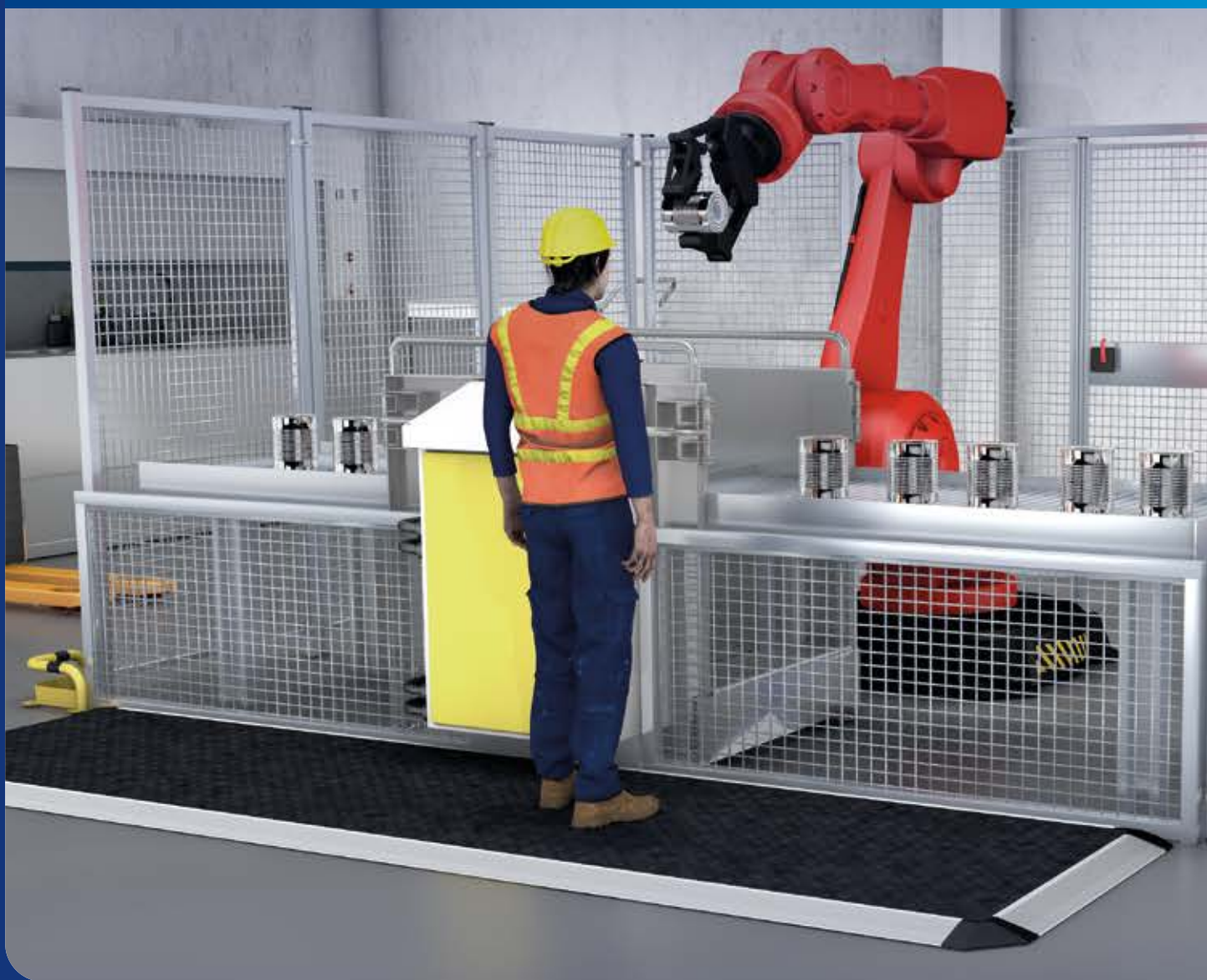


**Safety in System**  
**Protection for man and machine**

# **TACTILE SAFETY DEVICES**

## **PRODUCT INFORMATION**



# INTRODUCTION



**Heinz and Philip Schmersal,**  
Managing Directors of the Schmersal Group

## **New solutions to improve production efficiency and machine safety**

### **Safety in system – Protection for man and machine**

Often, it is unavoidable that people have to intervene with the workings of a machine. When this is done the safety of the operator is imperative. This demands the responsibility of the machine operator, which is also required by the world's standards and guidelines for machine safety.

The Schmersal Group has concentrated for many years on safety at work with our products and solutions; today we can offer the industry the world's largest range of safety switchgear and systems for the protection of man and machine.

Under the guiding principle "Safety with system – protection for man and machine" we develop and produce products that carry the system concept and can be optimally integrated into the work processes. Because we are convinced that safety does not contradict higher productivity.

In our fields of activity we have a leading position due to our expertise, our innovative power and our comprehensive range of products. With this we follow a central theme: Together with you, we want to make the world a little safer.

Talk to us – we look forward to working with you.

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# TACTILE SAFETY DEVICES OVERVIEW

Tactile protective devices stop hazardous movements on contact or access. The variety of different application fields demand devices that differ in design, such as switch mats, safety edges and bumpers.

The general structure includes a signal generator or sensor, signal transmission, signal processing and signal output. The latter two system components in the chain are usually accommodated in a single evaluation unit.



## SAFETY MATS

Safety switch mats offer extensive protection around machinery and plants. The area in front of the danger zone is fitted with the safety switch mat.

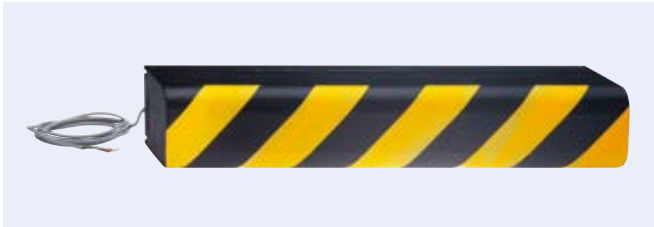
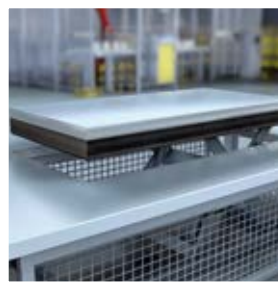
Depending on the shape of the area to be protected, multiple safety mats can be laid in line and electrically connected. When the safety mat is actuated, a signal is evaluated and the machine stop is initiated.



## SAFETY EDGES

Safety edges are used wherever there are crushing and shearing points, whether on safety doors, lifting tables, platforms, mobile storage shelving, operating process tables, storage lifts, lift doors, loading ramps, lifting and tilting devices or industrial gates.

Safety edges immediately and reliably stop the hazardous movement, thus preventing physical injury or material damage.



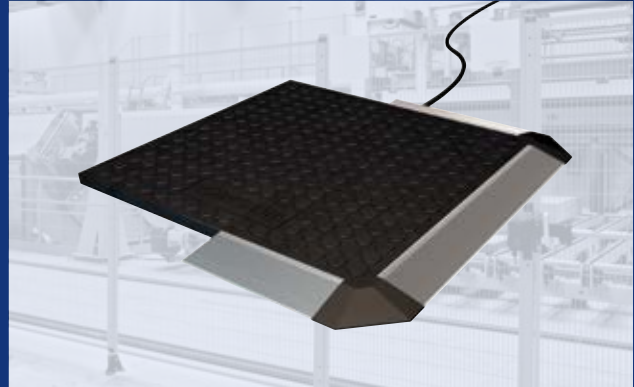
## SAFETY BUMPERS

Safety bumpers are primarily used to safeguard crushing and shearing points. They are regularly used on large gates, in high-rack storage areas and driverless transport systems.

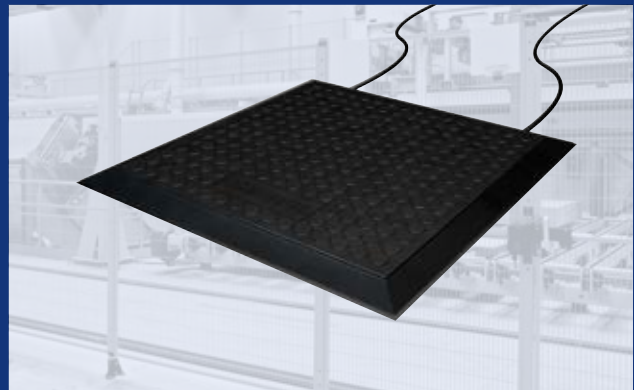
# SAFETY MATS

## SMS 4 / SMS 5

- SMS 4 without ramp profile, multiple SMS 4 can be connected together and finished with aluminium profiles
- SMS 5 with moulded ramp profile
- Robust design
- Modular switching mat system
- Maintenance free
- Easy to install
- Non-slip surface material made from black polyurethane
- High resistance to chemicals



SMS 4



SMS 5



Safety mats are used for the protection of man on machinery and plants with hazardous movements. Typical fields of application include the protection of hazardous areas and surfaces on wood-processing machines, robots and presses.

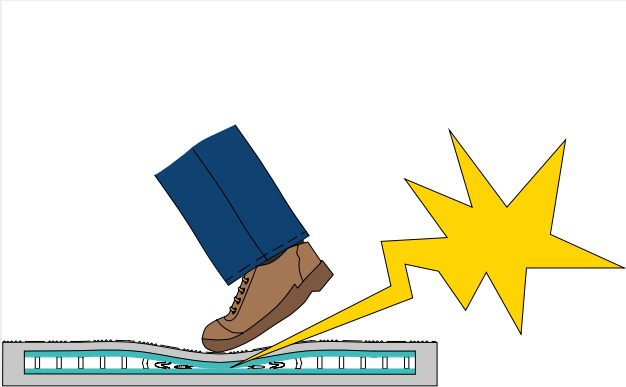
The safety mats build a uniplanar safety device, which detects the presence of persons. If a person steps onto the safety mat, the connected safety-monitoring module will immediately stop the hazardous movement.

The Series SMS 4, which is fixed to the ground using an aluminium profile and special corner connectors. As a result of the beveled form of the profile, tripping hazards are avoided. The aluminium profile additionally serves as edge protection, when fork-lift trucks or other floor conveyors drive over the safety mats.

In the SMS 5 series, the polyurethane actuating profile is directly moulded to the active surface of the safety mat.

# SAFETY MATS

## SMS 4 / SMS 5



The safety mats consist of two separate current-carrying steel plates. Insulating layers separate the plates from each other. Upon actuation of the pressure-sensitive mat, an electrical cross-wire short is produced between the steel plates.

The connected safety-monitoring module evaluates this signal and stops the hazardous movement.



The safety mats can be connected in line with each other in order to provide for a smooth and fast protection of hazardous areas. An area of up to 10 m<sup>2</sup> or 5 switch mats can be connected to one evaluation unit. To this end, different standard sizes are available. Furthermore, special sizes or special shapes are available upon request.

## ORDERING CODE

### SMS 5-500-500

| Frame profile |                           |
|---------------|---------------------------|
| 4             | Without ramp profile      |
| 5             | With moulded ramp profile |

| Width x Length |                |
|----------------|----------------|
| 250-500        | 250 x 500 mm   |
| 500-500        | 500 x 500 mm   |
| 500-1000       | 500 x 1000 mm  |
| 750-1000       | 750 x 1000 mm  |
| 1000-1000      | 1000 x 1000 mm |
| 1000-1500      | 1000 x 1500 mm |

Special sizes are available on request

# SAFETY MATS

## OVERVIEW OF THE SERIES



■ SMS 4



■ SMS 5

### Key Features

- Without border
- Ramp/attachment rail and corner sections available
- 4 wire line connection

- With moulded ramp profile
- Surface material out of black polyurethane
- Robust design
- 2 x 2 wire line connection

### Technical features

| Standards                                     | EN ISO 13856-1                                | EN ISO 13856-1                                |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| <b>Electrical characteristics</b>             |                                               |                                               |
| <b>Execution of the electrical connection</b> | Cable                                         | Cable                                         |
| <b>Cable section</b>                          | 4 x 0.34 mm <sup>2</sup>                      | 2 x 2 x 0.34 mm <sup>2</sup>                  |
| <b>Mechanical data</b>                        |                                               |                                               |
| <b>Permissible load</b>                       | 2000 N/cm <sup>2</sup> with round body Ø 80mm | 2000 N/cm <sup>2</sup> with round body Ø 80mm |
| <b>Actuating force</b>                        | 150 N with round body Ø 80mm                  | 150 N with round body Ø 80mm                  |
| <b>Inactive area</b>                          | ≤ 10 mm                                       | ≤ 10 mm                                       |
| <b>Resistant to chemicals</b>                 |                                               |                                               |
| <b>Water</b>                                  | ■                                             | ■                                             |
| <b>10% Acids</b>                              | ■                                             | ■                                             |
| <b>10% Alkalis</b>                            | ■                                             | ■                                             |
| <b>Oils</b>                                   | ■                                             | ■                                             |
| <b>Petroleum</b>                              | ■                                             | ■                                             |
| <b>Ambient conditions</b>                     |                                               |                                               |
| <b>Ambient temperature</b>                    | 0 °C ... +60 °C                               | 0 °C ... +60 °C                               |
| <b>Degree of protection</b>                   | IP65                                          | IP65                                          |
| <b>Certificates</b>                           | TÜV, cULus                                    | TÜV, cULus                                    |

### Safety classification

| Standards                   | EN ISO 13849-1 | EN ISO 13849-1 |
|-----------------------------|----------------|----------------|
| <b>PL/SIL <sup>1)</sup></b> | d/2            | d/2            |
| <b>Control category</b>     | 3              | 3              |



<sup>1)</sup> only in connection with safety modules SRB-E-301ST, SRB301HC/R and SRB301HC/T

To get detailed information about the products and certificates, visit [products.schmersal.com](https://products.schmersal.com).

# SAFETY MATS

## PREFERRED TYPES AND ACCESSORIES

| Range |                                                                                    | Active area    | Type            | Material number |
|-------|------------------------------------------------------------------------------------|----------------|-----------------|-----------------|
| SMS 4 |   | 250 x 500 mm   | SMS 4-250-500   | 101208365       |
|       |                                                                                    | 500 x 500 mm   | SMS 4-500-500   | 101208366       |
|       |                                                                                    | 500 x 750 mm   | SMS 4-500-750   | 101210174       |
|       |                                                                                    | 500 x 1000 mm  | SMS 4-500-1000  | 101208367       |
|       |                                                                                    | 750 x 1000 mm  | SMS 4-750-1000  | 101208368       |
|       |                                                                                    | 1000 x 1000 mm | SMS 4-1000-1000 | 101208369       |
|       |                                                                                    | 1000 x 1500 mm | SMS 4-1000-1500 | 101208370       |
| SMS 5 |  | 250 x 500 mm   | SMS 5-250-500   | 101208371       |
|       |                                                                                    | 500 x 500 mm   | SMS 5-500-500   | 101208372       |
|       |                                                                                    | 500 x 1000 mm  | SMS 5-500-1000  | 101208373       |
|       |                                                                                    | 700 x 800 mm   | SMS 5-700-800   | 101211564       |
|       |                                                                                    | 750 x 1000 mm  | SMS 5-750-1000  | 101208374       |
|       |                                                                                    | 1000 x 1000 mm | SMS 5-1000-1000 | 101208375       |
|       |                                                                                    | 1000 x 1500 mm | SMS 5-1000-1500 | 101208376       |

| System component         | Series        | Special features                                                        | Type            | Material number |
|--------------------------|---------------|-------------------------------------------------------------------------|-----------------|-----------------|
| Safety monitoring module | SMS 4 / SMS 5 | Start button with edge detection<br>Operating voltage 24 VDC            | SRB-E-301ST     | 103007672       |
|                          |               | Start button with edge detection<br>Operating voltage 24 VDC            | SRB301HC/T-24V  | 101190593       |
|                          |               | Start button without edge detection<br>Operating voltage 48 ... 240 VAC | SRB301HC/T-230V | 101190595       |
|                          |               | Start button with edge detection<br>Operating voltage 24 VDC            | SRB301HC/R-24V  | 101190594       |
|                          |               | Start button with edge detection<br>Operating voltage 48 ... 240 VAC    | SRB301HC/R-230V | 101190596       |

| SMS 4-BS-3000                                                                                | 101208378 | SMS 4-RS-3000                                                                            | 101209478 | SMS 4-EV                                                                                                  | 101208379 |
|----------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------|-----------|
|           |           |       |           |                      |           |
| <ul style="list-style-type: none"> <li>■ Mounting rail</li> <li>■ Length 3,000 mm</li> </ul> |           | <ul style="list-style-type: none"> <li>■ Ramp rail</li> <li>■ Length 3,000 mm</li> </ul> |           | <ul style="list-style-type: none"> <li>■ Corner section</li> <li>■ Included in delivery 1 unit</li> </ul> |           |

# SAFETY EDGES

## SE40/SE70

- SE40 approx. 40 mm high  
SE70 approx. 70 mm high
- Dirt and moisture in the profile are compensated to a great extent
- Insensitive to environmental conditions
- Maximum profile length: 10 m
- May be shortened individually
- Material of the rubber profile EPDM or NBR Perbunan®



The safety edges are used wherever there are crushing and shearing points, which may be on safety doors, lifting tables, platforms, mobile storage shelving, operating process tables, storage lifts, lift doors, loading ramps, lifting and tilting devices or industrial gates.

The safety edge safely and reliably stops the hazardous movement and prevents injury to persons and damage to machinery.



SE40



SE70

The complete SE40/SE70 system comprises the rubber profile, aluminium profile section, pluggable sensor, end plugs and an evaluation unit. The safety edge system can be assembled according to the customer's requirements, such as profile height and length as well as evaluation unit, with the requisite Performance Level.

The safety edge system with the safety relay module SE-400C complies with the requirements of the PL e. The safe shutdown of the switch strip system is also reliable even when several faults occur in the system.

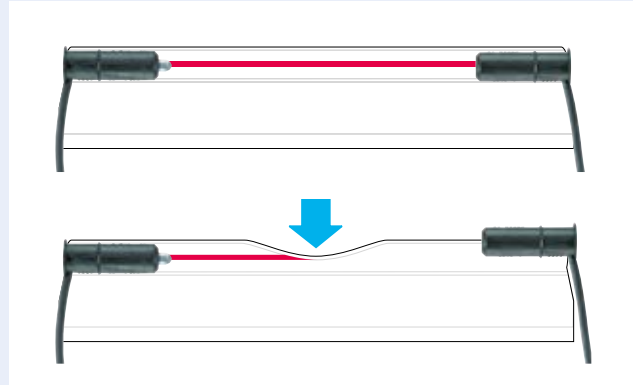
# SAFETY EDGES

## SE40 / SE70



A safety strip system comprises:

- ① Rubber profile SE-P
- ② Aluminium profile SE-AL
- ③ Transmitter/receiver SE-SET
- ④ End plugs SE-T
- ⑤ Safety relay module SE-xxx C



The deformation of the rubber profile safety edge is evaluated. The centrepiece is a fail-safe transmitter and receiver unit in both ends of the rubber profile. The deformation of the rubber profile strip weakens or interrupts the IR-signal between the transmitter and receiver units.

A downstream safety relay module evaluates this weakening of the IR-signal without interference and stops the hazardous movement.

## ORDERING CODE – RUBBER PROFILE SE-P

### SE-P40-NBR 1250

| Coating        |                         |
|----------------|-------------------------|
| P              | Uncoated rubber profile |
| PC             | Coated rubber profile   |
| Profile height |                         |
| SE-P40         | 40 mm high              |
| SE-P70         | 70 mm high              |

| Length                         |                  |
|--------------------------------|------------------|
| 1250                           | 1.25 m           |
| 2500                           | 2.5 m            |
| 5000                           | 5 m              |
| 10000                          | 10 m             |
| Material of the rubber profile |                  |
|                                | EPDM, 65 Shore A |
| NBR                            | NBR Perbunan®    |

Detailed information on other components can be found at [products.schmersal.com](https://products.schmersal.com).

# SAFETY EDGES

## OVERVIEW OF THE SERIES



■ SE40



■ SE70

### Key Features

▪ Height approx. 40 mm

▪ Height approx. 70 mm

### Technical features

| Standards                                           | EN ISO 13856-2                          | EN ISO 13856-2                          |
|-----------------------------------------------------|-----------------------------------------|-----------------------------------------|
| <b>Material of the rubber profile <sup>1)</sup></b> | EPDM, 65 Shore A or NBR Perbunan®       | EPDM, 65 Shore A or NBR Perbunan®       |
| <b>Mechanical data</b>                              |                                         |                                         |
| <b>Mechanical life</b>                              | 20,000,000 operations                   | 20,000,000 operations                   |
| <b>Max. permanent load</b>                          | 500 N on the operational switching zone | 500 N on the operational switching zone |
| <b>Response travel</b>                              | max. 9 mm                               | max. 9 mm                               |
| <b>Run-on distance</b>                              | max. 20 mm                              | max. 45 mm                              |
| <b>Dimensions (W x H) <sup>2)</sup></b>             | 25 x 40 x ... mm                        | 25 x 70 x ... mm                        |
| <b>Environmental conditions</b>                     |                                         |                                         |
| <b>Temperature resistance</b>                       | 0 °C ... +60 °C                         | 0 °C ... +60 °C                         |
| - Short term                                        | -50 °C ... +120 °C                      | -50 °C ... +120 °C                      |
| - Long term                                         | -40 °C ... +100 °C                      | -40 °C ... +100 °C                      |
| <b>Degree of protection <sup>3)</sup></b>           | IP67                                    | IP67                                    |
| <b>Certificates <sup>4)</sup></b>                   | TÜV                                     | TÜV                                     |

<sup>1)</sup> Typical material properties see table "Rubber material" on page 13.

⚠ The listed material properties apply as a guideline.  
Critical applications must be tested in practice by the customer.

<sup>2)</sup> incl. aluminium profile

<sup>3)</sup> The IP67 degree of protection applies to the complete signalling devices (including SE-SET).

<sup>4)</sup> Certification only in conjunction with safety relay modules SE-100C, SE-304C or SE-400C.  
Plastic-coated and NBR-profiles are not part of the type tests.

To get detailed information about the products and certificates, visit [products.schmersal.com](https://products.schmersal.com).

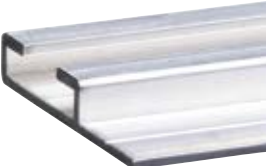


# SAFETY EDGES PREFERRED TYPES

|                                                 | EPDM, 65 Shore A              | NBR Perbunan®            |
|-------------------------------------------------|-------------------------------|--------------------------|
| <b>Rubber material</b>                          |                               |                          |
| <b>Chemical name</b>                            | Ethylene-propylene terpolymer | Nitrile butadiene rubber |
| <b>Rebound resilience at 20 °C</b>              | Good                          | Good                     |
| <b>Resistance against permanent deformation</b> | Good                          | Good                     |
| <b>General weather resistance</b>               | Excellent                     | Very good                |
| <b>Resistance against ozone</b>                 | Excellent                     | Very good                |
| <b>Resistance against oil</b>                   | Low                           | Excellent                |
| <b>Resistance against fuel</b>                  | Low                           | Good                     |
| <b>Resistance against solvents</b>              | Low to satisfactory           | Good                     |
| <b>General resistance to acids</b>              | Good                          | Satisfactory             |

| System component                | Series  | Special features                                             | Type                     | Material number |
|---------------------------------|---------|--------------------------------------------------------------|--------------------------|-----------------|
| <b>Aluminium profile</b>        | SE40    | Without aluminium leg                                        | SE-AL10-1250             | 101153893       |
|                                 |         |                                                              | SE-AL10-2500             | 101172179       |
|                                 |         | With aluminium leg                                           | SE-AL12-1250             | 101153894       |
|                                 |         |                                                              | SE-AL12-2500             | 101172180       |
|                                 | SE70    | Without aluminium leg                                        | SE-AL20-1250             | 101153895       |
|                                 |         |                                                              | SE-AL20-2500             | 101172186       |
|                                 |         | With aluminium leg                                           | SE-AL22-1250             | 101153896       |
|                                 |         |                                                              | SE-AL22-2500             | 101172188       |
| <b>Rubber profile</b>           | SE40    | Uncoated EPDM rubber profile                                 | SE-P40-1250              | 101172155       |
|                                 |         |                                                              | SE-P40-2500              | 101172154       |
|                                 |         |                                                              | SE-P40-5000              | 101172153       |
|                                 |         |                                                              | SE-P40-10000             | 101172151       |
|                                 |         | Uncoated NBR rubber profile                                  | SE-P40-NBR-1250          | 101174453       |
|                                 |         |                                                              | SE-P40-NBR-2500          | 101174454       |
|                                 |         |                                                              | SE-P40-NBR-5000          | 101174455       |
|                                 |         |                                                              | SE-P40-NBR-10000         | 101174456       |
|                                 |         | Coated EPDM rubber profile                                   | SE-PC40-1250             | 101172161       |
|                                 |         |                                                              | SE-PC40-2500             | 101172159       |
|                                 | SE70    | Uncoated EPDM rubber profile                                 | SE-P70-1250              | 101172169       |
|                                 |         |                                                              | SE-P70-2500              | 101172168       |
|                                 |         |                                                              | SE-P70-5000              | 101172167       |
|                                 |         |                                                              | SE-P70-10000             | 101172165       |
|                                 |         | Coated EPDM rubber profile                                   | SE-PC70-1250             | 101172173       |
|                                 |         |                                                              | SE-PC70-2500             | 101172172       |
| <b>SE-SET</b>                   | SE40/70 | Set of transmitter and receiver with different cable lengths | SE-SET VER.2.0           | 101179375       |
|                                 |         |                                                              | SE-SET VER.2.0 3M/10,5M  | 101179373       |
|                                 |         |                                                              | SE-SET VER.2.0 10,5M/20M | 101181969       |
| <b>End cap</b>                  | SE40    | Included in delivery 1 unit                                  | SE-T40                   | 101167876       |
|                                 | SE70    | Included in delivery 1 unit                                  | SE-T70                   | 101167879       |
| <b>Safety monitoring module</b> | SE40/70 | Evaluation of 1 ... 2 switch strips, PL c                    | SE-100C                  | 101153919       |
|                                 |         | Evaluation of 1 ... 4 switch strips, PL d                    | SE-304C                  | 101165883       |
|                                 |         | Evaluation of 1 switch strip PL e                            | SE-400C                  | 101153920       |

# SAFETY EDGES SYSTEM COMPONENTS

|                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SE-P40...</b>  <ul style="list-style-type: none"> <li>■ Rubber profile available either coated or uncoated</li> <li>■ EPDM- and NBR rubber available</li> <li>■ Available lengths: 1,250, 2,500, 5,000 and 10,000 mm (other lengths on request)</li> </ul> | <b>SE-P70...</b>  <ul style="list-style-type: none"> <li>■ Rubber profile available either coated or uncoated</li> <li>■ EPDM- and NBR rubber available</li> <li>■ Available lengths: 1,250, 2,500, 5,000 and 10,000 mm (other lengths on request)</li> </ul> | <b>SE-T40</b> <b>101167876</b>  <ul style="list-style-type: none"> <li>■ End plugs for SE40</li> <li>■ Uncoated (coating on request)</li> <li>■ Included in delivery 1 unit</li> </ul>                                                          |
| <b>SE-T70</b> <b>101167879</b>  <ul style="list-style-type: none"> <li>■ End plugs for SE70</li> <li>■ Uncoated (coating on request)</li> <li>■ Included in delivery 1 unit</li> </ul>                                                                      | <b>SE-AL10-....</b>  <ul style="list-style-type: none"> <li>■ Aluminium profile section for rubber profile SE-P40...</li> <li>■ Available lengths: 1,250 and 2,500 mm (larger lengths by joining multiple AL-profiles)</li> </ul>                          | <b>SE-AL12-....</b>  <ul style="list-style-type: none"> <li>■ Aluminium profile with aluminium legs for rubber profile SE-P40...</li> <li>■ Available lengths: 1,250 and 2,500 mm (larger lengths by joining multiple AL-profiles)</li> </ul> |
| <b>SE-AL20-....</b>  <ul style="list-style-type: none"> <li>■ Aluminium profile section for rubber profile SE-P70...</li> <li>■ Available lengths: 1,250 and 2,500 mm (larger lengths by joining multiple AL-profiles)</li> </ul>                           | <b>SE-AL22-....</b>  <ul style="list-style-type: none"> <li>■ Aluminium profile with aluminium legs for rubber profile SE-P70...</li> <li>■ Available lengths: 1,250 and 2,500 mm (larger lengths by joining multiple AL-profiles)</li> </ul>              | <b>SE-SET</b>  <ul style="list-style-type: none"> <li>■ Sensor set consisting of transmitter and receiver</li> <li>■ Different cable lengths available</li> </ul>                                                                             |

# SAFETY EDGES ACCESSORIES

|                                                                                     |           |                                                                                                                                                                                                                                                                                                                        |           |                                                                                     |           |
|-------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|-----------|
| SE-SC                                                                               | 101153923 | SE-G 8406                                                                                                                                                                                                                                                                                                              | 101175392 | SE-PR                                                                               | 101175381 |
|    |           |                                                                                                                                                                                                                                       |           |  |           |
| <ul style="list-style-type: none"><li>■ Rubber scissors</li></ul>                   |           | <ul style="list-style-type: none"><li>■ Cyanoacrylate adhesive</li></ul>                                                                                                                                                                                                                                               |           | <ul style="list-style-type: none"><li>■ Primer</li><li>■ Amount: 5 ml</li></ul>     |           |
| SE-J2                                                                               | 101188728 | SE-CC 130.                                                                                                                                                                                                                                                                                                             |           |                                                                                     |           |
|  |           |                                                                                                                                                                                                                                     |           |                                                                                     |           |
| <ul style="list-style-type: none"><li>■ Connection box M16</li></ul>                |           | <ul style="list-style-type: none"><li>■ Coiled cable</li><li>■ Length 1 m extendable to 3 m</li><li>■ Cable section<ul style="list-style-type: none"><li>4 x 0.25 mm<sup>2</sup>: <b>SE-CC 1301</b>      <b>101158587</b></li><li>5 x 0.50 mm<sup>2</sup>: <b>SE-CC 1302</b>      <b>101158588</b></li></ul></li></ul> |           |                                                                                     |           |

To get detailed information about the products and certificates, visit [products.schmersal.com](https://products.schmersal.com).

# SAFETY EDGES

## SAFETY MONITORING MODULES



■ SE-100C



■ SE-304C

### Key Features

- To monitor 1 ... 2 safety edges
- 1 safety contact, STOP 0
- 1 signalling output

- To monitor 1 ... 4 safety edges
- 1 safety contact, STOP 0
- 1 signalling output

### Technical features

#### Electrical characteristics

##### Operating voltage

24 VDC +20 % / -10 %

24 VDC +20 % / -10 %;  
24 VAC +10 % / -10 %

##### Operating current

ca. 150 mA

approx. 500 mA  
(for 4 safety edges)

##### Electronic fuse

■

■

##### Power consumption

< 4 W

< 4 W

##### Pull-in delay with reset button

–

100 ms ... 2000 ms

##### Response time

16 ms

< 17 ms

##### Max. switching capacity of the safety contacts U/I

230 VAC / 2 A;  
24 VDC / 2 A

230 VAC / 2 A;  
24 VDC / 2 A

#### Mechanical data

##### With removable terminals

–

–

##### Dimensions (H x W x D)

22.5 x 120 x 100 mm

22.5 x 121 x 100 mm

#### Environmental conditions

##### Ambient temperature

-5 °C ... +55 °C

-5 °C ... +55 °C

### Safety classification

##### Standards

EN ISO 13849-1

EN ISO 13849-1

##### PL

c

d

##### Control category

1

3

##### Certificates

TÜV, cULus

TÜV



#### ■ SE-400C

- To monitor 1 safety edge
- 2 safety contacts, STOP 0
- 1 signalling output

24 VDC +20 % / -10 %

ca. 150 mA

■

< 4 W

–

32 ms

230 VAC / 2 A;  
24 VDC / 2 A

–

22.5 x 120 x 100 mm

-5 °C ... +55 °C

EN ISO 13849-1

e

4

TÜV, cULus

# SAFETY EDGES

## STW-SL

- Individual geometries can be accomplished
- Approx. 24.5 mm, 36 mm or 61 mm high
- Maximum profile length: 6 m
- Insensitive to environmental conditions
- Material of the rubber profile NBR Perbunan®



STW-SL



The safety edges are used wherever there are crushing and shearing points that require protection. The safety edge stops the hazardous movement safely and reliably and prevents injury to persons and damage to machinery.

The safety edges comprise a hollow-chamber rubber profile with attached sensor element. Exerting an actuating force on the signal generator generates a control signal in the SRB303SQP-SS evaluation unit. Operation is single channel according to the power-to-unlock principle.

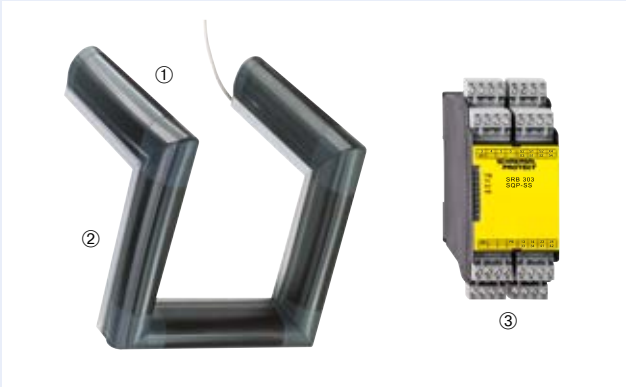
The STW-SL safety edges are particularly suited to angular assembly in a single unit, with no dead zones at the interfaces/joints. The complete edge is active, with the exception of 20 mm of dead zone at the ends.

The angle must be at least 75°. A knee-joint and lengthways mitre are possible.

The safety edges can also be used in applications with a radius of at least 450 mm.

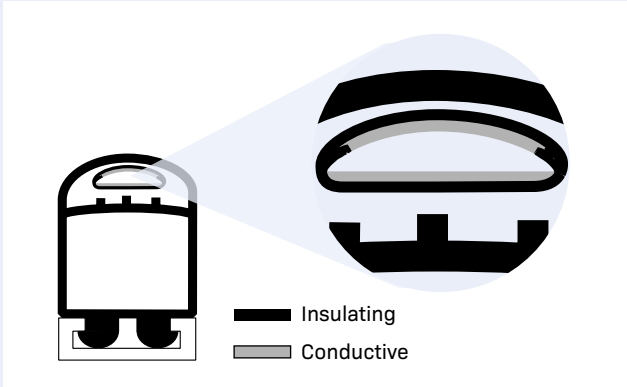
# SAFETY EDGES

## STW-SL



A safety strip system comprises:

- ① Rubber profile STW-SL
- ② Aluminium profile STW-C
- ③ Safety monitoring module SRB303SQP-SS



This sensor element of the signal generator is a rubber profile made of co-extruded elastomers, the opposing and separate surfaces of which (insulated from one another) are electrically conductive and kept apart by the special profile design.

If the sensor element is actuated, the actuation will be detected by the evaluation electronics, which will then deactivate the output relay to interrupt a hazardous movement.

# ORDERING CODE

## STW-SL-N-06-120-2-L5

| Width and height (incl. profile) |                      |
|----------------------------------|----------------------|
| 05                               | 25 x 24.5 mm (W x H) |
| 06                               | 25 x 36 mm (W x H)   |
| 08                               | 40 x 61 mm (W x H)   |

| Length     |                                 |
|------------|---------------------------------|
| 120...6000 | Length of the safety edge in mm |

| Cable length |                   |
|--------------|-------------------|
| L2           | Cable length 2 m  |
| L5           | Cable length 5 m  |
| L10          | Cable length 10 m |

| Cable output |                                                                      |
|--------------|----------------------------------------------------------------------|
| 1            | Cable output, single-side, 4-wire                                    |
| 2            | Cable output two-sided, 2 x 2-wire (only profile 06 and 08 possible) |

# SAFETY EDGES

## STW-SL



■ STW-SL

### Key Features

- 24 mm, 36 mm or 60 mm high

### Technical features

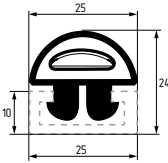
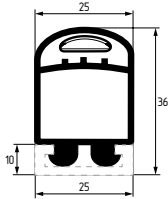
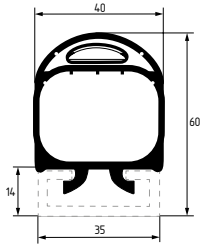
|                                       |                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------|
| <b>Standards</b>                      | EN ISO 13856-2                                                                    |
| <b>Material of the rubber profile</b> | NBR Perbunan®                                                                     |
| <b>Mechanical data</b>                |                                                                                   |
| <b>Mechanical life</b>                | > 100,000 operations                                                              |
| <b>Actuating force</b>                | < 600 N with test piece 45 × 400 mm,<br>90° with regard to the mounting surface   |
| <b>Permissible load</b>               | 1,500 N / Ø 80 mm<br>in actuation direction                                       |
| <b>Cable connection</b>               | Both sides 2x 2-wire (standard) or<br>single side 1x 4-wire (not for profile -05) |
| <b>Active switching area</b>          |                                                                                   |
| - Profile -05 and -06                 | ± 20°                                                                             |
| - Profile -08                         | ± 15°                                                                             |
| <b>Ambient conditions</b>             |                                                                                   |
| <b>Ambient temperature</b>            | +5 °C ... +50 °C                                                                  |
| <b>Degree of protection</b>           | IP65                                                                              |

### Safety classification of the safety edge in conjunction with the SRB 303 SQP-SS evaluation unit

|                                 |                        |
|---------------------------------|------------------------|
| <b>Standards</b>                | EN ISO 13849-1         |
| <b>PL</b>                       | d                      |
| <b>Control category</b>         | 3                      |
| <b>n<sub>op</sub> (assumed)</b> | 36,500 operations/year |
| <b>Usage duration</b>           | 20 years               |



To get detailed information about the products and certificates, visit [products.schmersal.com](https://products.schmersal.com).

| STW-SL-N-05                                                                                                                                                                                                                                                                                         | STW-SL-N-06                                                                                                                                                                                                                                                                          | STW-SL-N-08                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <ul style="list-style-type: none"> <li>■ NBR-Rubber</li> <li>■ Individual lengths up to 6,000 mm</li> </ul>                                                                                                       |  <ul style="list-style-type: none"> <li>■ NBR-Rubber</li> <li>■ Individual lengths up to 6,000 mm</li> </ul>                                                                                        |  <ul style="list-style-type: none"> <li>■ NBR-Rubber</li> <li>■ Individual lengths up to 6,000 mm</li> </ul>                                                                                                                                                      |
| STW-C-10X25-....                                                                                                                                                                                                                                                                                    | STW-C-14X35-....                                                                                                                                                                                                                                                                     | SRB303SQP-SS                                                                                                                                                                                                                                                                                                                                         |
|  <ul style="list-style-type: none"> <li>■ Aluminium profile section for rubber profile STW-SL-N-05 and STW-SL-N-06</li> <li>■ Height x Width: 10 x 25 mm</li> <li>■ Individual lengths up to 6,000 mm</li> </ul> |  <ul style="list-style-type: none"> <li>■ Aluminium profile section for rubber profile STW-SL-N-08</li> <li>■ Height x Width: 14 x 35 mm</li> <li>■ Individual lengths up to 6,000 mm</li> </ul> |  <ul style="list-style-type: none"> <li>■ Safety monitoring module<br/><b>SRB303SQP-SS-24V</b><br/><b>SRB303SQP-SS-230V</b></li> <li>■ 3 safety contacts, STOP 0</li> <li>■ 3 signalling outputs</li> </ul> <div> <b>103008086</b><br/> <b>103008088</b> </div> |

# SAFETY BUMPERS

## SSG-SB-L

- Robust design
- Variable sizes
- Dual channel system
- Easy to install



SSG-SB-L



Safety bumpers are used for the protection of man and objects on machinery and plants with hazardous movements. They are primarily used to guard crushing and shearing points. They are mostly used on large gates, in high-rack storage and driverless transport systems.

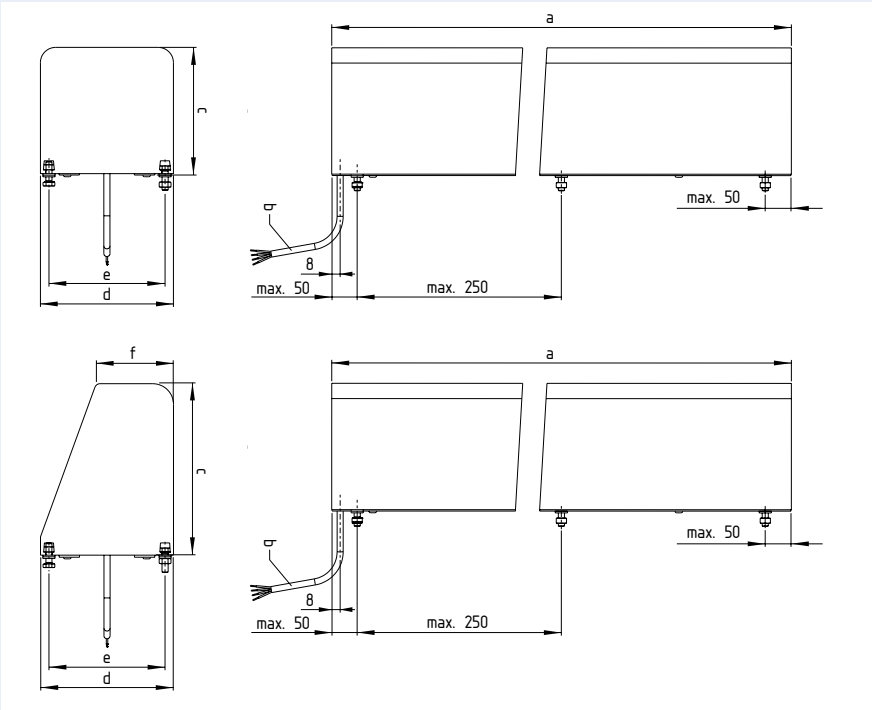
The bumper consists of a foam skinned body with integrated contact elements with 2 NC contacts (power to unlock principle, dual-channel). If the sensitive bumper is actuated, the NC contacts of the contact elements are opened.

The connected safety-monitoring module stops the hazardous movement. The entire safety system consists of one or more bumper(s) and a safety-monitoring module, e.g. of the series SRB-E-301ST or SRB301ST-230V.

To protect larger surfaces, multiple safety bumpers can be connected together to build a large surface. A maximum of 6 bumpers can be connected in series to a single evaluation unit, where the maximum cable length between the bumper and evaluation unit must not exceed 200 m.

# SAFETY BUMPERS

## SSG-SB-L



- Key**
- a) Width B = 200 ... 3000 mm
  - b) Cable output
  - c) Depth T = 100 ... 600 mm
  - d) Height H1 = 80 ... 300 mm
  - e) Height H1 minus 16 mm
  - f) Height H2 = 50 ... xxx mm

The active actuating surface of the bumper is determined by the sizes H1 and H2.

## ORDERING CODE

**SSG-SB-L-K-200-80\_50-100-SW-L5**

| Skinning     |                                          |
|--------------|------------------------------------------|
|              | Default skinning                         |
| K            | Skinning with kevlar                     |
| Width        |                                          |
| 200 ... 3000 | Width in mm                              |
| Height H1    |                                          |
| 80 ... 300   | Height H1 in mm                          |
| Height H2    |                                          |
| 50 ... xxx   | Height H2 in mm<br>(angled version only) |
| Depth        |                                          |
| 100 ... 600  | Depth in mm                              |

| Cable length |                                         |
|--------------|-----------------------------------------|
| L2           | 2 meters                                |
| L5           | 5 meters                                |
| L10          | 10 meters                               |
| Color        |                                         |
| BK           | Color black                             |
| SWGB         | Color black with yellow stripes         |
| SWGBV        | Color black with yellow stripes V-style |

# SAFETY BUMPERS

## SSG-SB-L



### ■ SSG-SB-L

#### Key Features

- Robust design
- dual channel system

#### Technical features

|                                               |                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|
| <b>Standards</b>                              | EN ISO 13856-3                                                                  |
| <b>Electrical characteristics</b>             |                                                                                 |
| <b>Execution of the electrical connection</b> | Cable                                                                           |
| <b>Cable section</b>                          | 4 x 0.34 mm <sup>2</sup>                                                        |
| <b>Mechanical data</b>                        |                                                                                 |
| <b>Permissible load</b>                       | 1,500 N / Ø 80 mm in actuation direction                                        |
| <b>Actuating force</b>                        | < 600 N with test piece 45 x 400 mm,<br>90° with regard to the mounting surface |
| <b>Response time</b>                          | ≤ 41 ms, test speed 100 mm/s                                                    |
| <b>Active switching area</b>                  | ± 45°                                                                           |
| <b>Resistant to chemicals</b>                 |                                                                                 |
| Water                                         | ■                                                                               |
| 10% Acids                                     | ■                                                                               |
| 10% Alkalies                                  | ■                                                                               |
| Oils                                          | ■                                                                               |
| <b>Ambient conditions</b>                     |                                                                                 |
| <b>Ambient temperature</b>                    | 0 °C ... +55 °C                                                                 |
| <b>Degree of protection</b>                   | IP54                                                                            |

#### Safety classification <sup>1)</sup>

|                                 |                        |
|---------------------------------|------------------------|
| <b>Standards</b>                | EN ISO 13849-1         |
| <b>PL</b>                       | d                      |
| <b>Control category</b>         | 3                      |
| <b>n<sub>op</sub> (assumed)</b> | 36,500 operations/year |



<sup>1)</sup> only in connection with safety modules SRB-E-301ST or SRB301ST-230V

To get detailed information about the products and certificates, visit [products.schmersal.com](https://products.schmersal.com).

| SRB-E-301ST                                                                       | 103007672                                                                                                                                                                                        | SRB301ST-230V                                                                                                                                                                                                                                                            | 101170099 |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|  | <ul style="list-style-type: none"><li>■ Function STOP 0</li><li>■ 1 or 2-channel control</li><li>■ Start button / Auto-start</li><li>■ 1 auxiliary contact</li><li>■ 3 safety contacts</li></ul> |  <ul style="list-style-type: none"><li>■ Suitable for the signal processing of outputs with contact sensors</li><li>■ 3 safety contacts, STOP 0</li><li>■ 1 signalling output</li></ul> |           |

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# THE SCHMERSAL GROUP PROTECTION FOR MAN AND MACHINE

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Customers of the Schmersal Group include global players from the area of mechanical engineering and plant manufacturing as well as operators of machinery. They profit from the company's extensive expertise as a provider of systems and solutions for machine safety. Furthermore, Schmersal specialises in various areas including food & beverage, packaging, machine tools, lift switchgear, heavy industry and automotive.

A major contribution to the systems and solutions offered by the Schmersal Group is made by tec.nicum with its comprehensive range of services: Certified Functional Safety Engineers advise machinery manufacturers and machinery operators in all aspects relating to machinery and occupational safety – and do so with product and manufacturer neutrality. Furthermore, they design and realise complex solutions for safety around the world in close collaboration with the clients.



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- Safety switches and sensors, solenoid interlocks
- Safety controllers and safety relay modules, safety bus systems
- Optoelectronic and tactile safety devices
- Automation technology: position switches, proximity switches

## SAFETY SYSTEMS

- Complete solutions for safeguarding hazard areas
- Individual parametrisation and programming of safety controllers
- Tailor-made safety technology – be it for individual machines or a complex production line
- Industry-specific safety solutions

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- tec.nicum engineering – Design and technical planning
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x.000 / L+W / 12.2022 / Teile-Nr. 103046790 / EN / Ausgabe 02



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