer Service**

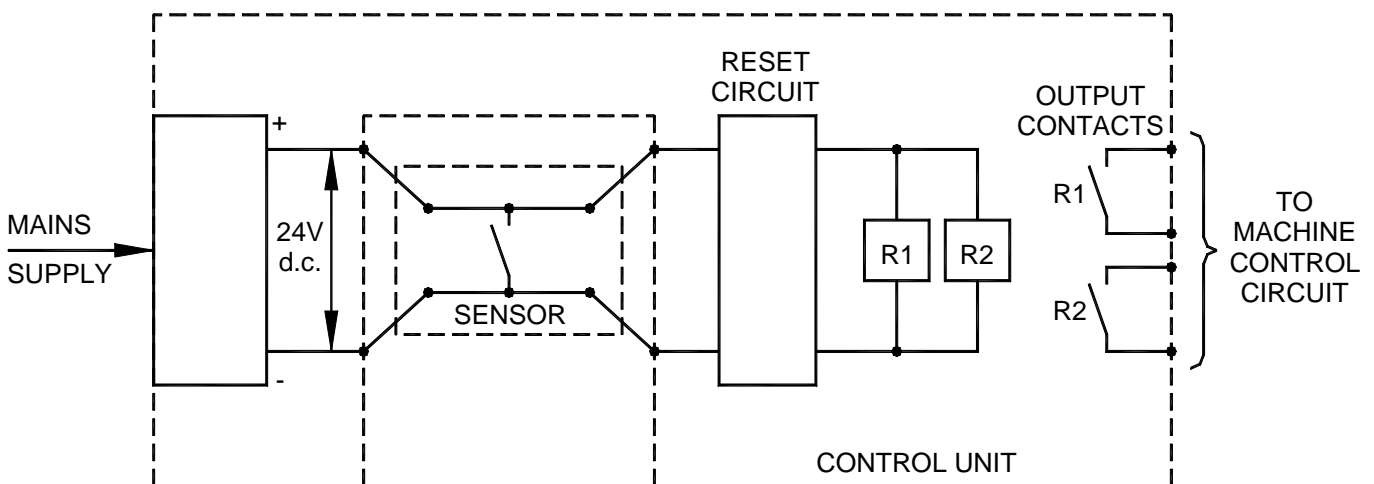
Our sales team are on hand to provide any after sales advice you may require. In the event of any installation or product queries they can efficiently solve any problem and fulfil any future requirements you may have.

# Tapeswitch Technology

Tapeswitch technology is based on a proven switching principle that comprises a continuous length of normally open switch. The switch comprises two copper-plated steel conductors held apart at the sides by an insulating strip. When pressure is applied at any point along the length, the two conductors are forced together in the centre, closing the switch. Tapeswitch uses this reliable technology in the manufacture of a range of different sensors: safety mats, sensing edges, ribbon switches and control devices.



A current limited power supply is taken from the control unit where it supplies power to the output relays. The output contacts of these relays are only closed when the output relays are energised. If the sensor is actuated, the supply to the relays is short-circuited causing them to de-energise. In addition, if the power supply to the output relays is interrupted or shorted out by a fault in the cabling, internal wiring or switching elements, power to the output relays will be lost, the relays will de-energise and the contacts will open. All Tapeswitch-based products that are designed for safety applications have fail-safe wiring as standard. Fail-safe wiring is normally achieved using either one 4-core cable or two 2-core cables. In some circumstances, fail-safe wiring can be achieved using only one 2-core cable. Please contact Tapeswitch to discuss your application.



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## Ribbon Switches



### Features

- Simple, reliable technology
- Wide range available
- Length up to 1000m
- Choice of colours
- Choice of cables & connection options
- Variety of mounting options
- TÜV approved
- Long life (in excess of 3 million operations)

Ribbon switches are press-at-any-point, momentary, normally-open contacts.

They are the essence of simplicity and reliability. These products deliver the highest levels of performance in thousands of applications ranging from general-purpose usage to severe environments.

Our ribbon switches offer a broad range of pressure sensitivities and a wide range of sheathing materials, switch lengths, end-termination seals, exterior colours, lead-wire combinations and mounting options, as well as a substantial resistance to moisture and chemicals.

Ribbon switches are incorporated in Tapeswitch edges and mats.

### Typical applications

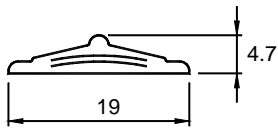
- Special needs  
*motorised furniture—baths/chairs/worktops*
- Transportation  
*driver alerts*
- Local authorities  
*alarm systems*
- Factory automation  
*product detection*
- Sports timing  
*cycle racing, swimming events*



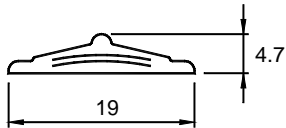
**Where will  
you use  
yours!**



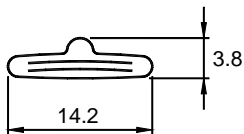
Ribbon switches can be supplied factory sealed in any length to suit the application.



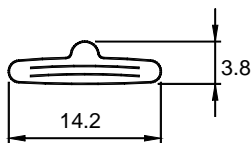
**131A** is designed typically for foot, hand or mechanical activation and can be bent around smoothly curved corners. It can be supplied with sleeve end (lower profile) or alternatively with a block end which allows for fixing with screws.



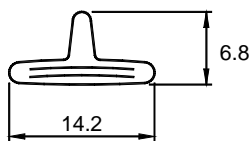
**101B** is designed typically for finger operation and can be bent around tightly curved corners. It has been used extensively in vehicle crash testing applications. The 101B can be supplied with a sleeve end (lower profile) or alternatively can be supplied with block end, which allows for fixing with screws.



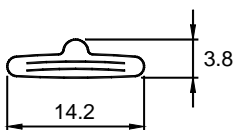
**121BP** is a very sensitive switch which can be operated directly but more commonly is integrated for indirect operation e.g. as an interlock inside a seat.



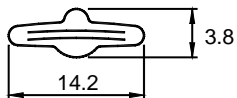
**107BP** is a variation on the BP switch and has an evoprene jacket. The properties of evoprene offer a good alternative where the toxicity of PVC is inappropriate.



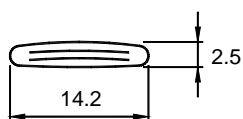
**141BPH** is a very sensitive switch with a high bead for increased operating angle. Where the application allows it can be used as a leading edge safety switch.



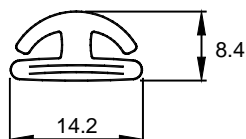
**180** is a snap action switch which operates when bent or pressed. It is typically used as a paddle or limit switch and can be mounted in a special bracket to be used as a flex-switch.



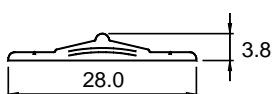
**191-S** is a switch with stainless steel conductors which means that it is suited to applications where the switch is submerged in water. It is regularly used in sports timing pads in swimming events and has even been used at the Olympic Games.



**151BBW** is a low profile, beadless switch which is highly sensitive. It has been widely used in window security applications.



**TS3** is a low profile, contoured switch which can be bent smoothly around curved corners. It is commonly used as a hand or foot activated machine stop/ start device.



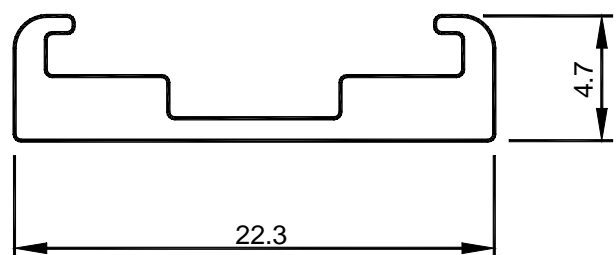
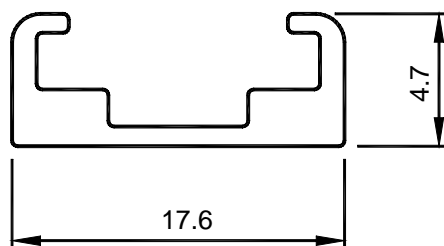
**101BS** is a variation on the B switch and is unique, this switch has an extra wide jacket offering the option to staple the switch into place. This switch has been specially designed for the motorised chair industry.

## Technical Specification

	Colour	Min. bending radius	Actuating force (20mm $\varnothing$ test piece)	Sheath material	Switch termination	Ingress protection	Operating temperature	Weight	Recommended max. voltage	Max. switching current @ 30V d.c.
131A	Grey	15mm	<60N (6.0kg)	PVC	Sleeve/Block	IP65	-20°C to +50°C	75g/m	30V d.c.	1A
101B	Yellow/Black	3mm	<26N (2.6kg)	PVC	Sleeve/Block	IP65	-20°C to +50°C	75g/m	30V d.c.	1A
121BP	Green	4mm	<6N (0.6kg)	PVC	Welded end	IP65	-20°C to +50°C	65g/m	30V d.c.	1A
141BPH	White/Red	10mm	<16N (1.6kg)	PVC	Welded end	IP65	-20°C to +50°C	65g/m	30V d.c.	1A
180	Red	<12° bends	<12° bends	PVC	Welded end	IP65	-20°C to +50°C	65g/m	30V d.c.	1A
191-S	Beige	Do not bend	<11N (1.1kg)	PVC	Welded end	IP65	-20°C to +50°C	50g/m	30V d.c.	1A
151BBW	White	3mm	N/A	PVC	Welded end	IP65	-20°C to +50°C	70g/m	30V d.c.	1A
TS3	Black/Yellow/Red	30mm	<48N (4.8kg)	PVC	Welded end	IP65	-20°C to +50°C	120g/m	30V d.c.	1A
101BS	Black	4mm	<26N (2.6kg)	PVC	Welded end	IP65	-20°C to +50°C	110g/m	30V d.c.	1A
107BP	Black	10mm	<12N (1.2kg)	Evoprene	Welded end	IP65	-20°C to +50°C	50g/m	30V d.c.	1A

## Mounting Channel

Two main types of mounting channel are available; the 104 and 106 models. 104 aluminium mounting channel is designed for use with the BP and BPH style ribbon switches. 106 aluminium mounting channel is suitable for use with the A and B model ribbon switches. Additionally, the 106 type channel is available as 106P (plastic) which allows for mounting on curved surfaces.



## Solo Ribbon Switches



### Features

- Simple, reliable technology
- Wide range available
- Length up to 1000m
- Choice of colours
- Choice of cables & connection options
- Variety of mounting options
- TÜV approved
- Long life (in excess of 3 million operations)
- AS-Interface compatible
- Volt-free, normally closed contacts

Ribbon switches are press-at-any-point, momentary, normally-open contacts. The major difference between the *Solo* ribbon switch and any other ribbon switch is that it has a Category 3 fail-safe monitoring function built into it. A pair of redundant contacts are closed when the ribbon switch is not activated and open when it is pressed. This configuration is ideal for use with AS-Interface systems, which connect sensors and actuators to remote control systems through only a 2-wire cable. The ribbon switches can be connected directly to the same kind of standard AS-Interface Safe I/O connection modules that are used to connect E-stop switches over the AS-Interface. This is much more convenient than the alternative of having an additional control unit close to the switch so that it can provide the volt-free, normally closed connections to the AS-Interface Safe I/O module.

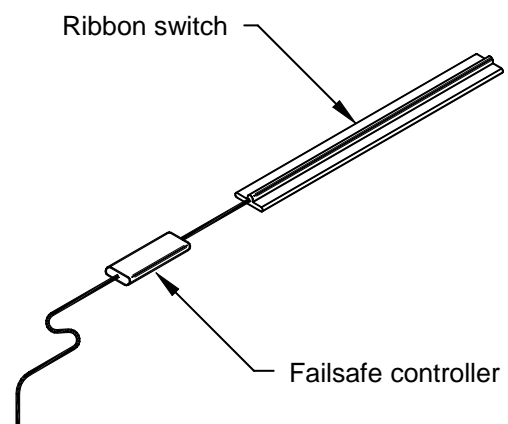
Ribbon switches are the essence of simplicity and reliability. These products deliver the highest levels of performance in thousands of applications ranging from general-purpose usage to severe environments.

Our ribbon switches offer a broad range of pressure sensitivities and a wide range of sheathing materials, switch lengths, end-termination seals, exterior colours, lead-wire combinations and mounting options, as well as substantial resistance to moisture and chemicals.

### Typical applications

- Special needs  
*motorised furniture—baths/chairs/worktops*
- Transportation  
*driver alerts*
- Local authorities  
*alarm systems*
- Factory automation  
*product detection*
- Sports timing  
*cycle racing, swimming events*

### Construction



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**Order Code**

XXXX / XXXX / XX / XXXX / XXXX / XX

**Switch type** e.g.101B

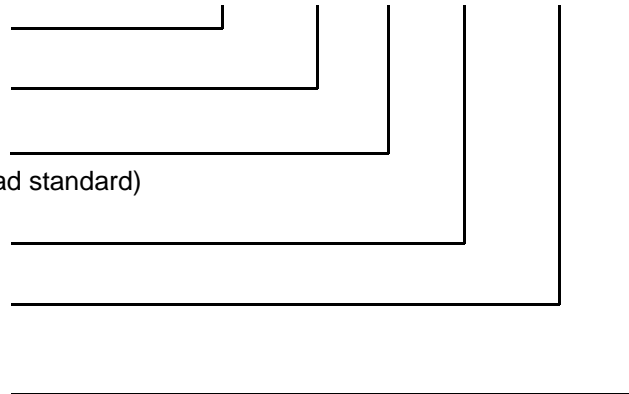
**Switch length (mm)**

**Lead type**  
(FS- fail-safe, SL- single lead standard)

**Lead 1 length (mm)**

**Lead 2 length (mm)**  
(If applicable)

**Colour**  
(W-white, R-red,  
BK-black, Y-yellow,  
GN-green, BN-beige,  
GY-grey)



XXXXSolo / XXXX / XX / XXXX / XXXX / XX

**Switch type** e.g.101B

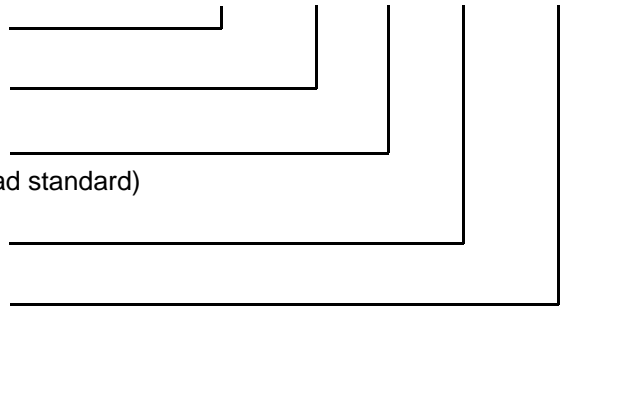
**Switch length (mm)**

**Lead type**  
(FS- fail-safe, SL- single lead standard)

**Lead 1 length (mm)**

**Lead 2 length (mm)**  
(If applicable)

**Colour**  
(W-white, R-red,  
BK-black, Y-yellow,  
GN-green, BN-beige,  
GY-grey)



**This is only a sample order code. If you have any special requirements, please contact our sales team.**

## Sensing Edges



### Features

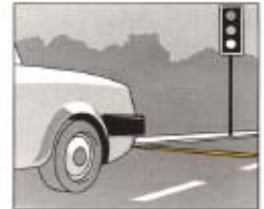
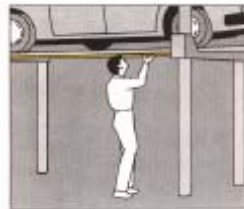
- Custom configurations
- Wide range of models
- Choice of colours
- Optional sensitivities
- Variety of mounting options
- Easy installation
- Fail-safe wiring available
- Durable construction
- Customised profiles to suit customer specification

Tapeswitch sensing edges are press-at-any-point, momentary, normally-open contacts designed to protect personnel and equipment. They are typically mounted on the leading edge of a moving object, such as a powered door, such that the sensor is activated when it meets an obstruction. As the sensing edge deforms, a stop signal is initiated and the edge acts as a 'cushion' to allow the moving parts to come to rest exerting excessive force on the obstruction. The depth of this cushion is known as the over-travel of the sensing edge. Tapeswitch offer a range of different profiles, sensitivities and a choice of mounting channel to suit various application requirements.

Due to the versatility of our product we can also provide customised profiles to meet the customer's

### Typical applications

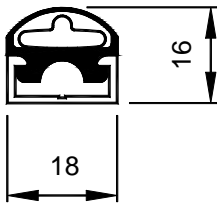
- Commercial vehicles  
*tail lifts*  
*bumpers*
- Automated doors, shutters & gates
- Vehicle management  
*car park barriers*  
*counting & alert systems*
- Scissor lifts
- Transport doors
- Cargo loading vehicles
- Conveyors



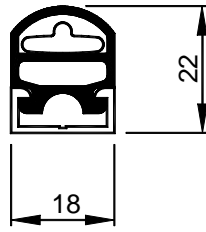
Where will  
you use  
yours!



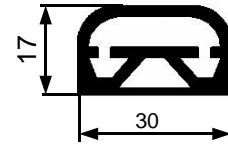
**Sensing Edge Profiles** (special profiles available on request — please contact us to discuss your application)



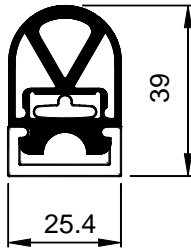
**TS6**



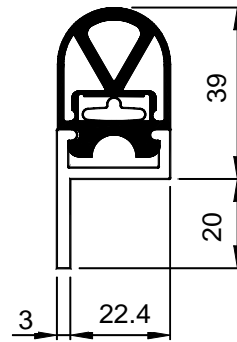
**TS16**



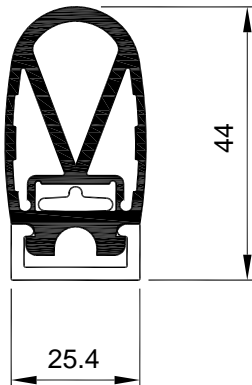
**TS19**



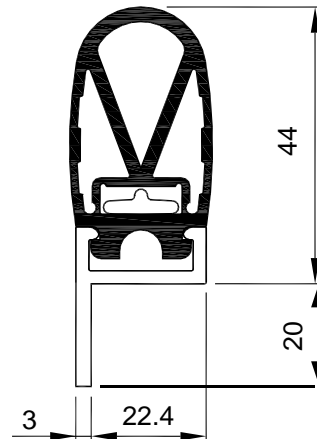
**TS26C**



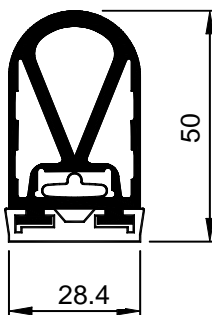
**TS26C**



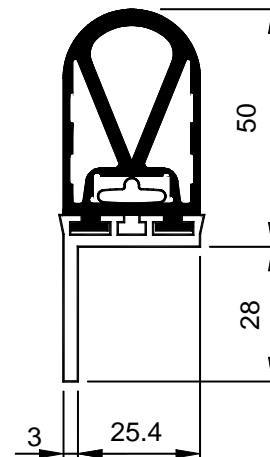
**TS28**



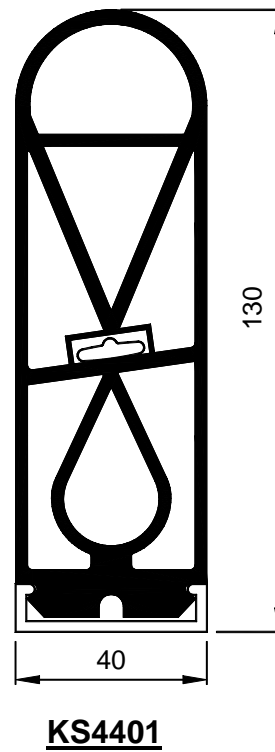
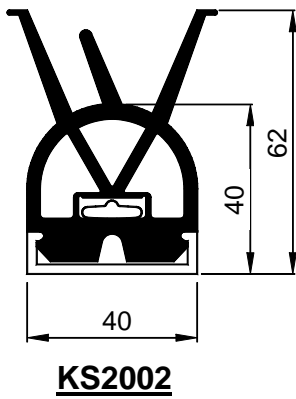
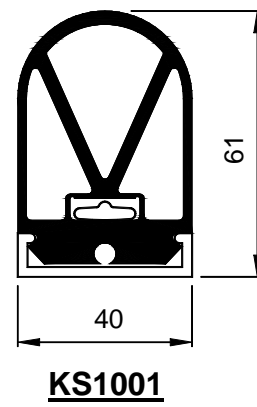
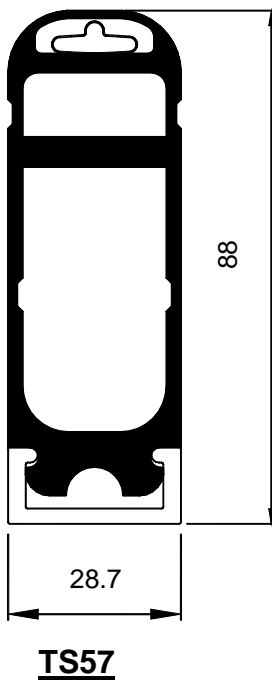
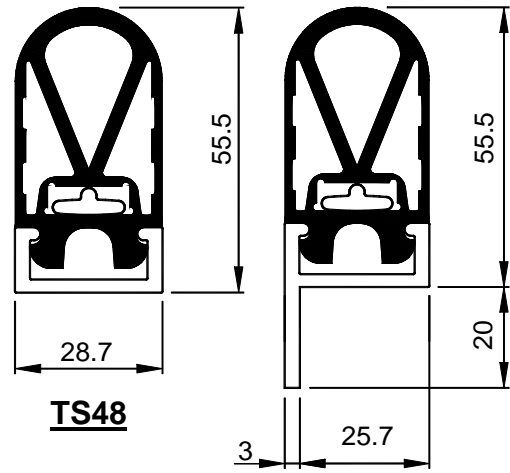
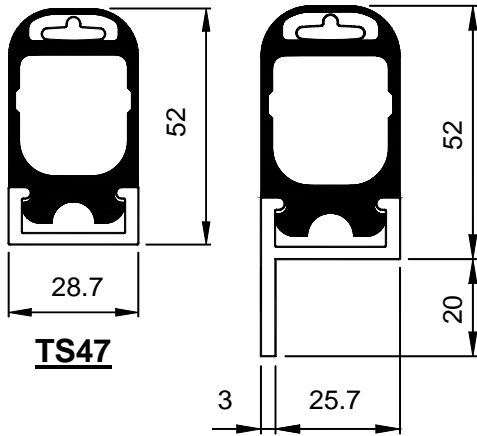
**TS28**



**TS46**



**TS46**



## Lead Configurations

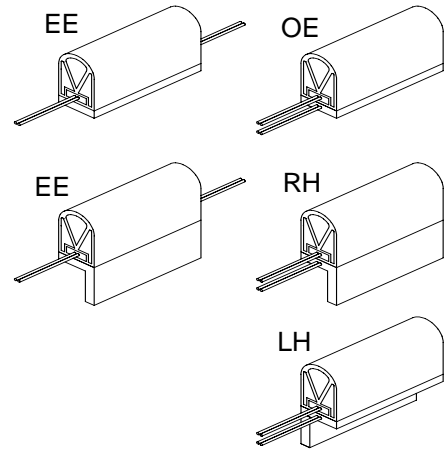
Tapeswitch sensing edges are supplied with two core leads connected at each end of the switch. There are several lead exit positions that can be specified depending on the application.

**EE** one lead from each end

**OE** both leads from one end

**RH** both leads from right hand end

**LH** both leads from left hand side



Note: The last two options apply only to sensors fitted with angled mounting channel.

## Mounting Options

A full range of aluminium and plastic channels are available to suit our range of sensing edges.

## Accessories

End caps are available for the TS6, TS16, TS26, TS28, TS46, TS47, TS48 & TS57 sensing edges.

## Order Code

	XXXX / XXXX / X / X / X / XX / XX / XXXX / X
<b>Edge type</b> e.g. TS46	
<b>Edge length (mm)</b>	
<b>Channel style</b> (F-flat, A-angle)	
<b>Channel material</b>	
<b>Edge colour</b> (B-black, R-red, Y-yellow)	
<b>Lead type</b> (FS- fail-safe, SL- single lead)	
<b>Lead exit</b> (OE-one end, EE-each end, RH-right hand, LH-left hand)	
<b>Lead length (mm)</b>	
<b>End caps fitted</b> (Y=yes, N=no)	

This is only a sample order code. If you have any special requirements, please contact our sales team.

## TS6 Sensing Edges



### Features

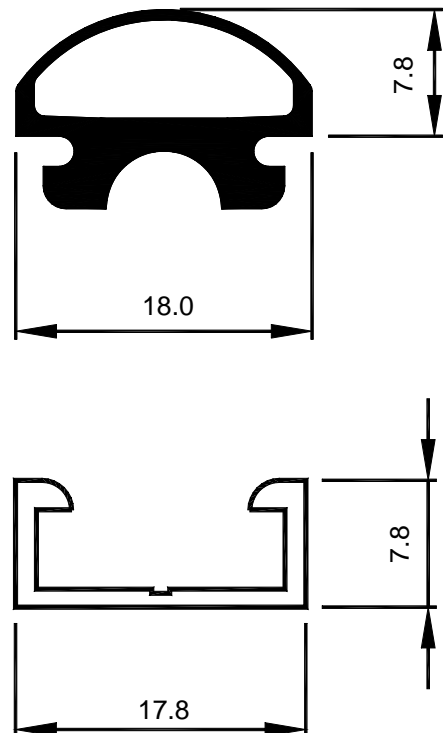
- Custom configurations
- Choice of colours
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment
- End caps available

TS6 is a low profile, mini edge designed for pinch point applications which require the features of a pressure-sensitive switch but with added cushioning. It snaps easily into a choice of aluminium or plastic mounting channel, and the small profile ensures easy installation where space is restricted. The tough, extruded polymer housing is available in a choice of colours and can be supplied with end caps fitted to provide a dust-proof seal.

### Typical Applications:

- Personnel lifts
- Sliding doors
- Conveyor systems
- Dumbwaiter doors
- Disabled facilities
- Medical tables

### Dimensions

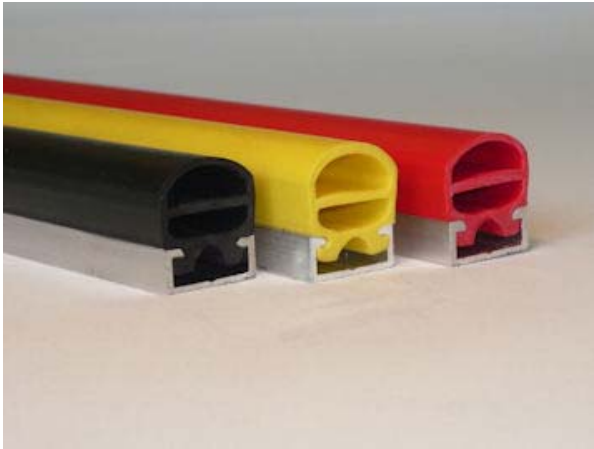


### Technical Specification

Actuating force (80mmØ test piece)	<55N (5.5kg)
Overtravel movement to 250N	1mm
Actuating distance (80mmØ test piece)	approx. 3.5mm
Housing material	PVC
Housing colour	Black, red, yellow or clear
Channel material	Aluminium or plastic
Ingress protection	IP65
Operating temperature	-20°C to + 50°C
Typical weight	300g/m
Recommended max voltage	30V d.c.
Switching current @ 30Vdc	1A

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## TS16S Sensing Edge



### Features

- Custom configurations
- Choice of colours
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment
- End caps available

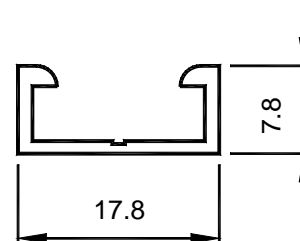
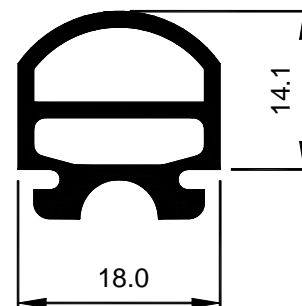
TS16S is a small, easily installed sensing edge which is ideal for both control and safety based applications. The small profile and snap-in channel make it suitable for installations where space is restricted. The integral Tapeswitch is mounted in the upper compartment of the PVC housing to give immediate activation and allow for some over travel.

TS16S is one of the most versatile edges in the Tapeswitch range and can be bent around smoothly curved corners when mounted in plastic channel. The tough, extruded polymer housing is available in a choice of colours and can be supplied with end caps fitted to provide a dust-proof seal.

### Typical Applications:

- Remote TV cameras
- Moving storage systems
- Robot positioning sensors
- Lift doors
- Stair lifts

### Dimensions



### Technical specification

Actuating force (80mm Ø test piece)	<120N (12kg)
Overtravel movement to 250N	2mm
Actuating distance (80mm Ø test piece)	Approx. 3.5mm
Housing material	PVC
Housing colour	Black, red or yellow
Channel material	Aluminium or plastic
Ingress protection	IP65
Operating temperature	-20°C to +50°C
Typical weight	350g/m
Recommended maximum voltage	30Vdc
Switch current @ 30Vdc	1A

GB-11/10

## TS19 Sensing Edge



### Features

- Custom configurations
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- End caps available

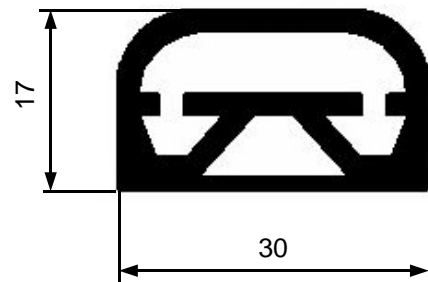
The TS19 is a very versatile sensing edge. It is ideal for control and automation functions as well as safety applications. The TS19 does not use mounting channel but instead can be fixed using adhesives or double-sided adhesive tape. This makes the edge easy to use in applications where the sensing edge has to be fitted around a curve.

The inner ribbon-switch is situated in the upper half of the housing, ensuring quick activation and good overtravel for such a low profile. End caps are also available.

### Typical Applications

- Pallet stackers
- Advanced guided vehicles (AGVs)
- Rise-fall theatre stages
- Travelling storage systems
- Powered furniture

### Dimensions

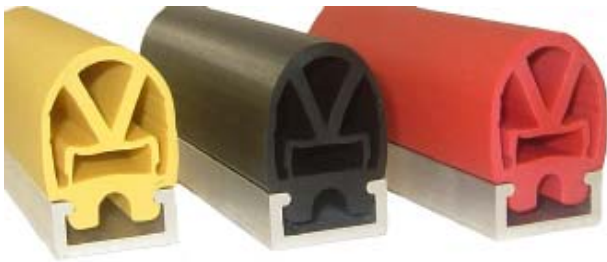


### Technical Specification

Actuating force	<55N (5,5kg)
Overtravel movement to 250N	4mm
Actuation distance (80mmø test piece)	Approx. 3.5mm
Housing material	EPDM
Colour	Black
Ingress protection	IP65
Operating temperature	-20°C-+60°C
Typical weight	400g/m
Recommended max voltage	30Vdc
Switching current @ 30Vdc	1A
Means of mounting	Adhesive or double sided tape



## TS26C Sensing Edge



### Features

- Custom configurations
- Choice of colours
- Choice of housing materials
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction

TS26C is a compact and durable sensing edge which is ideal for a wide range of safety applications. Responding to both head-on and side impact, TS26C can be supplied in custom configurations to provide increased flexibility. The exterior housing is available in a choice of popular colours, housing materials and is supplied with either flat or angled aluminium channel to satisfy any mounting arrangement.

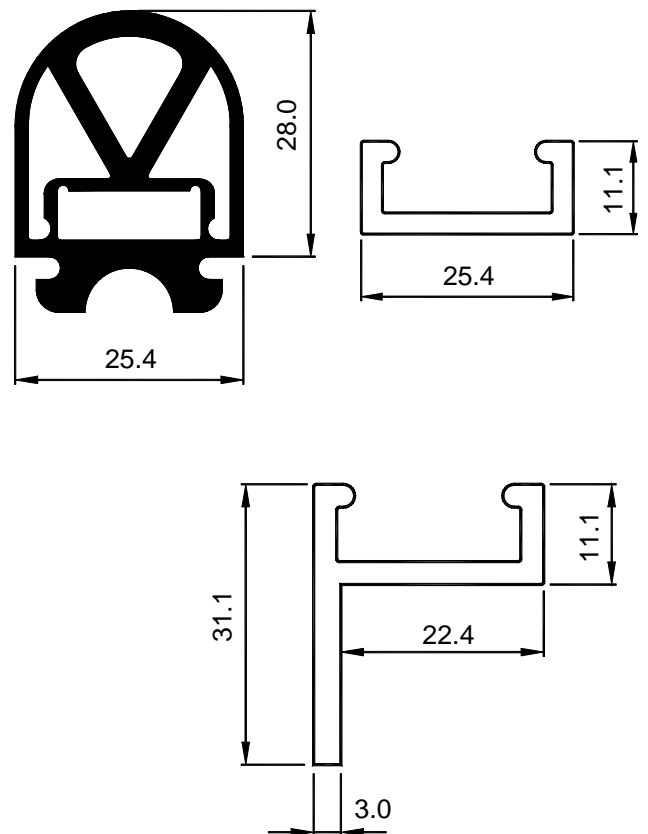
### Typical Applications:

- Moving doors
- Stage lifts
- Lift doors
- Side bumpers on AGV's

### Technical Specification

Actuating force (80mmø test piece)	<140N (14.0kg)
Overtravel movement to 250N	8mm
Actuating distance (80mmø test piece)	approx. 2mm
Housing material	PVC / EPDM / NBR
Housing colour	Black, red or yellow
Channel material	Flat - aluminium or plastic Angled - aluminium
Ingress protection	IP65
Operating temperature	Ranges from -20°C to + 50°C
Typical weight	700g/m
Recommended max voltage	30V d.c.
Switching current @ 30Vdc	1A

### Dimensions



## TS28 Sensing Edge



### Features

- Custom Configurations
- Variety of mounting options
- Durable construction
- Easy Installation
- Sealed switch compartment
- Fail-safe wiring available
- Immediate activation

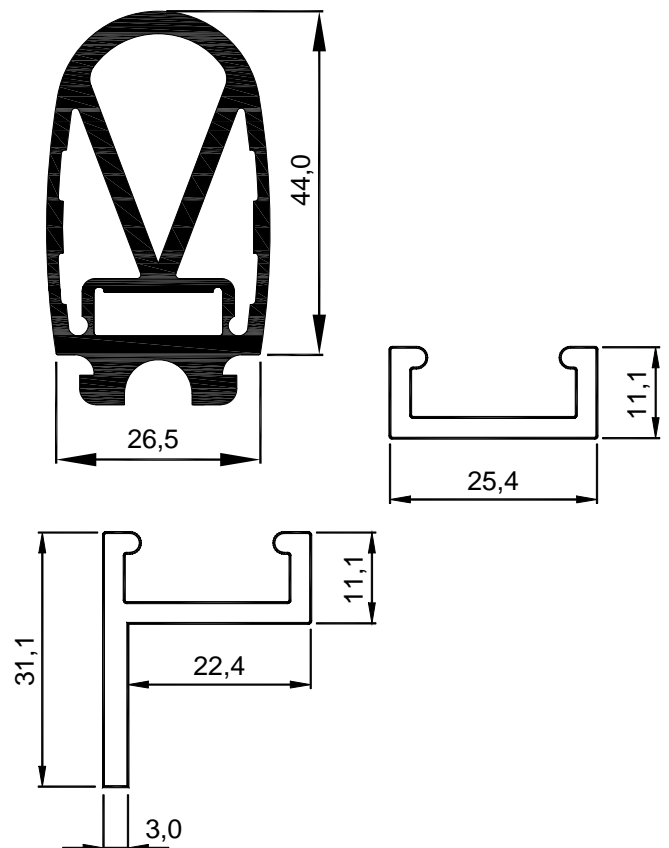
TS28 is an extremely robust sensing edge that responds to both head-on and side activation, making it ideal for a range of personnel safety applications. The edge benefits from having a snap-in mounting channel which makes it particularly suited to installations where space is restricted. TS28 can be supplied with flat or angled aluminium mounting channel as well as the flat plastic channel.

Like all Tapeswitch sensing edges, TS28 uses a reliable ribbon switch operation principle and can be supplied with fail-safe wiring.

### Typical Applications:

- Moving partitions
- Side bumpers on AGV's
- Lift doors
- Stage lifts
- Moving doors

### Dimensions



### Technical Specification

Actuating force (80mmØ test piece)	<60N (6.0 kg)
Over-travel movement to 250N	27mm
Actuating distance (80mmØ test piece)	7mm
Housing material	EPDM
Housing colour	Black
Channel material	Flat-aluminium or plastic Angled-aluminium
Ingress protection	IP65
Operating temperature	-20°C to + 50°C
Typical weight	1100g / m
Recommended maximum voltage	30Vdc
Switching current max. @ 30Vdc	1A

GB 12/10

## TS46D Sensing Edge

### Features



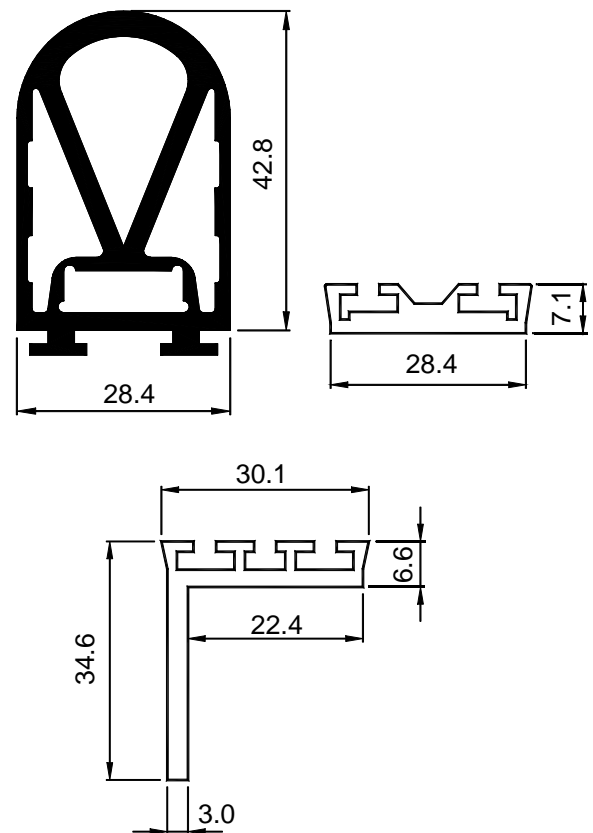
- Custom configurations
- Choice of colours
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment
- BIA approved

TS46D is a durable sensing edge that responds to both head-on and side impact making it ideal for a wide range of personnel safety applications. It is available in a choice of popular colours and can be supplied flat or angled channel to suit and mounting arrangement. TS46D can be supplied in custom configurations to provide increased flexibility.

### Typical Applications:

- Lift tables
- Cargo loading vehicles
- Public transport doors
- Machinery doors
- Powered gates

### Dimensions



### Technical specification

Actuating force (80mm Ø test piece)	<140N (14.0kg)
Overtravel movement to 250N	21mm
Actuating distance (80mm Ø test piece)	Approx. 7mm
Housing material	TPE
Housing colour	Black, red or yellow
Channel material	Flat-aluminium or plastic Angled-aluminium
Ingress protection	IP65
Operating temperature	-20°C to +50°C
Typical weight	1100g/m
Recommended max voltage	30Vdc
Switching current @ 30Vdc	1A

## TS47 Sensing Edge



### Features

- Custom configurations
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment

TS47 is a highly sensitive, durable sensing edge which is typically used in applications which require immediate activation with considerable overtravel. It is ideal for a variety of safety applications where personnel injury could occur from high-speed powered doors or other fast moving equipment. Available in black or red exterior housing, TS47 snaps easily into a choice of PVC or aluminium mounting channel and is available in custom configurations.

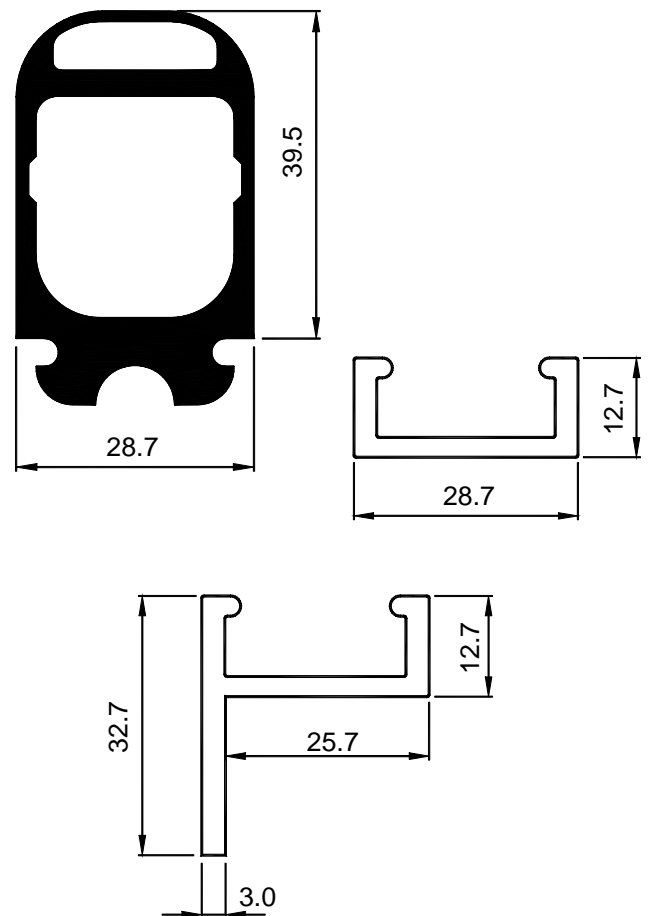
### Typical Applications:

- Lift/lower barriers
- Moving partitions
- High-speed doors
- Transport doors

### Technical specification

Actuating force (80mmø test piece)	<120N (12.0kg)
Overtravel movement to 250N	24mm
Actuating distance (80mmø test piece)	Approx. 2mm
Housing material	TPE
Housing colour	Black or red
Channel material	Flat-aluminium or plastic Angled-aluminium
Ingress protection	IP65
Operating temperature	-20°C to +50°C
Typical weight	1100g/m
Recommended max voltage	30V d.c.
Switching current @ 30Vdc	1A

### Dimensions



GB 12/10

## TS48 Sensing Edge

### Features



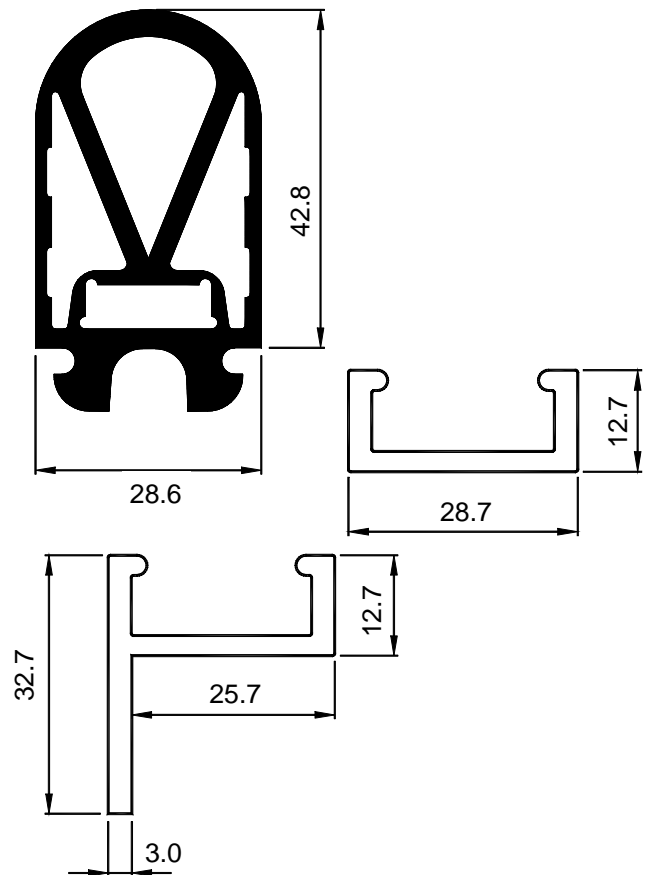
- Custom configurations
- Choice of colours
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment

TS48 is an extremely robust sensing edge that responds to both head-on and side activation making it ideal for a range of personnel safety applications. The edge benefits from having a snap-in mounting channel which makes it particularly suited to places where space is restricted. TS48 is available in a range of popular colours and can be supplied with flat or angled mounting channel to suit the application. Like all Tapeswitch sensing edges, TS48 uses a reliable ribbon switch operating principle and can be supplied with fail-safe wiring.

### Typical Applications:

- Power operated doors and gates
- Lift tables and platforms
- Machinery doors
- Cargo loading vehicles
- Moving partitions

### Dimensions

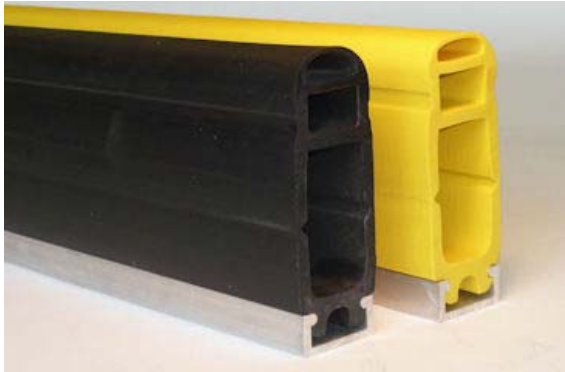


### Technical Specification

Actuating force (80mm $\varnothing$ test piece)	<120N (12.0kg)
Overtravel movement to 250N	21mm
Actuating distance (80mm $\varnothing$ test piece)	Approx 7mm
Housing material	TPE
Housing colour	Black or yellow
Channel material	Flat-aluminium or plastic Angled-aluminium
Ingress protection	IP65
Operating temperature	-20 $^{\circ}$ c to +50 $^{\circ}$ c
Typical weight	1100g/m
Recommended maximum voltage	30V d.c.
Switching current @ 30Vdc	1A

GB 12/10

# TS57 Sensing Edge



### Features

- Custom configurations
- Variety of mounting options
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment

TS57 is a highly sensitive, durable sensing edge which is typically used in applications which require immediate activation with considerable overtravel. It is ideal for a variety of safety applications where personnel injury could occur from high-speed powered doors or other fast moving equipment. Available in black or yellow exterior housing, TS57 snaps easily into a choice of PVC or aluminium mounting channel and is available in custom configurations.

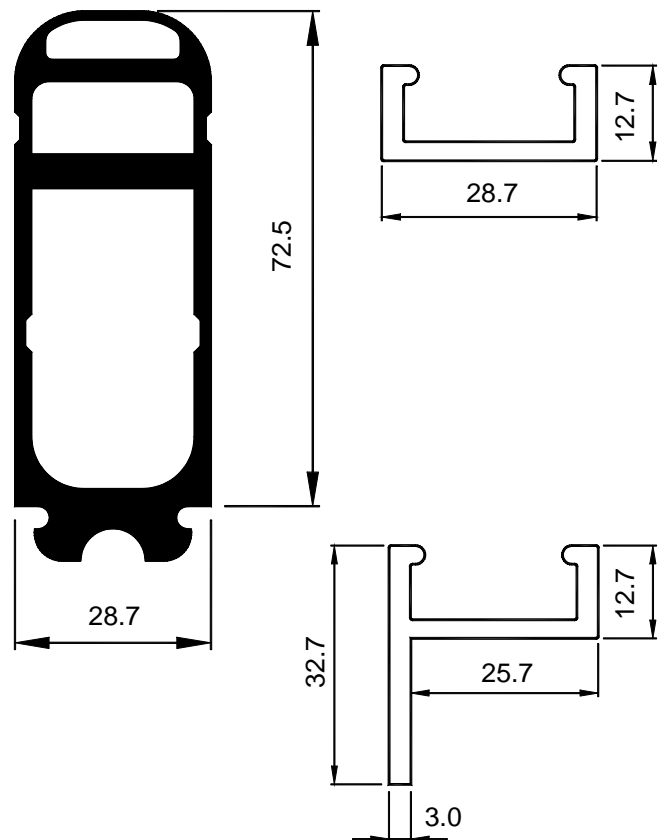
### Typical Applications:

- Lift/lower barriers
- Moving partitions
- High-speed doors
- Transport doors

### Technical Specification

Actuating force (80mmø test piece)	<120N (12.0kg)
Overtravel movement to 250N	45mm
Actuating distance (80mmø test piece)	Approx 2mm
Housing material	TPE
Housing colour	Black or yellow
Ingress protection	IP65
Operating temperature	-20°C to +50°C
Typical weight	2200g/m
Recommended maximum voltage	30V d.c.
Switching current @ 30Vdc	1A

### Dimensions



## KS1001 Sensing Edge



### Features

- Custom configurations
- Aluminium mounting channel
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment

KS1001 is a durable sensing edge which is suitable for a range of personnel safety applications. It is available in custom configurations up to 5m in length. Longer lengths consist of a single continuous ribbon switch with several sections of housing and channel. The exterior housing snaps easily into aluminium mounting channel making it ideal for installations where space is restricted.

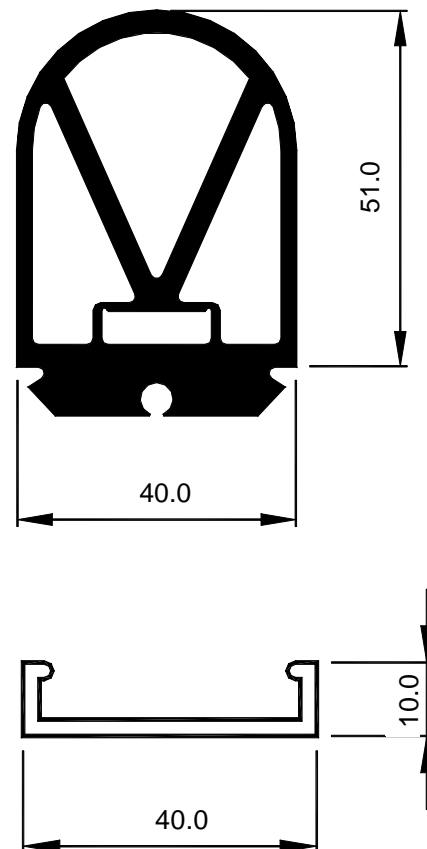
### Typical Applications:

- Lift/lower barriers
- Transport doors
- Powered doors
- Lift tables

### Technical specification

Actuating force (80mmø test piece)	<240N (24.0kg)
Overtravel movement to 250N	20mm
Actuating distance (80mmø test piece)	Approx. 12mm
Housing material	EPDM
Housing colour	Black
Ingress protection	IP65
Operating temperature	-20°c to +50°c
Typical weight	1250g/m
Recommended max voltage	30V d.c.
Switching current @ 30Vdc	1A

### Dimensions



## KS2002 Sensing Edge



### Features

- Custom configurations
- Aluminium mounting channel
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment

KS2002 is a durable sensing edge which is suitable for a range of personnel safety applications. It is typically used on the edges of high-speed powered doors, and the fins on the profile provide a seal when the door is closed. It is available in custom configurations up to 5m in one continuous length. Longer lengths consist of a single continuous ribbon switch with several sections of housing and channel. The exterior housing snaps easily into aluminium mounting channel making it ideal for installations where space is restricted.

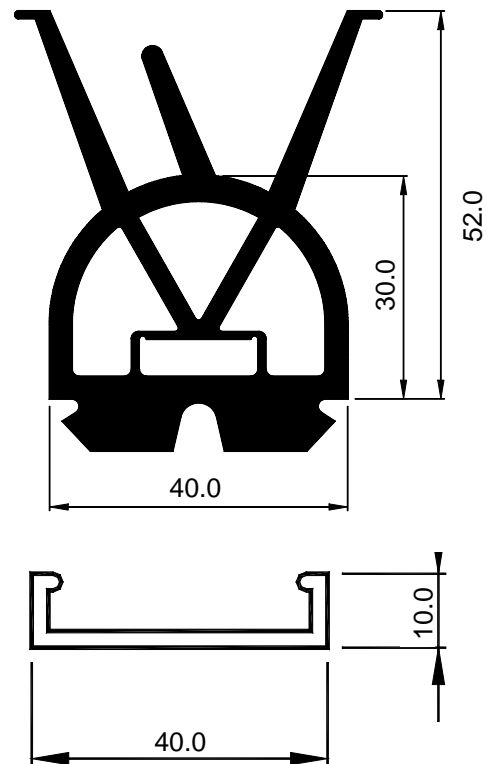
### Typical Applications:

- High-speed doors
- Transport doors
- Powered doors

### Technical specification

Actuating force (80mmø test piece)	<180N (18.0g)
Overtravel movement to 250N	15mm
Actuating distance (80mmø test piece)	2mm
Housing material	EPDM
Housing colour	Black
Ingress protection	IP65
Operating temperature	-20°C to +50°C
Typical weight	1250g/m
Recommended max voltage	30V d.c.
Switching current @ 30Vdc	1A

### Dimensions



GB 06/10



# KS4401 Sensing Edge



## Features

- Custom Configurations
- 'Snap-in' mounting channel
- Immediate activation
- Easy installation
- Fail-safe wiring available
- Durable construction
- Sealed switch compartment

KS4401 is the largest sensing edge in the Tapeswitch range and is designed for personnel safety applications which require immediate activation with considerable overtravel. Available in a black exterior housing, it snaps easily into aluminium mounting channel and can be supplied in custom configurations up to 5m in one continuous length. Longer lengths consist of a single continuous ribbon switch with several sections of housing and channel.

## Typical Applications:

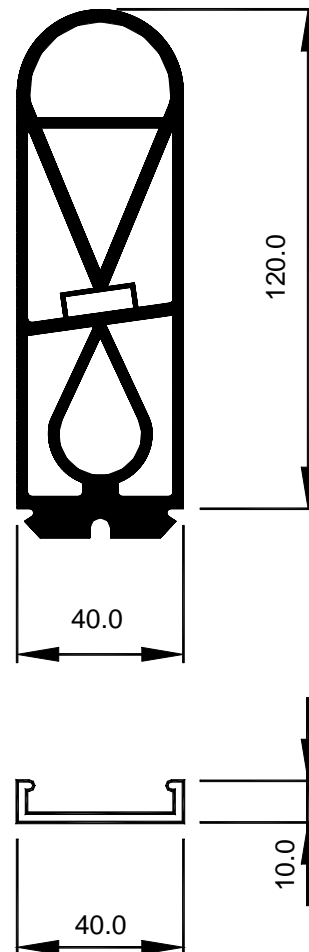
- Lift tables and platforms
- Moving partitions
- High-speed doors
- Transport doors

## Technical Specification

Actuating force (80mmø test piece)	<240N (24.0kg)
Overtravel movement to 250N	50mm
Actuating distance (80mmø test piece)	Approx. 10mm
Housing material	EPDM
Housing colour	Black
Ingress protection	IP65
Operating temperature	-20°c to + 50°c
Typical weight	2150g/m
Recommended max voltage	30V d.c.
Switching current @30Vdc	1A

GB 04/10

## Dimensions



## Sensing Edges - Fail-safe single lead—SLZ Option

### Information Sheet



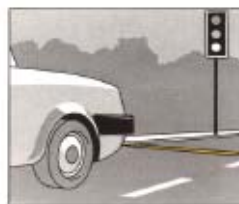
#### Features

- Standards - EN1760-2 & EN-13489-1
- Single-Lead
- Custom configurations
- Wide range of models
- Choice of colours
- Optional sensitivities
- Variety of mounting options
- TÜV approved
- Easy installation
- Durable construction
- Customised profiles to suit customer specification
- Volt-free, normally closed contacts

Tapeswitch sensing edges are press-at-any-point, momentary, normally-open contacts designed to protect personnel and equipment. They are typically mounted on the leading edge of a moving object, such as a powered door, such that the sensor is activated when it meets an obstruction. As the sensing edge deforms, a stop signal is initiated and the edge acts as a 'cushion' to allow the moving parts to come to rest without exerting excessive force on the obstruction. The depth of this cushion is known as the over-travel of the sensing edge. It is essential to ensure that the dangerous parts are brought to rest within the over-travel of the sensing edge.

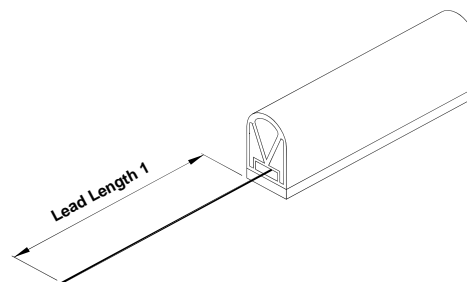
The fail-safe single-lead sensing edges are used in combination with the PSSZ-2 control unit. This option means that the sensing edge is monitored through a single 2 core lead.

*\*In order to achieve the above standards, the sensing edge must be used with a Tapeswitch PSSZ-2 control unit.*



#### Typical Applications:

- Automated factory environments
- Car Plants
- Conveyors
- Scissor Lifts
- Access control



GB 01/11



## Sensing Edges - SSR solid-state relay outputs

### Information Sheet

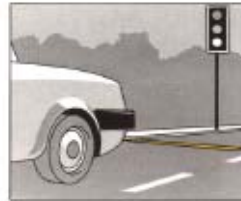
#### Features



- Standards - EN1760-2 & EN-13489-1
- Custom configurations
- Wide range of models
- Choice of colours
- Optional sensitivities
- Variety of mounting options
- Easy installation
- Fail-safe wiring available
- Durable construction
- Customised profiles to suit customer specification
- Volt-free, normally closed contacts

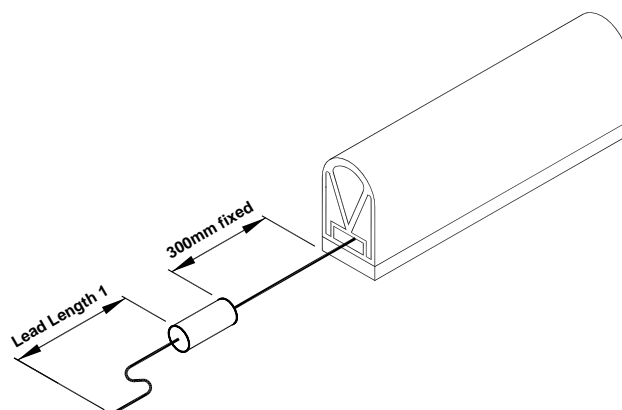
Tapeswitch sensing edges are press-at-any-point, momentary, normally-open contacts designed to protect personnel and equipment. They are typically mounted on the leading edge of a moving object, such as a powered door, such that the sensor is activated when it meets an obstruction. As the sensing edge deforms, a stop signal is initiated and the edge acts as a 'cushion' to allow the moving parts to come to rest without exerting excessive force on the obstruction. The depth of this cushion is known as the over-ravel of the sensing edge. It is essential to ensure that the dangerous parts are brought to rest within the over-travel of the sensing edge.

The SSR option of sensing edge has an auto-reset safety control unit fitted in-line with the connection cable. The single lead is a 6-core cable providing 2 wires for the 24vdc input supply and the 4 wires provide 2 contacts closed when inactive. The SSR option is available on any of the Tapeswitch range of sensing edges.



#### Typical Applications:

- Automated factory environments
- Car Plants
- Conveyors
- Scissor Lifts
- Access control



GB 01/11



## Mounting Options

All Tapeswitch edge profiles have an aluminium channel in either flat or angled, some of the smaller profiles have a plastic option. For full details please see our separate sensing edge information sheet.

Holes can be drilled in the channel to suit most requirements, please call our sales team for more information.

## Accessories

End-caps and end-covers are available dependent upon the profile, please call our sales team for details.

**Order Code:**                    **XXXX SSR / XXXX / X / X / X / SLZ / OE / XXXX / 8V2 / X**

<b>Sensor Type</b>	
<b>Sensor Overall Length (mm)</b>	
<b>Channel Style</b> F - Flat A - Angle	
<b>Channel Material</b> A - Aluminium P - Plastic	
<b>Housing Colour</b> B - Black R - Red Y - Yellow	
<b>Lead Type</b> SLZ	
<b>Lead Exit</b> OE	
<b>Lead Length 1</b> 6 core x = xxxxmm	
8V2	
<b>End Caps</b> Y/N	

## Solo Sensing Edges for AS-Interface Information Sheet



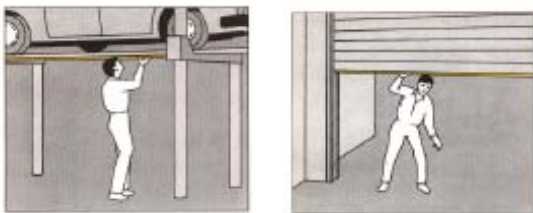
### Features

- Custom configurations
- Wide range of models
- Choice of colours
- Optional sensitivities
- Variety of mounting options
- TÜV approved
- Easy installation
- Fail-safe wiring available
- Durable construction
- Customised profiles to suit customer specification
- Volt-free, normally closed contacts

Tapeswitch sensing edges are press-at-any-point, momentary, normally-open contacts designed to protect personnel and equipment. They are typically mounted on the leading edge of a moving object, such as a powered door, such that the sensor is activated when it meets an obstruction. The major difference between a *Solo* sensing edge and any other standard edge is that it has a Category 3 fail-safe monitoring function built into it. A pair of redundant contacts are closed when the edge is not activated and open when it is pressed. This configuration is for use with AS-Interface systems, which connect sensors and actuators to remote control-systems through only a 2-wire cable. The edges can be connected directly to the same kind of standard AS-Interface Safe I/O connection modules that are used to connect E-stop switches over the AS-Interface. This is much more convenient than the alternative of having an additional control unit close to the edge so that it can provide the volt-free, normally closed connections to the AS-Interface Safe I/O module.

Due to the versatility of our product we can also provide customised profiles to meet the customer's specification.

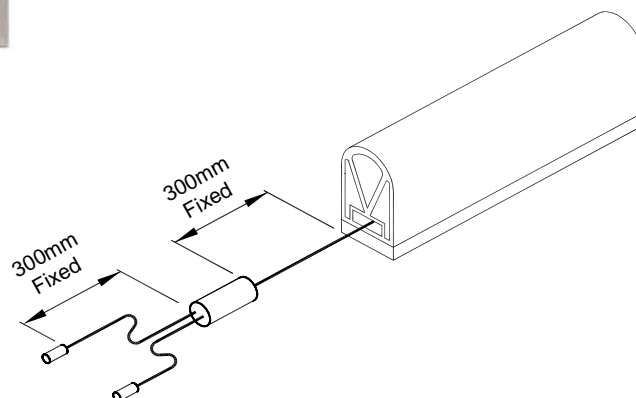
The solo option is available on any of the Tapeswitch range of sensing edges.



### Typical Applications:

- Automated factory environments
- Car Plants
- Conveyors
- Scissor Lifts
- Access control

GB 01/10





### Mounting Options

All Tapeswitch edge profiles have an aluminium channel in either flat or angled, some of the smaller profiles have a plastic option. For full details please see our separate sensing edge information sheet.

Holes can be drilled in the channel to suit most requirements, please call our sales team for more information.

### Accessories

End-caps and end-covers are available dependent upon the profile, please call our sales team for details.

**Order Code:**                    **XXXXSolo / XXXX / X / X / X / SLZ / OE / 300M12 / 8V2 / X**

<b>Sensor Type</b>	_____
<b>Sensor Overall Length (mm)</b>	_____
<b>Channel Style</b>	_____
F - Flat A - Angle	
<b>Channel Material</b>	_____
A - Aluminium P - Plastic	
<b>Housing Colour</b>	_____
B - Black R - Red Y - Yellow	
<b>Lead Type</b>	_____
SLZ	
<b>Lead Exit</b>	_____
OE	
<b>Lead Length 1</b>	_____
M12 connectors 300mm—optional lengths available as a special	
<b>8V2</b>	_____
<b>End Caps</b>	_____
Y/N	

# VB High Impact Sensing Bumper

## Information Sheet



### Features

- Robust and durable.
- Requires no guide wires or adjustments.
- Simple mounting options for easy installation.
- Interfaces easily with external controls.
- Available in lengths up-to 4.5m.
- Fail-safe wiring as standard.

The VB bumper is a robust and durable sensing bumper typically used in high impact applications. It is suitable for use on AGVs, mobile platforms, travelling conveyors and other moving equipment or machinery. The VB bumper is designed to withstand repeated crushing impacts that would easily destroy a conventional bumper and continue to function perfectly.

It is available in lengths upto 4.5m and in linear or corner configurations. Yellow/black is the standard colour, however other colours are available upon request.

### Technical Specifications

<b>Actuation Force</b>	<b>18N Nominal</b>
<b>Housing</b>	<b>PVC</b>
<b>Recommended Voltage</b>	<b>24Vac or Vdc</b>
<b>Operating Temperature</b>	<b>-18 to 50°C</b>
<b>Colour</b>	<b>Yellow/black is standard, other colours available on request.</b>

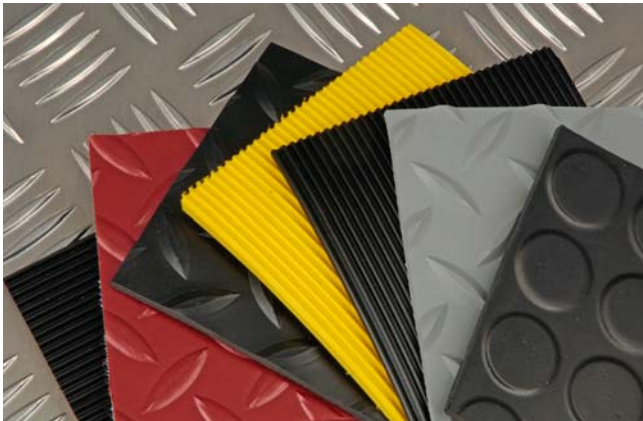
### Typical Applications

- Automatic guided vehicle bumpers.
- Protective edging on moving work-platforms.
- Horizontal- or vertical-sensing on large moving doors.
- Contact detection on moving conveyors.
- Collision detection on telescoping devices.
- Position sensing on passenger loaders.

GB 11/08



## Tapeswitch Mats



### Features

- Custom shapes & sizes
- Optional colours & top surfaces
- Optional sensitivities
- Company logos
- Aluminium edging
- Fail-safe operation
- Multiple switching zones

Tapeswitch mats are pressure-sensitive switches designed to detect personnel or objects in a variety of applications. A mat will operate when pressure (usually from a person's foot) is applied to the mat's surface.

When used as a safety device, mats are used to guard the floor around a machine or hazardous area. They can provide primary guarding, where other types of guarding may be impractical, and can also provide secondary guarding, i.e. they can be used in conjunction with an interlocked fence or light curtain to protect awkwardly shaped machines. In essence, a safety mat offers increased guarding flexibility as it can be used both to detect an operator entering a hazardous area and also to provide presence sensing of operators for as long as they remain inside a dangerous area.

Mats can also be used in non-safety applications where a floor sensor is preferred. We can incorporate colours, custom-shapes, -sizes, -sensitivities, multi-zone detection and moulded logos.

### Mat Range

Tapeswitch is in the unique position of manufacturing mats with two different technologies. The CKP, Armormat and DPM mats use Tapeswitch ribbon-switch technology whereas the LMI mat uses parallel steel plate technology. Each technology has its own advantages giving Tapeswitch a range of mats ideal for all applications.

Mat type	Description
CKP	Standard heavy-duty construction
Armormat	Impact-resistant construction, ideal for heavy traffic
DPM	Very heavy-duty diamond plate mat
LMI	Moulded parallel steel plate mat

### Typical Applications

- Machinery safety
- Interactive *play zones*  
*theme parks*  
*advertising*
- Access control  
*banks*  
*intruder alert*



**Where will  
you use  
yours!**

GB 12/10

When a system is used to provide primary guarding, i.e. it is used as a trip device, it is necessary to ensure that the dimensions of the sensor are such that the machine is brought to rest before a person can reach the dangerous parts. If a mat is being used in a secondary guarding capacity, it is necessary to ensure that the dangerous area between the primary guarding device and the machine is completely protected. It should not be possible for a person to be in or stand in this area without standing on the mat.

The safety mat should therefore be dimensioned such that the nearest point at which a person could first touch the mat is at a sufficient distance from the dangerous parts to prevent the person reaching them before they have stopped.

In order to determine the position of the front edge of the active zone, it is necessary to consider the stopping performance of the machine. From the instant that a person's foot touches the mat to the instant that dangerous motion actually ceases is called the overall system response time. The overall system response time, T, is given by the following calculation:

$$T = t_1 + t_2$$

where  $t_1$  = the maximum response time of the safety device between the actuation of the sensor and the generation of the stop signal = 30ms (Measured according to DIN V 31006-1).

and  $t_2$  = the response time of the machine between receiving a stop signal from the safety device and the dangerous parts coming to rest.

The dangerous parts will obviously continue to move during this time. The sensor must therefore be dimensioned such that a person cannot reach the dangerous parts before they have stopped.

According to BS EN999 the minimum separation distance, S in millimetres, can be calculated using the following formula:

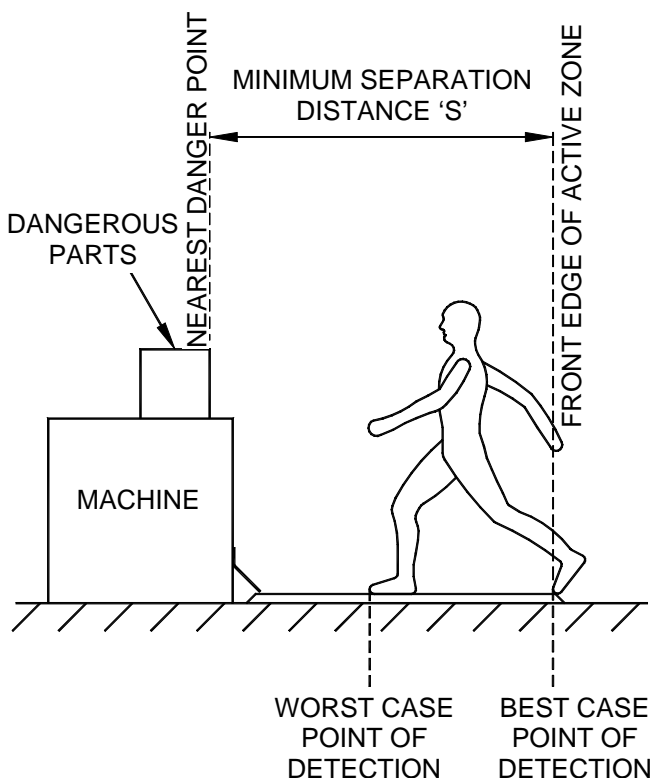
$$S = (1.6 \times T) + 1200$$

Where T = overall system response time in milliseconds

When a mat is used to provide secondary guarding, i.e. it is used as a presence sensing device, the above formula does not apply. However, the mat(s) should be positioned so that it is not possible for a person to remain undetected in a dangerous position.

### AE-13 Mat Edging

AE-13 aluminium edging provides a means of securing the mat to the ground and also provides an anti-trip feature. Please contact us for further details.



**Order Code**

XXXX / XX / XXXX / XXXX / XXXX / XXXX

**Sensor type**

**Edge preparation**

SE - Square Edge

**Cable position**

- LD - Long Edge, Two 2-Core Cables
- SD - Short Edge, Two 2-Core Cables
- LLS - Long Edge, Left Side, One 2-Core Cable
- LRS - Long Edge, Right Side, One 2-Core Cable
- SLS - Short Edge, Left Side, Two 2-Core Cables
- SRS - Short Side, Right Side, Two 2-Core Cables

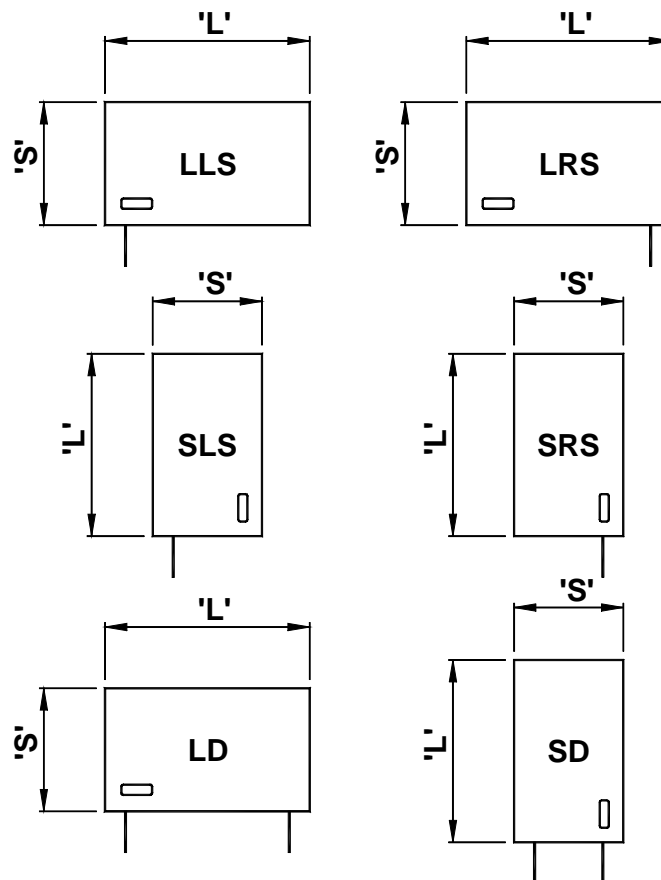
**Long edge length mm**

**Short edge length mm**

**Cable length mm**

**This is only a sample order code. If you have any special requirements, please contact our sales team.**

**Lead Position Options**



## CKP/S1 Mats



### Features

- Standards - EN1760-1 & EN13489-1
- Custom shapes & sizes
- Choice of black or yellow
- Option to have company logo included on label
- Non-slip corrugated surface
- Fixed with AE-13 aluminium edging
- Optional sensitivities
- Fail-safe operation
- Multiple switching zones available
- Chemical & abrasion resistant

CKP/S1 mats can be used in both safety and non-safety applications where a floor sensor is preferred. We can incorporate surface patterns, colours, custom-shapes, -sizes, -sensitivities, and multi-zone detection. Large areas can be covered with a system of several mats, and there would effectively be no inactive area where the mats join together. Please contact us to discuss your application.

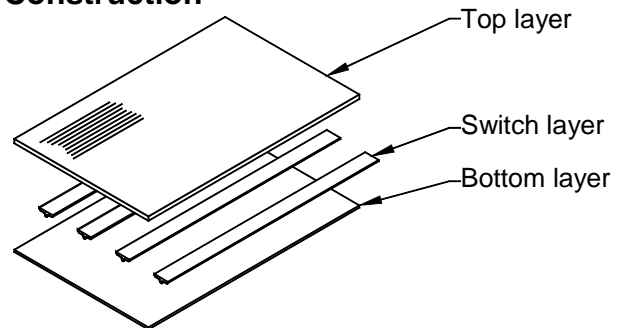
Field tested for over 20 years, the mat surface material is both weather and abrasion resistant and has an excellent record in the machine tool and automation industry.

A system consists of a mat sensor and a control unit. The CKP/S1 mat has a heavy-duty construction and comprises an array of Tapeswitch ribbon switches sandwiched between two layers of durable PVC material. When a person stands on the mat one or more of the switches is operated and a stop signal is transmitted to the machine control system.

### Technical Specification

Colour	Black or yellow
Housing material	Koroseal
Dimensions	On request
Depth	Approx. 13mm
Actuation force	<300N (30kg) (80mm test piece)
Response time	30ms
Inactive area	30mm around outer edge
Protection rating	IP65
Weight	Approx. 16kg/m <sup>2</sup>
Operating temperature	0°C to +50°C
Operating voltage	24V d.c.
Operating current	1A
Power consumption	6VA

### Construction



### Typical Applications

- Machinery safety
- Interactive  
*Play zones*  
*Theme parks*  
*Advertising*
- Access control  
*Banks*  
*Intruder alert*  
*Transport doors*

GB 01/11

## CKP Mats



### Features

- Custom shapes & sizes
- Optional colour & top surfaces
- Option to have company logo included on label
- Fixed with AE-13 aluminium edging
- Optional sensitivities
- Fail-safe operation
- Multiple switching zones available

CKP mats can be used in both safety and non-safety applications where a floor sensor is preferred. We can incorporate surface patterns, colours, custom-shapes, -sizes, -sensitivities, and multi-zone detection. Large areas can be covered with a system of several mats, and there would effectively be no inactive area where the mats join together. Please contact us to discuss your application.

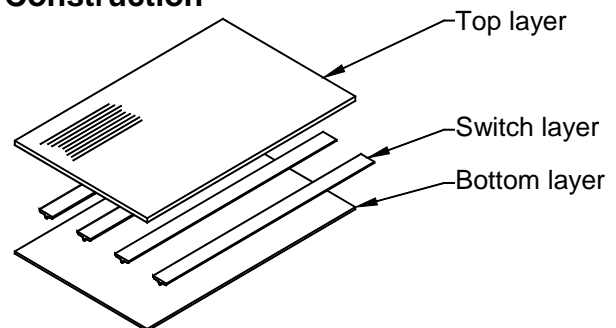
Field tested for over 20 years, the mat surface material is both weather and abrasion resistant and has an excellent record in the machine tool and automation industry.

A system consists of a mat sensor and a control unit. The CKP mat has a heavy-duty construction and comprises an array of Tapeswitch ribbon switches sandwiched between two layers of durable PVC material. When a person stands on the mat one or more of the switches is operated and a stop signal is transmitted to the machine control system.

### Technical Specification

Colour	On request
Housing material	On request
Dimensions	On request
Depth	Approx. 13mm
Actuation force	<300N (30kg) (80mm test piece)
Response time	30ms
Inactive area	30mm around outer edge
Protection rating	IP65
Weight	Approx. 16kg/m <sup>2</sup>
Operating temperature	0°C to +50°C
Operating voltage	24V d.c.
Operating current	1A
Power consumption	6VA

### Construction



### Typical Applications

- Machinery safety
- Interactive  
*Play zones*  
*Theme parks*  
*Advertising*
- Access control  
*Banks*  
*Intruder alert*  
*Transport doors*

GB 12/10

## Armormats



### Features

- Standards EN1760-1 & EN13489-1
- Custom shapes & sizes
- Choice of black or yellow
- Option to have company logo included on label
- Non-slip corrugated surface
- Fixed with AE-13 aluminium edging
- Optional sensitivities
- Fail-safe operation
- Multiple switching zones available
- Chemical & abrasion resistant

The Armormat combines all the features of the CKP/S1 mat with an extra heavy-duty design. It is similar in construction to the CKP/S1 mat, but has been specifically designed to withstand heavy impacts. The mat incorporates a rubber membrane and a layer of tough polycarbonate, which gives added protection to the switching elements in case the surface material is pierced.

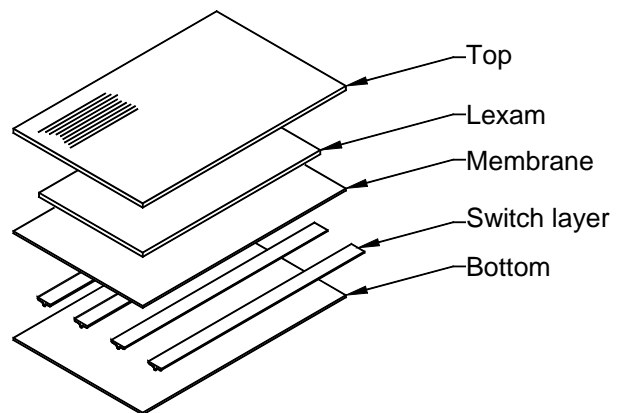
Armormats will easily withstand abuse that would destroy ordinary switching mats, such as repeated gouging by dropped sheet metal, piercing by a heavy spoke and continual pounding with a large hammer.

Like all our mats, Armormats can be made in custom shapes, sizes and colours to suit a variety of

### Technical Specification

Colour	Black or yellow
Housing material	Koroseal
Dimensions	On request
Depth	Approx. 18mm
Actuation force	<300N (30kg) (80mm test piece)
Response time	30ms
Inactive area	20mm around outer edge
Protection rating	IP65
Weight	Approx. 21kg/m <sup>2</sup>
Operating temperature	0°C to +50°C
Operating voltage	24V d.c.
Operating current	1A
Power consumption	6VA

### Construction

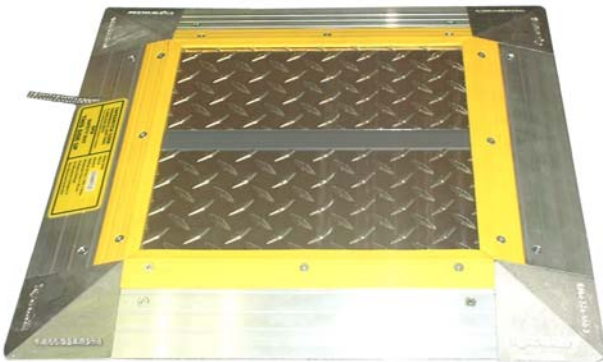


### Typical Applications

- Machinery safety
- Interactive
  - Play zones*
  - Theme parks*
  - Advertising*
- Access control
  - Banks*
  - Intruder alert*
  - Transport doors*

GB 01/11

## DPM Mats



### Features

- Custom shapes & sizes
- Aluminium diamond plate surface
- Aluminium ramped edging
- Optional sensitivities
- Fail-safe operation
- Multiple switching zones available
- Extremely heavy duty
- Withstands heavy traffic

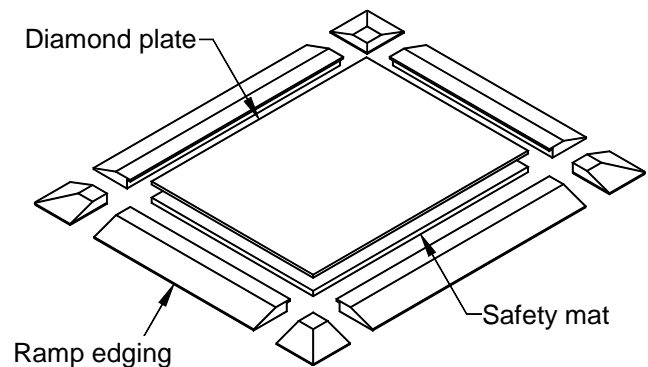
The DPM mat system has extremely high durability in the harshest of industrial environments. The mat gives excellent resistance to impact and is particularly useful in applications where hot materials falling on the mat would damage a conventional construction. The system comprises a Tapeswitch safety mat fitted below an aluminium diamond plate construction, which is held in position by extruded aluminium edge strips. The system is manufactured to the required size and despatched in kit form to be assembled on-site.

As with all our mats, the DPM range be made in custom shapes and sizes to suit a wide variety of applications.

### Technical Specification

Surface material	6061 T6 aluminium
Dimensions	On request
Depth	Approx. 20mm
Actuation force	<300N (30kg) (80mm test piece)
Response time	25ms
Inactive area	90mm around outer edge
Protection rating	IP65
Weight	Approx. 32kg/m <sup>2</sup>
Operating temperature	0°C to +50°C
Operating voltage	24V d.c.
Operating current	1A
Power consumption	6VA

### Construction



### Typical Applications

- Machinery safety
- Interactive  
*Play zones*  
*Theme parks*  
*Advertising*
- Access control  
*Banks*  
*Intruder alert*  
*Transport doors*

GB 12/10

## LMI Mats



### Features

- Custom shapes & sizes
- Optional colours & top surfaces
- Fixed with AE-13 aluminium edging
- Moulded company logos available
- Fail-safe operation
- Multiple switching zones available
- Chemical & abrasion resistant
- Parallel plate technology

Tapeswitch LMI mats use two parallel steel plates as a switch sensor. These are separated by insulated “buttons”, which keep the steel plates apart until a person stands on the mat and causes the top plate to make contact with the bottom plate.

The switch sensor is hermetically sealed and moulded in PVC-type material to form the safety mat. A safety mat system comprises a mat sensor and a control unit.

With LMI mats, there is the option to have your company logo or any other design you choose moulded directly into the mat. Custom mat sizes, shapes, surface patterns and colours are also available to meet your specific requirements.

### Technical Specification

Colour	On request
Housing material	Moulded PVC-type construction
Dimensions	On request
Depth	Approx. 12mm
Actuation force	<150N (15kg) (80mm test piece)
Response time	45ms
Inactive area	20mm around outer edge
Protection rating	IP67
Weight	Approx. 9.5kg/m <sup>2</sup>
Operating temperature	-35°C to +50°C
Operating voltage	24V d.c.
Operating current	50mA min, 1A max
Power consumption	6VA

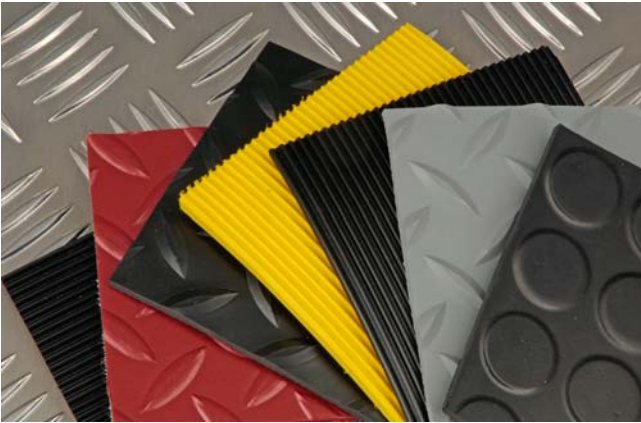
GB 12/10

### Typical Applications

- Machinery safety
- Interactive  
*Play zones*  
*Theme parks*  
*Advertising*
- Access control  
*Banks*  
*Intruder alert*  
*Transport doors*



## Solo Mats



Tapeswitch mats are pressure-sensitive switches designed to detect personnel or objects in a variety of applications. A mat will operate when pressure (usually from a person's foot) is applied to the mat's surface.

The major difference between a *Solo* mat and any other safety mat is that it has a Category 3 fail-safe monitoring function built into it. This configuration is ideal for AS-Interface systems, which connect sensors and actuators to remote control systems through only a 2-wire cable. The mats can be connected directly to the same kind of standard AS-Interface Safe I/O connection modules that are used to connect E-stop switches over the AS-Interface. This is much more convenient than the alternative of having an additional control unit close to the mat so that it can provide the volt-free, normally closed connections to the AS-Interface Safe I/O module.

Mats can also be used in non-safety applications where a floor sensor is preferred. We can incorporate

## Features

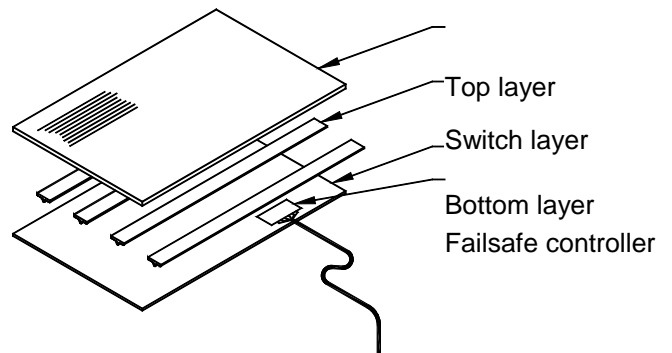
- Standards - EN1760-1 & EN13489-1
- Custom shapes & sizes
- Optional colours & top surfaces
- Optional sensitivities
- Company logos
- Aluminium edging
- TÜV approved
- Fail-safe operation
- Multiple switching zones
- AS-Interface compatible
- Volt-free, normally closed contacts

## Technical specification

Colour	On request
Housing material	On request
Dimensions	On request
Depth	Approx. 15mm
Actuating force	<300N (30kg) (80mm test piece)
Response time	30ms
Inactive area	30mm wide around outer edge
Protection rate	IP65
Weight	Approx. 18kg/m <sup>2</sup>
Operating temperature	0°C to + 50°C
Operating voltage	24V d.c.
Switching current @ 24V d.c.	100mA max
Power consumption	0.5VA
Output configuration	2 x N/C volt-free

GB 12/10

## Construction



## Typical Applications

- Machinery safety
- Interactive *play zones*  
*theme parks*  
*advertising*
- Access control  
*banks*  
*intruder alert*

**Order Code**

XXXX Solo/ XX / XXXX / XXXX / XXXX / XXXX

**Sensor type**

**Edge preparation**

SE - Square Edge

**Cable position**

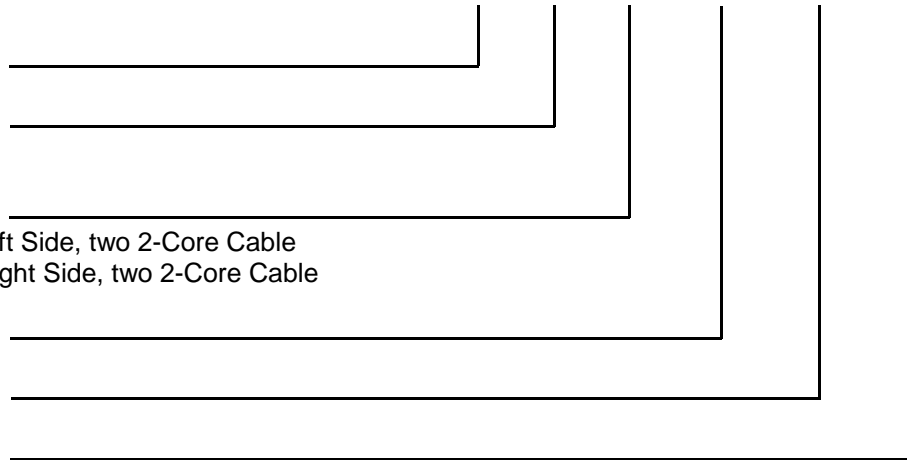
LLD - Long Edge, Left Side, two 2-Core Cable

LRD - Long Edge, Right Side, two 2-Core Cable

**Long edge length mm**

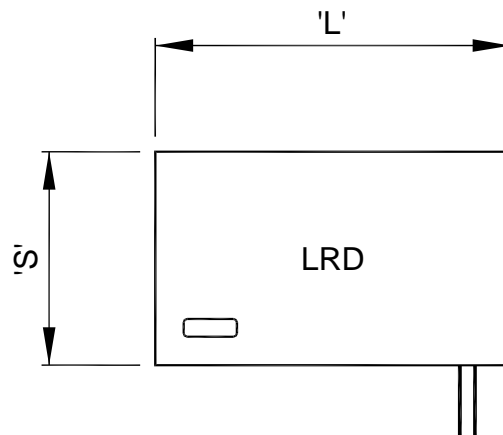
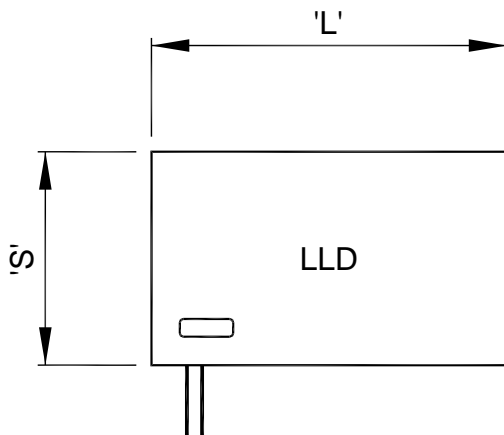
**Short edge length mm**

**Cable length mm**



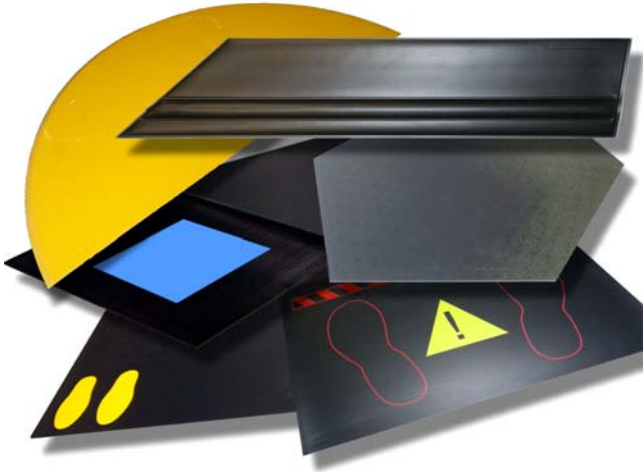
This is only a sample order code. If you have any special requirements, please contact our sales team.

**Lead Position Options**



## Custom switch-mats

### Features



- Designed to customer requirements
- Variety of surface materials
- Simple electrical interface
- Easy installation
- Durable construction

Tapeswitch custom switch mats are exactly that: made to the customers requirements. That is not to say that the customer has to tell us the design parameters of the required mat. Instead the customer can discuss with us what the mat has to achieve. We will then investigate the possibilities and offer solutions. We will very often produce a sample for the customer to try in the application, comment on and iteratively develop the perfect solution.

Tapeswitch has been producing switch mats for over 50 years and in that time we have developed such a variety of product designs and production techniques that what sounds like a costly and time-consuming product development process is nothing of the kind. It can be a matter of only a few weeks from the start of the enquiry to producing a sample and also only a few weeks from receipt of the order to despatch of the final production standard of product.

Tapeswitch gives equal importance to commercial and technical viability and will investigate with the customer, as early as possible, not only the functional requirements but also an agreeable price for the end product. In that way, the customer can be sure that the product will be ideal for the particular application and will be at a price acceptable to both parties.

### Technical specification (Typical)

Actuating force/weight	Typically 10kg by an adult foot
Surface material/colour	Various
Ingress protection	IP65
Operating temperature (typical)	0°C to +40°C
Recommended max voltage	30V d.c.
Max switching current @ 30Vdc	0.5A

### Typical Applications:

- High-level security
- Low-risk interlocks
- Sports training
- Interactive play areas
- Large area footswitches

*... and anything else you can think of*

GB 12/10

## AE-13 Mat Edging

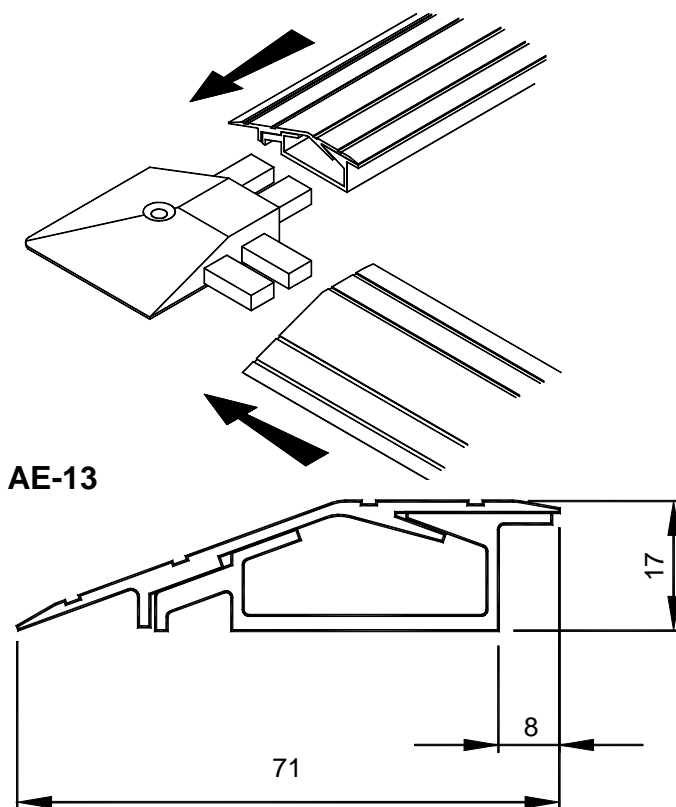


### Features

- Fixes mat in position.
- Hides & protects cables.
- Helps prevent trip hazards.
- Quick & easy installation.
- Supplied custom built.

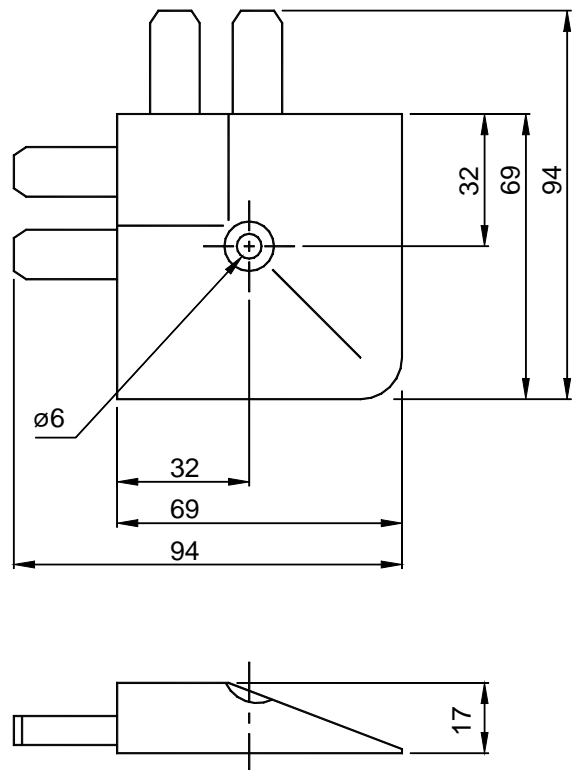
Tapeswitch AE-13 aluminium mat edging is used to fix safety mats in position. This specially designed edging comprises of 2 parts; a base and a cover. The cover provides a 20 degree ramp to help prevent trip hazards at the outer sensor edges. The base can accommodate sensor wiring, protecting the cables from damage and acting as a conduit to route the cables to the control box. AE-C corner pieces have been designed to provide quick and easy installation of the AE-13 edging.

### Dimensions



GB 06/10

### AE-C



# Tapeswitch Control Units



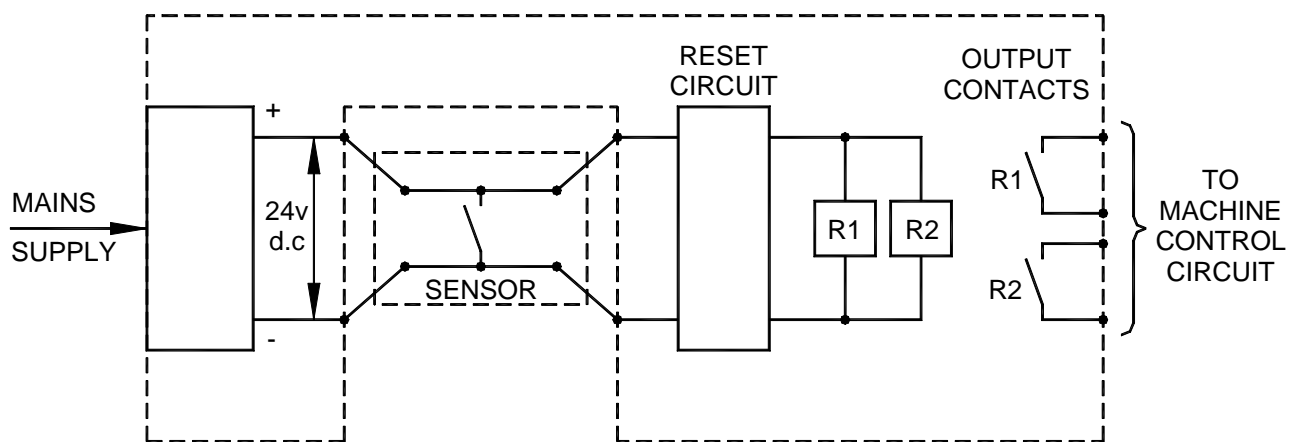
## Features

- Complete fail-safe system
- Complies with EN13489-1
- Variety of enclosure styles
- Choice of input controls

Tapeswitch control units act as an interface between the Tapeswitch sensor and the end-user device (machine and/or process control).

They can be specifically engineered to meet the customer's requirements based on the type of application and environment.

## Fail-safe wiring principle



## Technical Specification

	Type	Safety Standard	Supply Voltage	Mounting Option	Reset Mode	Output Contacts
PSSU/1	Safety	EN13489-1	110/230V a.c.	DIN Rail	Manual	2 x N/O, 2A@240V
PSSU/2	Safety	EN13489-1	24V d.c.	DIN Rail	Manual	2 x N/O, 2A@240V
PSSU/3	Safety	EN13489-1	110/230V a.c.	Surface Mounted	Manual	2 x N/O, 2A@240V
PSSU/4	Safety	EN13489-1	24V d.c.	Surface Mounted	Manual	2 x N/O, 2A@240V
PSSU/6	Safety	EN13489-1	24V d.c.	Surface Mounted	Manual/auto	2 x N/O, 2A@240V
PRSU/4	Safety	EN13489-1	24V d.c.	DIN Rail	Manual/auto	3 x N/O, 2A@240V
PSSZ-2	Safety	EN13489-1	24V d.c.	DIN Rail	Auto	2 x N/O volt-free
SRUS	Safety	EN13489-1	24V d.c.	DIN Rail	Manual/auto	3 x N/O, 6A@240V d.c.
PSCU/1	Control	EN13489-1	110/230V a.c.	DIN Rail	Manual/auto	Common, N/O, N/C
PSCU/4	Control	EN13489-1	24V d.c.	DIN Rail	Manual/auto	Common, N/O, N/C

GB 09/10

## PRSU/4 Control Unit



### Features

- Standards - EN13489-1
- DIN rail mounted
- 24V d.c. supply voltage
- Manual or auto reset
- Self-monitoring
- 4 output contacts

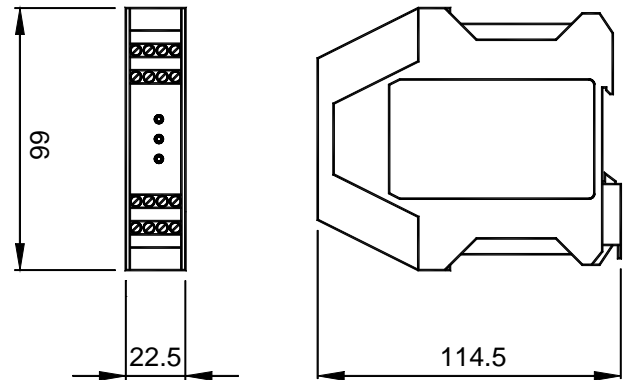
The PRSU/4 control unit is designed to be used in conjunction with Tapeswitch pressure sensitive sensors to form a complete safety system. Sensors may take the form of safety mats, sensing edges, ribbon switches or bumpers.

The PRSU/4 exceeds the requirements of Category 3 as given by EN954-1. It is an extremely compact unit which has a 22.5mm DIN rail enclosure ideal for mounting in control panels. The PRSU/4 has a manual or auto reset function and operates from 24V d.c.

### Technical Specification

Supply voltage	24V a.c/d.c.
Power consumption	<5VA
Enclosure type	DIN rail
Enclosure rating	IP20
Response time	30mS
weight	170g
Sensor wiring	Fail-safe only
Reset mode	Manual or auto
Output relays	2 x safety replays (force guided contacts) cross monitored
Output contacts	3 x N/O, 2A@240V 1 x N/C
Operating temperature	-25°C to +55°C
Safety standard	EN13489-1
Typical applications	Medium/high risk

### Dimensions



GB 01/11

## PSSZ-2 Control Unit



### Features

- Standards - EN1760-2 & EN13489-1
- DIN rail mounted
- 24V d.c. supply voltage
- Fail-safe auto reset
- Small size
- Solid state volt free outputs
- Compatible with SLZ single lead Tapeswitch sensing edges and ribbon switches
- Compatible with AS-i Safe

The PSSZ-2 miniature DIN-rail interface unit for safety mats, sensing edges and other ribbon switch sensors is remarkable because of its small size. The unit has Category 3 fail-safe monitoring but is similar in size to a DIN-rail terminal. These interface units monitor the safety sensor by using a single two-wire lead, which reduces the complexity of the installation and is often the most practical solution. In fact in some four-wire applications it would be impractical or impossible to have leads fitted at each end of the sensor.

The PSSZ-2 has solid-state normally closed volt-free outputs which means that it is compatible with virtually any interface, including the input modules of bus systems such as AS-i. It also has an LED function, illuminating red or green, prominently displaying the status of the sensor.

*\*In order to achieve the above standard the control unit must be used with the SLZ-option Tapeswitch sensor.*

### Technical Specification

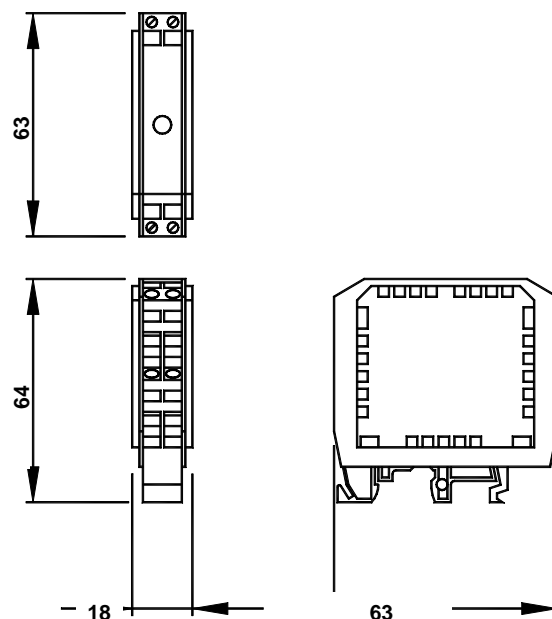
Supply voltage	24V d.c.
Power consumption	2,5VA
Enclosure type	DIN rail
Enclosure rating	IP20
Response time	<30ms
Weight	40g
Sensor wiring	Fail-safe single lead
Reset mode	Auto
Output relays	2 x solid state
Output configuration	2 x N/O volt-free
Operating temperature	0°C to +50°C
Safety standard	EN1760-1 & EN13489-1
Typical applications	Medium/high risk

### Typical Applications:

- Car park barriers
- Automatic gates
- Roller-shutter doors
- Factory automation

GB 01/11

### Dimensions



# PSSW Wireless Control System

## Information Sheet



### Features

- Replaces vulnerable cable runs
- Reduces downtime through damage
- Ideal for sliding gates, roller doors, etc
- Up to 6 transmitters per receiver

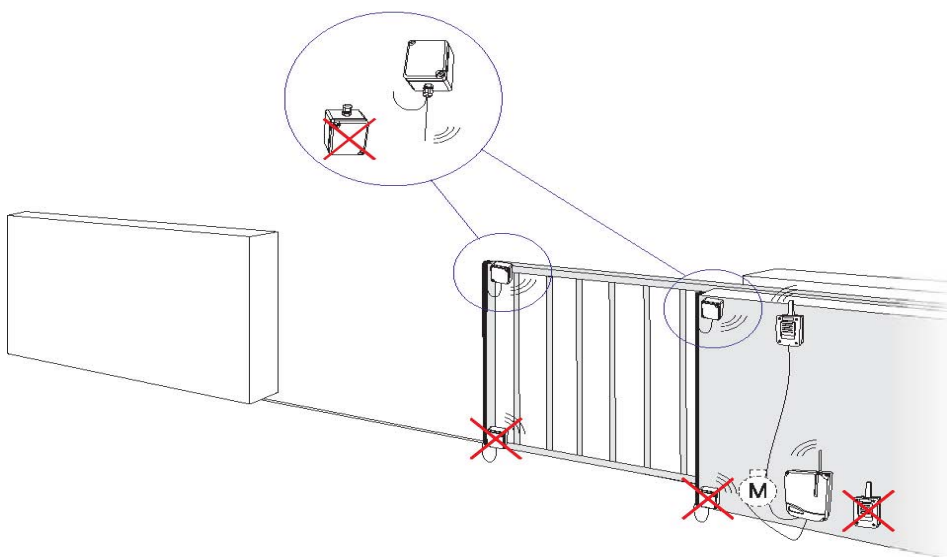


In many applications the cable run between a remote sensing- or safety-switch can be vulnerable to damage or vandalism. Typical of these applications is the connection to an anti-trap safety sensor (such as a sensing edge) on the leading end of a sliding gate. When the gate is fully open, the distance from the sensing edge to the gate controller may only be a couple of metres but when the gate is fully closed, that distance may have increased to 30 metres or more. Using coiled cable or employing cable tensioning systems to cater for this varying length of cable run can still leave the cable vulnerable. Equally it could simply be more convenient to have a wireless connection between a switching device and a control system. For example, the installation could be short-term and does not warrant full-scale permanent installation of the cables.

Up to 6 transmitters can each monitor the state of a different fail-safe switch and pass that information wirelessly to the receiver to give a pass/fail output for the system. Each transmitter monitors an end-of-line resistor in the switch and the receiver can present either a closed contact or an end-of-line resistor as a pass output.

The range of the system is specified as 10 metres but dependent on the surroundings (high buildings, metal walls, etc) a range of over 40m is typical. Performance is better when the transmitters and receivers are mounted vertically and high on the installation.

### Typical installation on a sliding (cantilever) gate



GB 03/09



### Technical Specification:

#### Transmitters

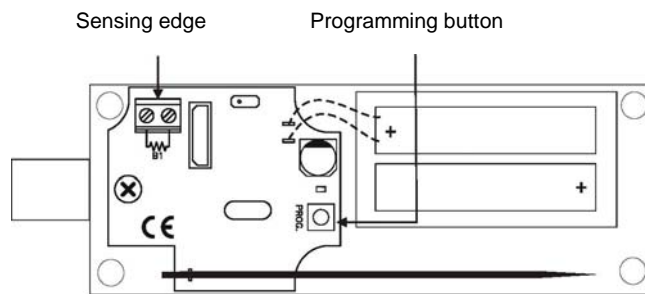
PSSW/TX	
Operating frequency	868.90MHz
Power supply	3V DC (2 x 1.5V LR6 AA)
Operating consumption	12mA
Radiated power	< 25mW
Operating temperature	-20°C - +55°C
Ingress protection	IP66
Dimensions	160 x 53 x 20mm
Range (guaranteed)	10m
Battery life	2 years
Minimum time between two or more PSSW/TX activations (for complying with the R&TTE Directive)	7 min

#### Receiver

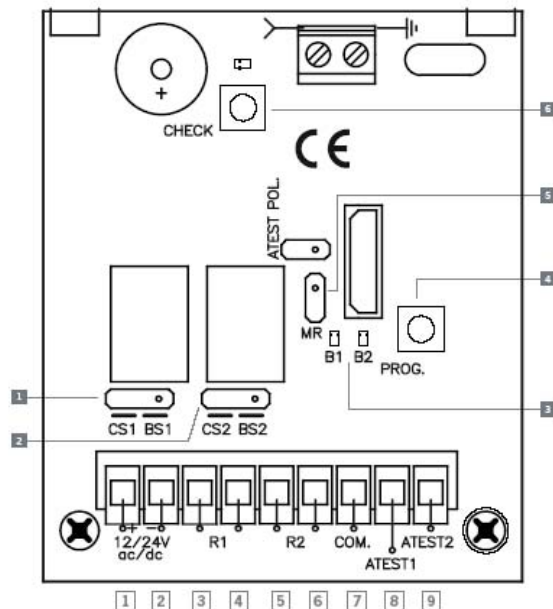
PSSW/RX	
Frequency	868.90MHz
Memory	6 off PSSW/TX (3 on relay 1, 3 on relay 2)
Number of relays	2 relays
Power supply	12/24V AC/DC
Power supply range	9-35V DC 8-28V AC
Relay contacts	1A
Consumption: idle/op.	18mA/80mA
Self-test input	2 off 0/12/24V AC/DC inputs with selectable polarity
Power	< 25mW
Operating temperature	-20°C to +85°C
Ingress protection	IP54 (with IP65 cable seals)
Dimensions	82 x 190 x 40mm
Range (guaranteed)	10 metres

### Connections and controls

#### Transmitters



#### Receiver



#### Connections

1. Power supply 12/24V AC/DC: (+)
2. Power supply 12/24V AC/DC (-)
- 3,4 Output R1:
- 5,6 Output R2:
- 7 COM: Common connection safety self test (-). See AUTOTEST FUNCTION
- 8 ATEST1: Self-test connection for Output R1 AUTOTEST FUNCTION
- 9 ATEST2: Self-test connection for Output R2. AUTOTEST FUNCTION.

## Signalling Sensors



### Features

- Low profile
- Easily operated
- Reliable switching principle
- Easily mounted

### Typical Applications

- Bed patient signalling
- Limit switch
- Security systems
- Disabled facilities
- Access control

Tapeswitch-based signalling sensors are designed for a variety of control and signalling applications. They operate when pressure, normally from a hand or foot, is applied to the surface of the sensor and provide a low cost solution to a range of problems from security to access control.

### Typical Signalling Sensors

NO-1, NO-1R pressure pads	Extremely low profile, normally open switches which are typically used in security applications or as a limit switch where space is limited.
111, 111B footswitches	Designed for foot activation and differ in sensitivity to suit the application.
TAH	Designed for hand operation and is often used as a patient signalling device in hospitals
TP2, TP4 touch pads	Durable, normally open touch pads which are available in a choice of sizes. They are ideal for a range of signalling applications from access control to disabled facilities.

### Technical Specification

	Material	Actuation force	Weight	Size (mm)	Depth	Operating temperature	Voltage (max)	Current @30V d.c.
NO-1	Black PVC	25N (2.5kg)	10g	37 dia	7mm	-18°C to +50°C	30V d.c	1A
NO-1R	Black PVC	25N (2.5kg)	10g	20 x 30	7mm	-18°C to +50°C	30V d.c	1A
111	Black PVC	19N (1.9kg)	170g	130 x 50	7mm	-18°C to +50°C	30V d.c	1A
111B	Black PVC	10N (1kg)	170g	130 x 50	10mm	-18°C to +50°C	30V d.c	1A
TAH	White PVC	7N (0.7kg)	130g	130 x 30	9mm	-18°C to +50°C	30V d.c	1A
TP2	Black PVC	2N (0.2kg)	30g	57 x 57	9mm	-18°C to +50°C	30V d.c	1A
TP4	Black PVC	2N (0.2kg)	150g	114 x 114	14mm	-18°C to +50°C	30V d.c	1A

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# TFS Foot Switch



## Features

- Custom sizes
- Non-corrosive aluminium & PVC construction
- Fail-safe wiring available
- Easy installation
- IP67 rated
- Aluminium end plates

The TFS Foot Switch is a highly visible, durable and reliable switch which is used in many applications such as foot switches for presses and production lines.

The product consists of a Tapeswitch ribbon switch sealed inside a PVC co-extrusion, which is then housed in a ramped edged aluminum channel.

The TFS can be fixed in position by simply drilling through the ramped edges and using fixing bolts to the floor. Aluminium endplates are used to secure the foot switch to the ground and to protect the cable exit. When specifying the length of your TFS, please ensure that you allow 120 mm for the endplates.

The versatility of Tapeswitch based products means that this type of switch can be used in other applications such as vehicle counting, traffic control and private road security.

## Technical Specification

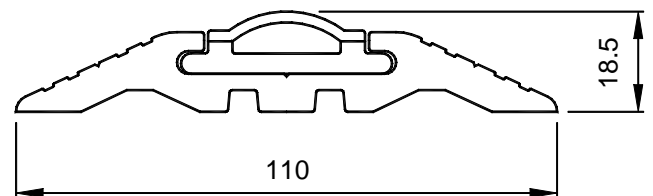
Sensor colour	Yellow
Material:	
Top surface	Extruded PVC, UV stablized
Bottom section	Extruded aluminium
Endplate	Aluminium casting
Recommended voltage	5V to 24V ac or dc
Max current	1.0A ac or dc
Environment	IP67
Chemical/Moisture resistance	Excellent resistance to water, mild acids and bases, alcohols and many solvents
Actuation force	9kg (88N) nominal

## Typical Applications

- Presses
- Production lines
- Grinding & polishing wheels

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## Dimensions



## End Plate View

