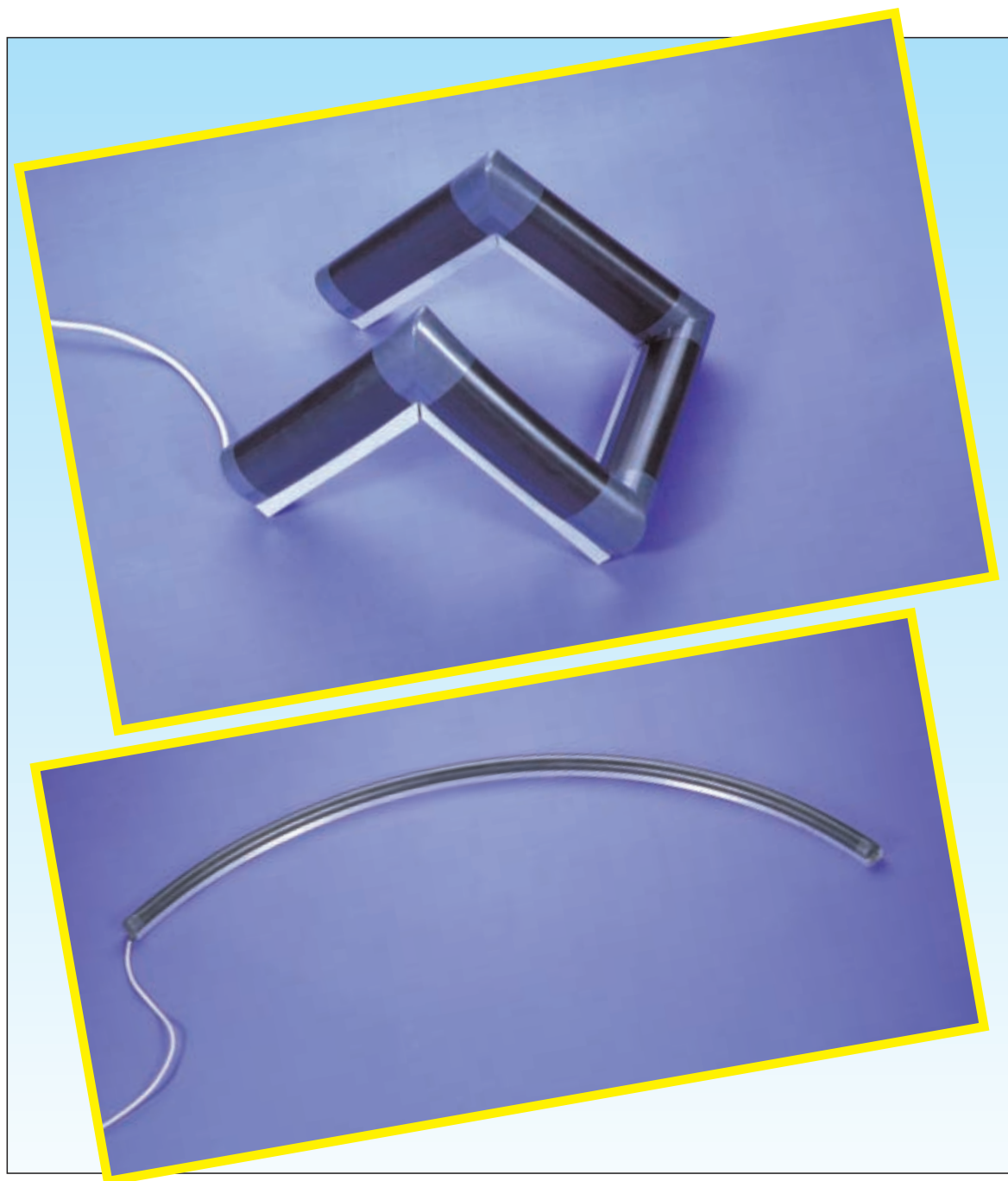


Safety Switching Rail STW-SL..



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A SCHMERSAL company

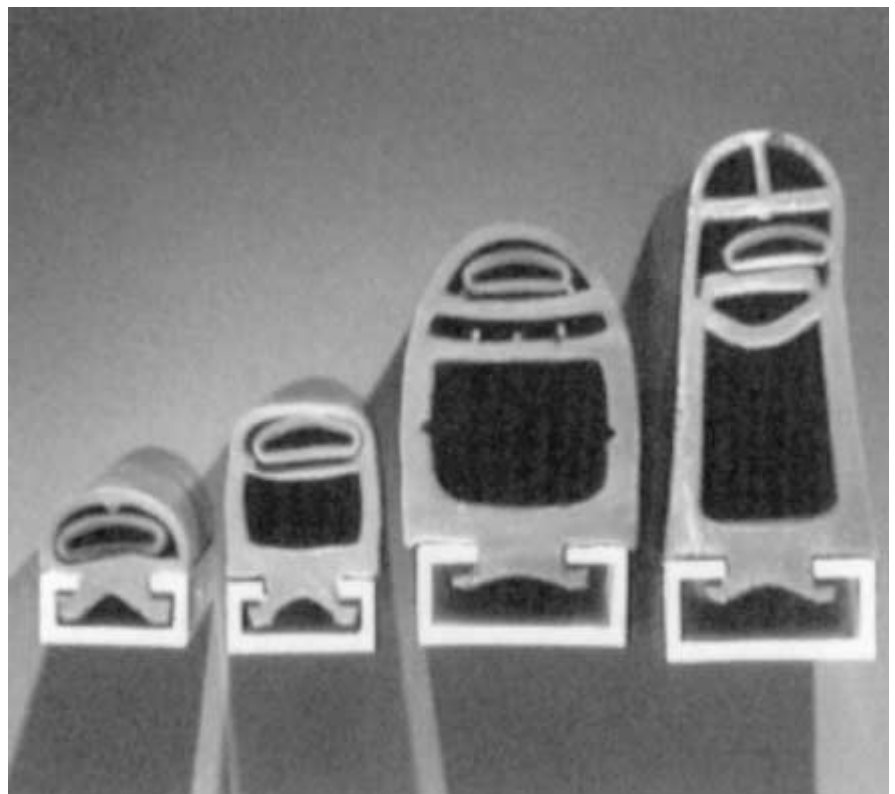
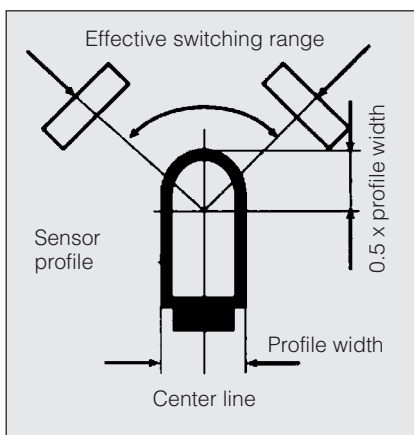
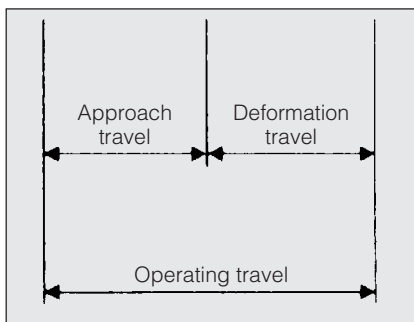
General

Mechanical design

ELAN safety edges are consisting of a switching sensor element, embedded in a hollow-chamber rubber profile. The effect of an actuating force generates an output signal in the connected evaluation unit. The system operates on a single channel closed loop principle. The rubber profiles (see product table page 4) are fitted into an aluminum C-profile rail for mounting and are made to measure according to customers specification. Max. length is 6000 mm. Aluminum C-profile is included, fixing holes are optional. Inactive zones on both ends cover 20 mm only. Environmental protection class is IP 65. Electrical connection is via a 2-pair cable on both ends (standard), or via a 4-pair cable on one end only (optional). Standard cable length is 2 meters for both versions, one end or two end connection. Other cable lengths optional. Cable fitting by the user on request.

When selecting the appropriate rubber profile of the safety edges essential criteria's are the required operating travel and the suitable material. Approach travel and deformation travel must be taken into consideration. The deformation travel must absorb the slowing down path of the actuating object after emitting the stop-signal from the evaluation unit. Determination of the deformation travel is based on an operating force of 250 N.

The deformation travel results in the difference between operating travel and approach travel. The effective switching range is the full range in which an actuating force on the safety edge generates an output signal. This range must be within 90° symmetrical to the vertical level to the longitudinal axis of the safety edge.



Required specifications for inquiries:

- Possible radius-, knee- or elbow-versions
- Cable entries and cable length other than standard
- Exceptional physical and chemical environments

General

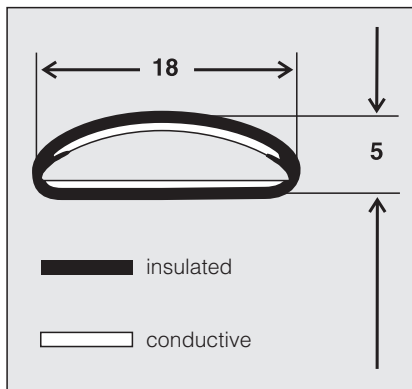
Operating principle

The sensor element itself is a rubber tube made of extruded elastomere with two opposing conductive strips inside. The strips are isolated and kept apart owing to the special profile of the rubber tube.

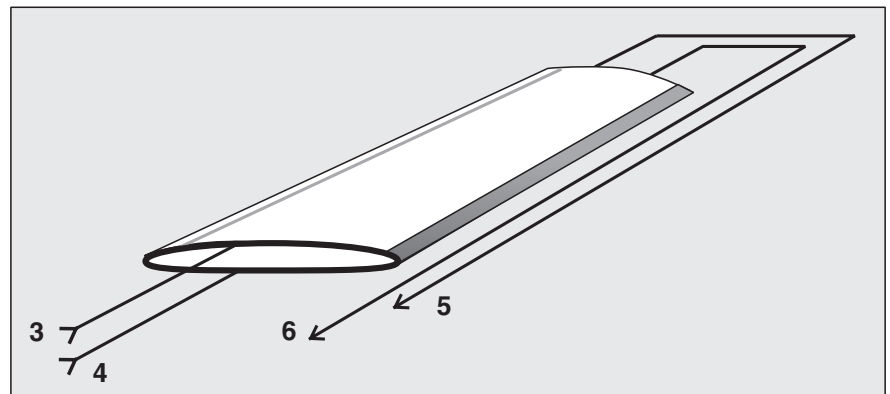
The method of operation of the sensor element is based on a 4-wire network. Signals of two different voltages are generated, transmitted and received in a closed loop circuit by the evaluation unit. These signals are transmitted through the high resistive conductor strips of the sensor element, received and processed.

If the sensor element is actuated (short circuit) or a voltage is missing i. e. due to a wire breakage, any of these will be detected by the evaluation unit. The output relay will be cut off immediately and a dangerous movement is interrupted. The response time of the system is approx. 80 msec.

Elan profile



Perspective funktion overview



Product range and dimensions

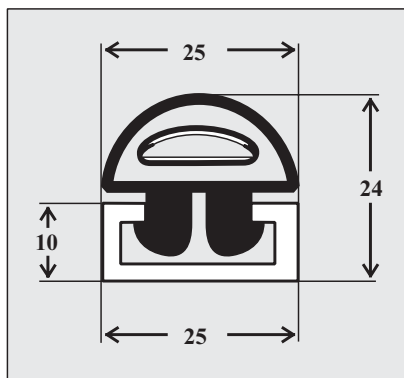
Product range

Profile	Width	Height	Switching range	Operating travel*	Deformation travel	Material
005	25 mm	24 mm	90°	3.5 mm	2.0 mm	NBR
006	25 mm	36 mm	90°	8.5 mm	6.0 mm	NBR
008	40 mm	60 mm	90°	8.5 mm	3.0 mm	NBR
010	36 mm	77 mm	90°	32.5 mm	29.5 mm	EPDM

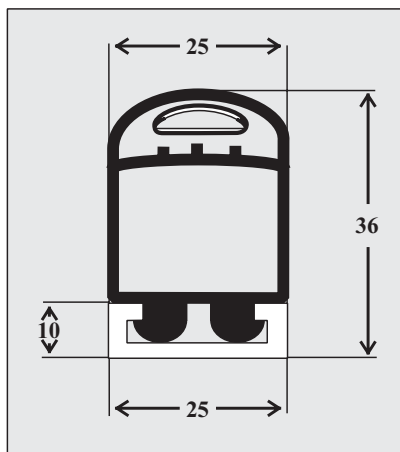
* Resulting deformation of the safety edge after emitting the stop-signal from the evaluation unit.
(actuating force 250 N, actuating speed 50 mm/min.)

Dimensions

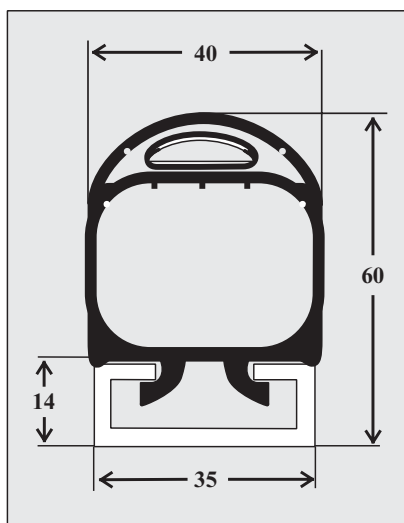
Profile 005



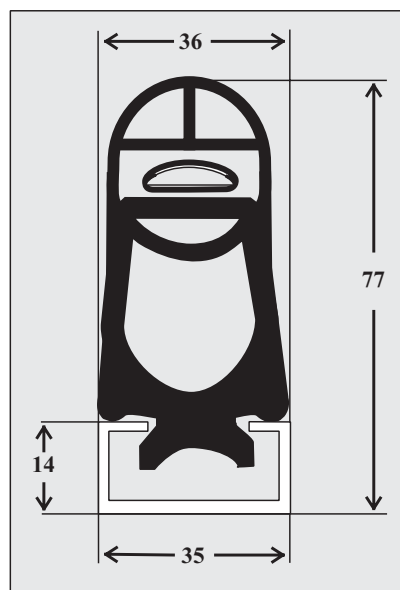
Profile 006



Profile 008



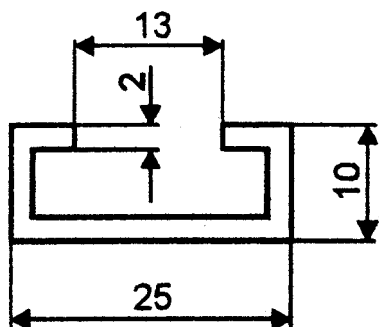
Profile 010



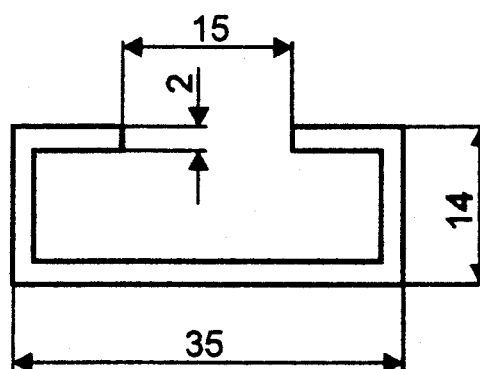
Product range and dimensions (continued)

Dimensions Aluminium C-Profile Rail

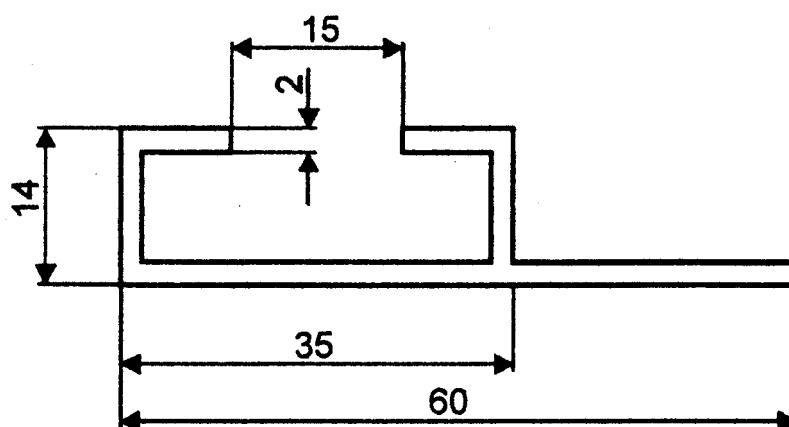
Profile 005 and 006



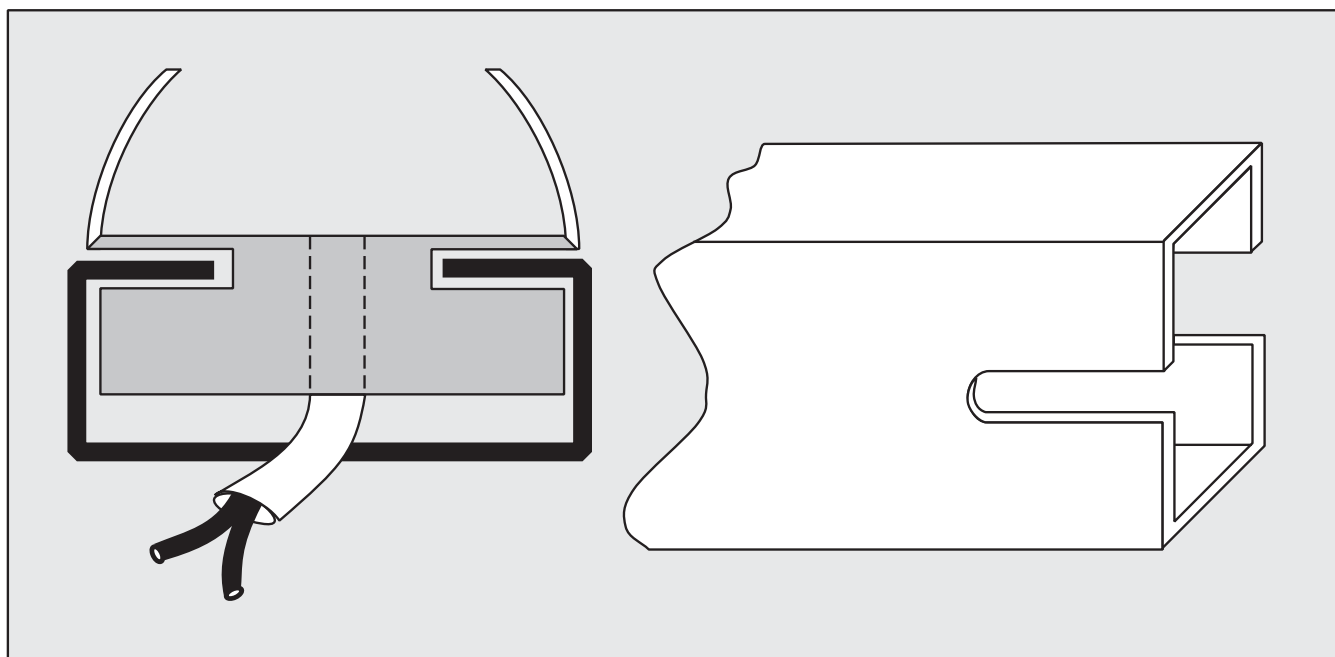
Profile 008 and 010



Profile 008 and 010



Standard Cable Entry



Special versions

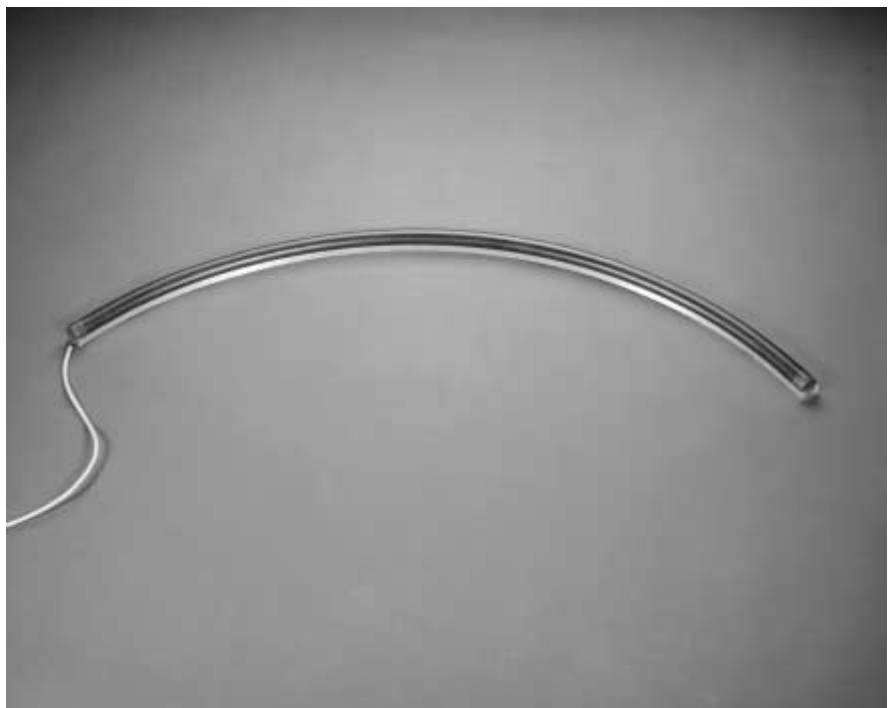
Bended versions

ELAN safety edges are extremely suitable for applications where bended edges needs to be covered in one piece. All joints have the full sensing capability, only at the ends are inactive zones of 20 mm each. **Remarks: The angles must not be below 75°.** Bended versions are available in elbow- as well as in knee-versions. To achieve leak proof seems the joints are sealed with PU-resin, same as the end caps.



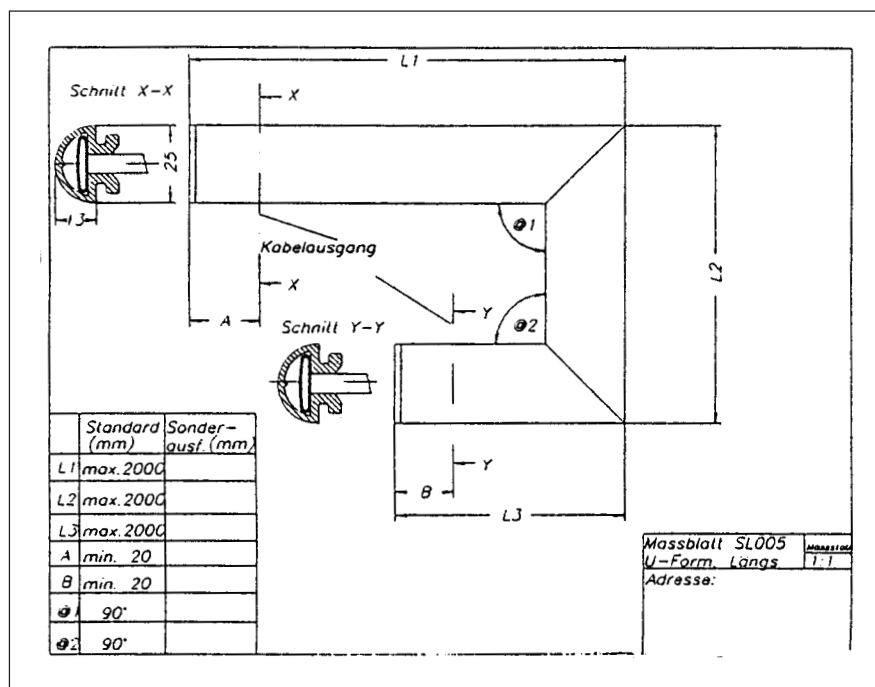
Radius versions

ELAN safety edges are also ideal for applications where round edges needs to be covered in one piece. **Remarks: Minimum radius is 450 mm.**

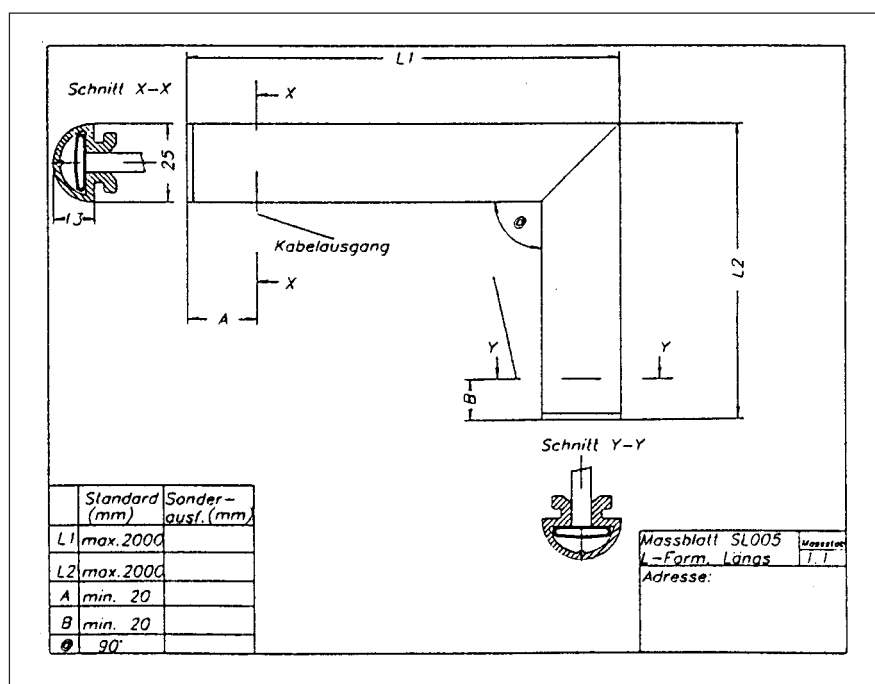


Special versions (continued)

Bended versions with elbow-joint
U-shape

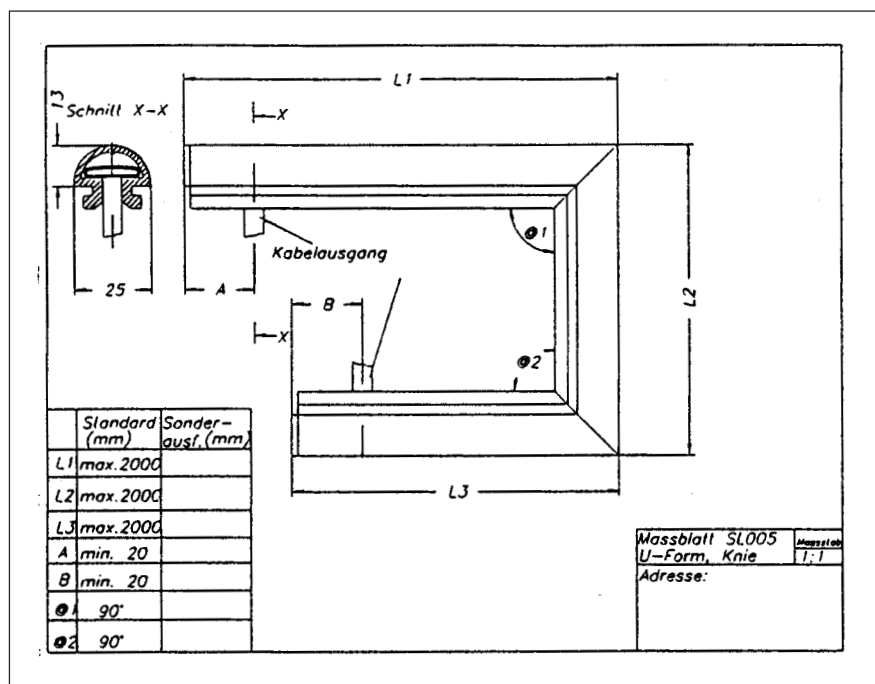


Bended versions with elbow-joint
L-shape

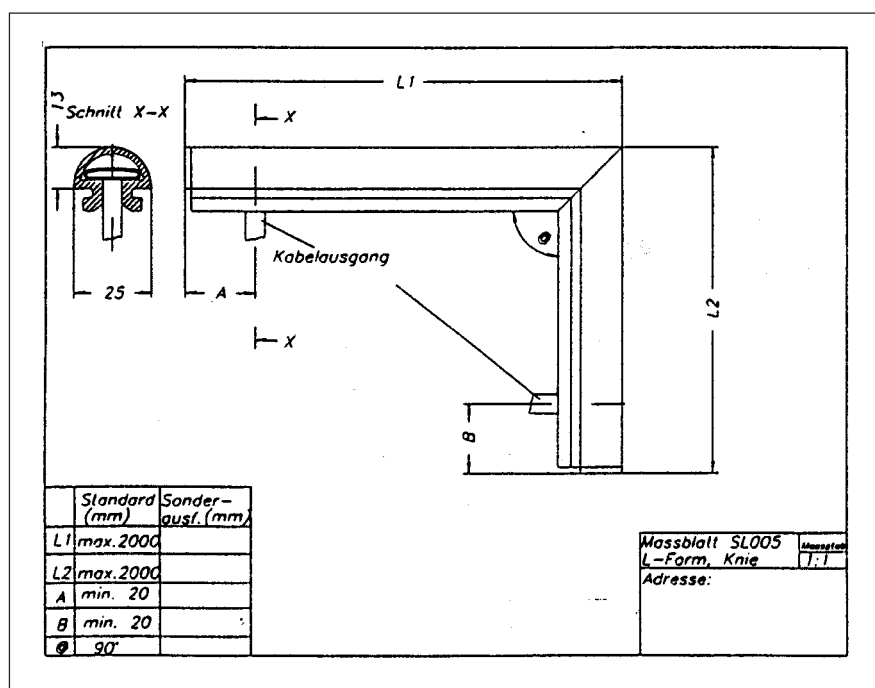


Special versions (continued)

Bended versions with knee-joint
U-shape

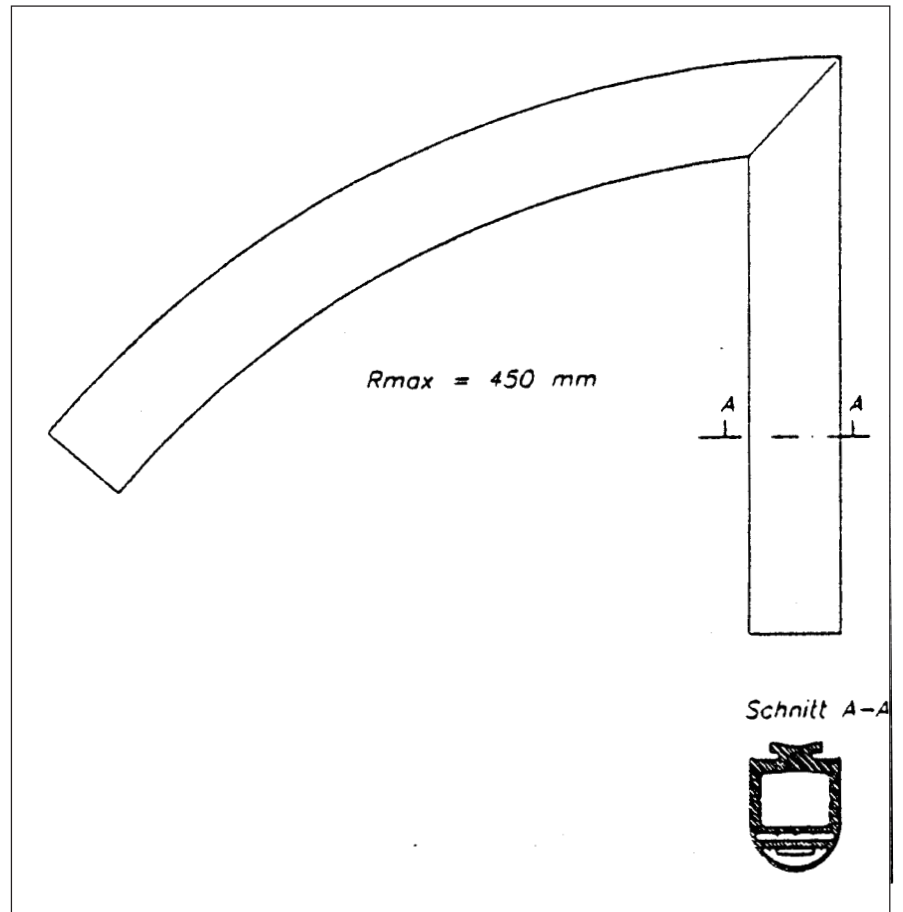


Bended versions with knee-joint
L-shape



Special versions (continued)

Radius version
also in combination with
elbow-joint



Evaluation units

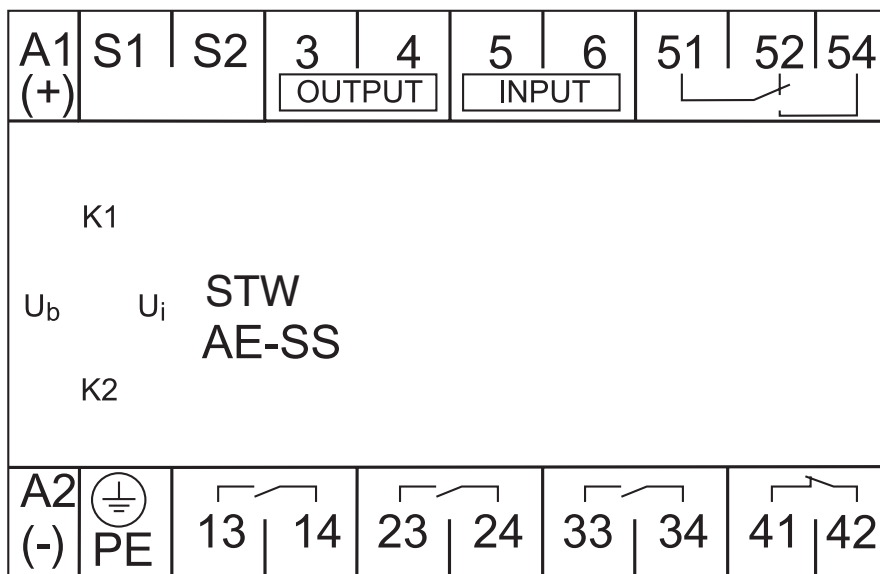
STW-AE-SS

Safety relay modules for safety edges

- ☛ **Auto reset**
- ☛ **3 safety enabling contacts**
- ☛ **Cross-short recognition**
- ☛ **90 mm housing**

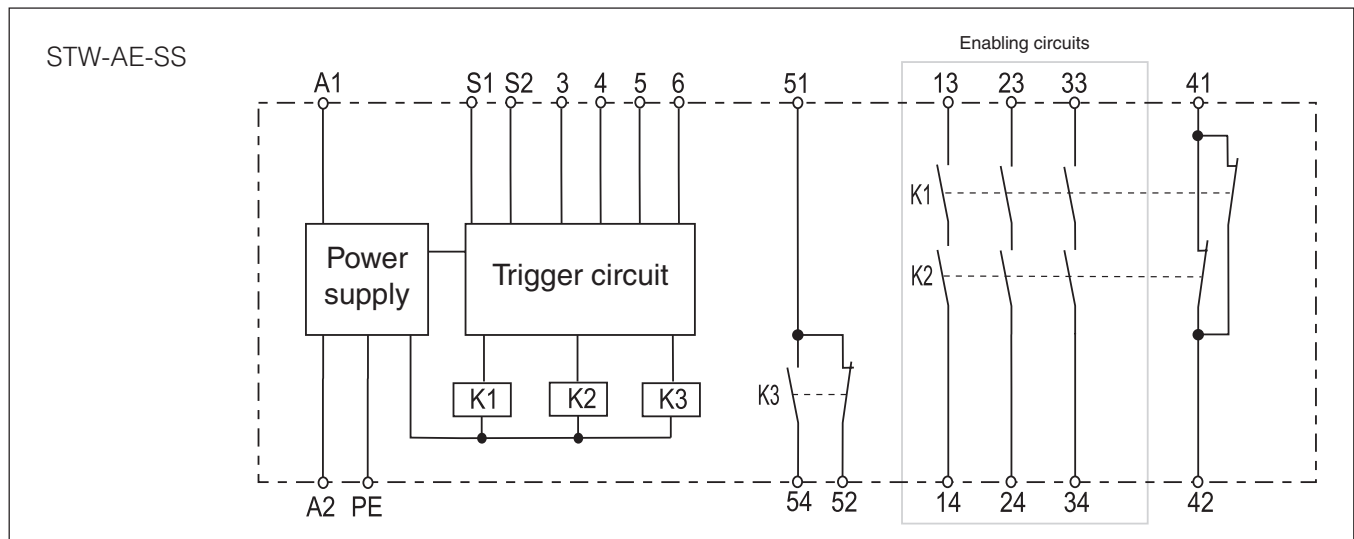
Features:

- Relay output: 3 NO, 1 NC
(auxiliary NC for monitoring, must not be used in safety enabling circuits!).
- Feedback loop
- Voltage-free feedback contact (change over)
- LED's for K1, K2, U_B , U_i
- Housing 90 mm, made of thermoplastic in accordance with UL-94-V-0, red RAL 3000
- DIN rail mounting DIN EN 50 022–35



Type	Enabling outputs	Operating voltage	Part No.
STW-AE-SS-24V	3 S/1 Ö	24 VDC	611 0001
STW-AE-SS-115V	3 S/1 Ö	115 VAC	611 0003
STW-AE-SS-230V	3 S/1 Ö	230 VAC	611 0002

Evaluation units (continued)

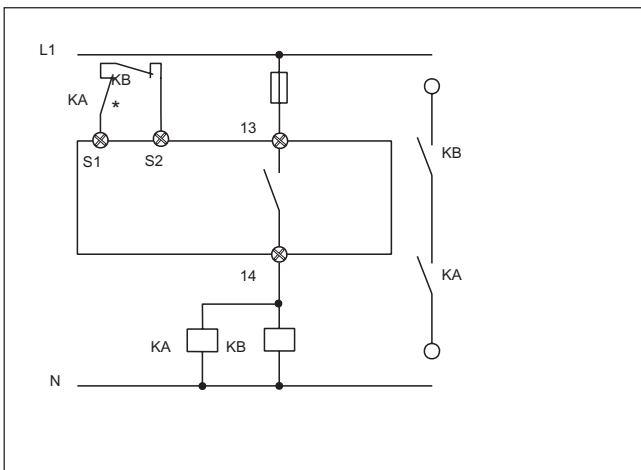
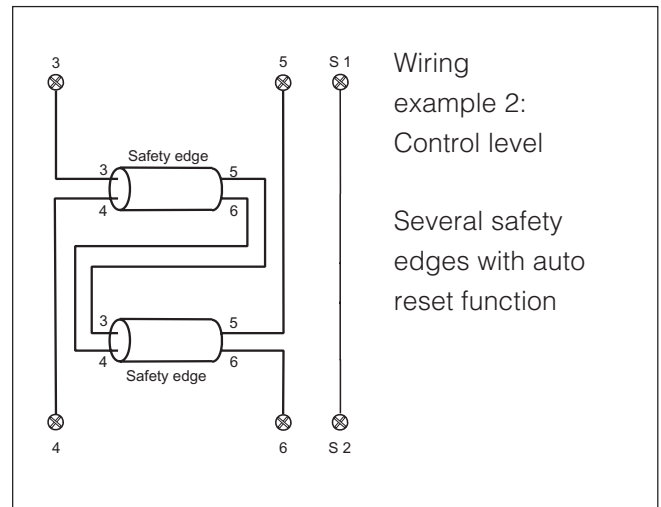
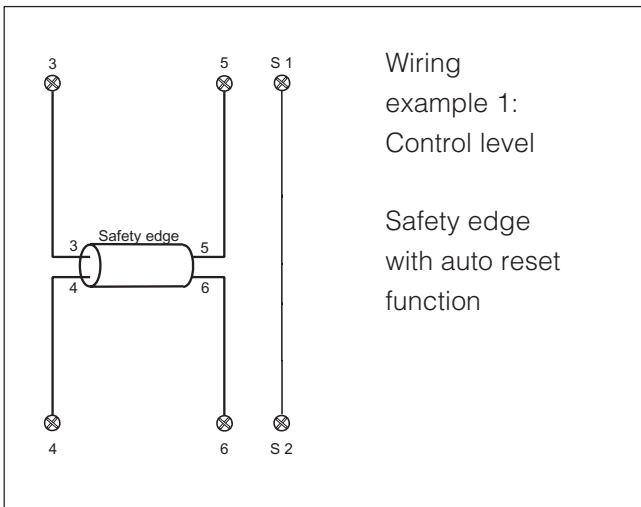


Technical Data

Dimensions (H/W/D)	83 mm / 90 mm / 127 mm
Weight	440 g (580 g for 230 V and 115 V versions)
Operating voltage	24 VDC –15% / +20%, residual ripple max. 10% 115 VAC / 230 VAC –15% / +6%
Frequency	50 / 60 Hz for AC operation
Power consumption	4 W; 7.4 VA
Pick-up delay	< 40 ms
Drop-out delay	< 20 ms
Rated voltage (enabling contacts)	230 VAC
Load current (enabling contacts)	max. 6 A ohmic (inductive with suitable suppression)
Fuse (enabling contacts)	6 A slow blowing
Load current (monitoring output 51 / 52 / 54)	max. 1 A
Fuse (power supply)	T 0.25 A at 24 VDC; T 40 mA at 230 VAC; T 80 mA at 115 VAC (internal: T 0.5 A)
Application category	AC 15: 230 V / DC 13: 24 V
Contact material / contacts	AgSnO self cleaning, positively driven
Contact resistance	max. 100 mOhm in new state
Insulation group	4 kV/2
Mechanical life	1 x10 ⁶ operations
Connections	self lifting screw terminals with double slot screws
Wire cross-section	min. 0.5 mm ² , max. 2 x 2.5 mm ²
Connection marking	DIN EN 50 005/50 013
Ambient operating temperature	0° C ... 40° C (Derating curve available)

Evaluation units (continued)

STW-AE-SS



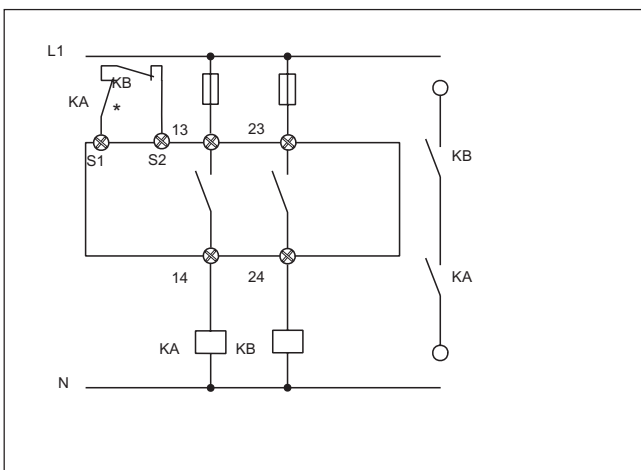
Wiring example 3:

Power level

Single channel output

Suitable for contact reinforcement and contact multiplication using relays with positively guided contacts

* Feedback loop



Wiring example 4:

Power level

Dual channel output

Suitable for contact reinforcement and contact multiplication using relays with positively guided contacts

* Feedback loop

Evaluation units (continued)

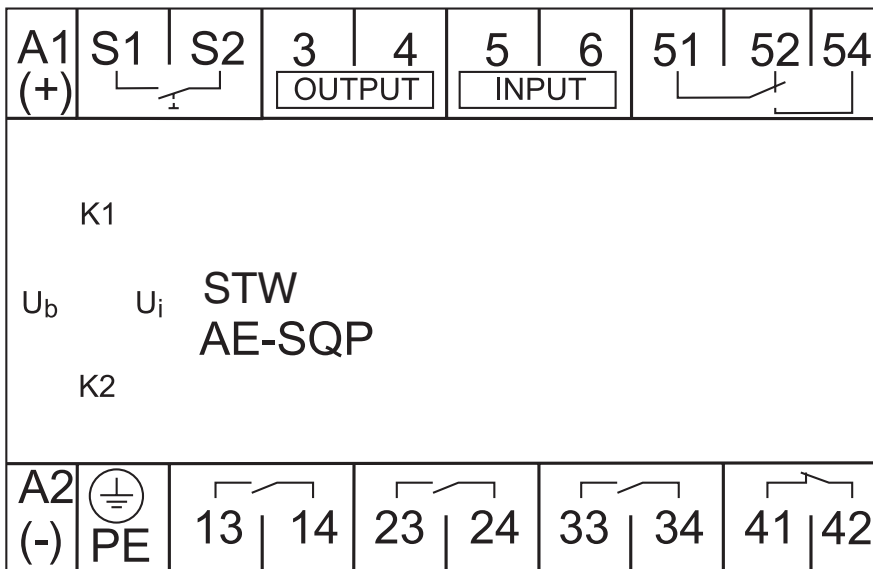
STW-AE-SQP

Safety relay modules for safety edges

- ☛ Trailing edge function
- ☛ 3 safety enabling contacts
- ☛ Cross-short recognition
- ☛ 90 mm housing

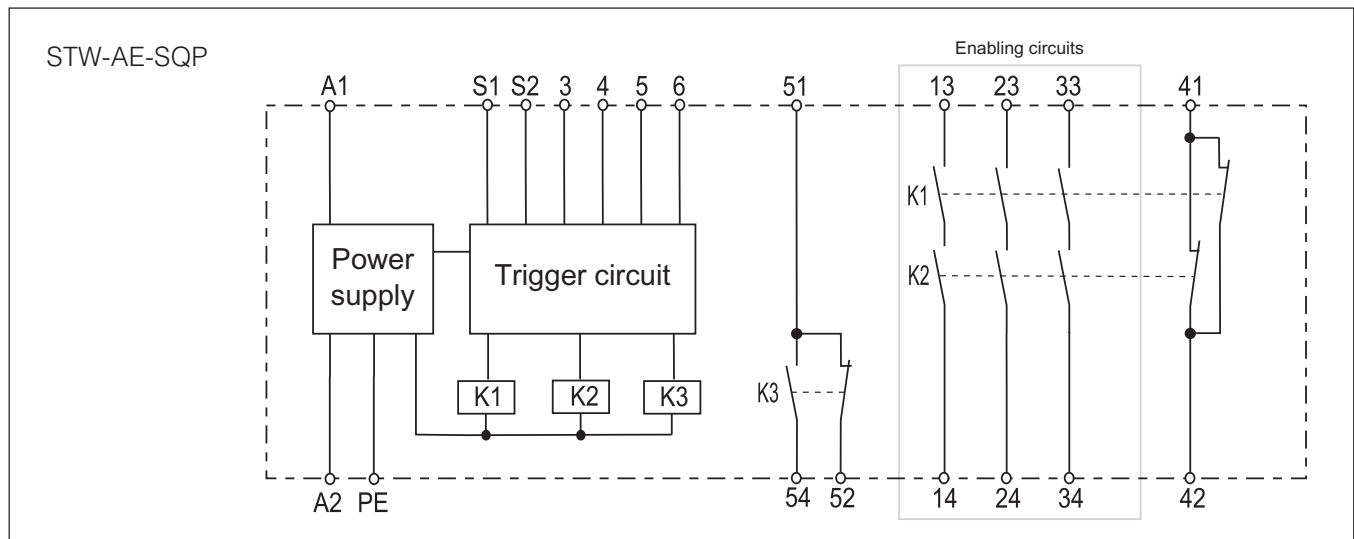
Features:

- Relay output: 3 NO, 1 NC
(Auxiliary NC for monitoring, must not be used In safety enabling circuits!).
- Feedback loop / Reset button
- Voltage-free feedback contact (change over)
- LED's for K1, K2, U_B , U_i
- Housing 90 mm, made of thermoplastic in accordance with UL-94-V-0, red RAL 3000
- DIN rail mounting DIN EN 50 022–35



Type	Enabling outputs	Operating voltage	Part No.
STW-AE-SQP-24V	3 S/1 Ö	24 VDC	611 0130
STW-AE-SQP-115V	3 S/1 Ö	115 VAC	611 0170
STW-AE-SQP-230V	3 S/1 Ö	230 VAC	611 0150

Evaluation units (continued)

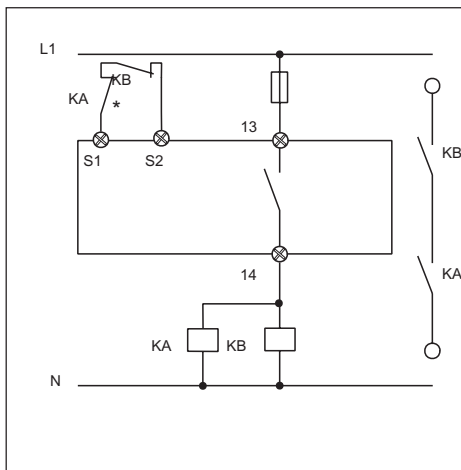
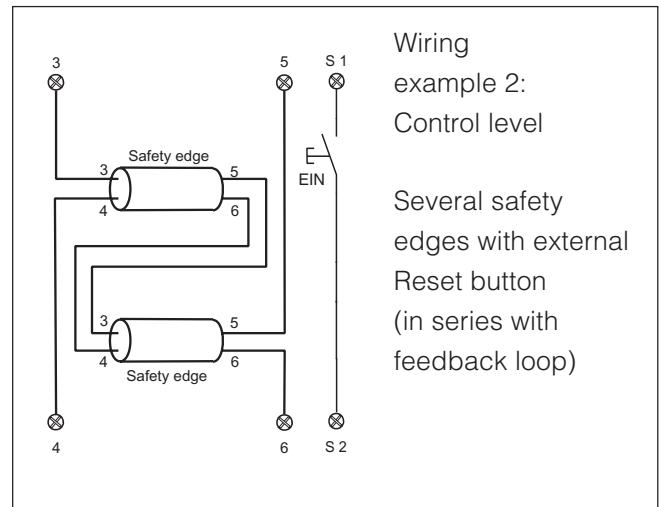
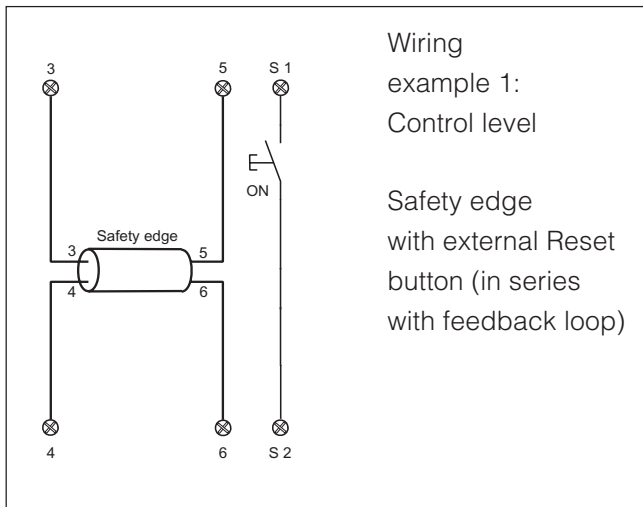


Technical Data

Dimensions (H/W/D)	83 mm / 90 mm / 127 mm
Weight	440 g (580 g for 230 V and 115 V versions)
Operating voltage	24 VDC –15% / +20%, residual ripple max. 10% 115 VAC / 230 VAC –15% / +6%
Frequency	50 / 60 Hz for AC operation
Power consumption	3.4 W; 6 VA
Pick-up delay	< 40 ms
Drop-out delay	< 20 ms
Rated voltage (enabling contacts)	230 VAC
Load current (enabling contacts)	max. 6 A ohmic (inductive with suitable suppression)
Fuse (enabling contacts)	6 A slow blowing
Load current (monitoring output 51 / 52 / 54)	max. 1 A
Fuse (power supply)	T 0.25 A at 24 VDC; T 40 mA at 230 VAC; T 80 mA at 115 VAC (internal: T 0.5 A)
Application category	AC 15: 230 V / DC 13: 24 V
Contact material / contacts	AgSnO self cleaning, positively driven
Contact resistance	max. 100 mOhm in new state
Insulation group	4 kV/2
Mechanical life	1 x10 ⁶ operations
Connections	self lifting screw terminals with double slot screws
Wire cross-section	min. 0.5 mm ² , max. 2 x 2.5 mm ²
Connection marking	DIN EN 50 005/50 013
Ambient operating temperature	0° C ... 40° C (Derating curve available)

Evaluation units (continued)

STW-AE-SQP

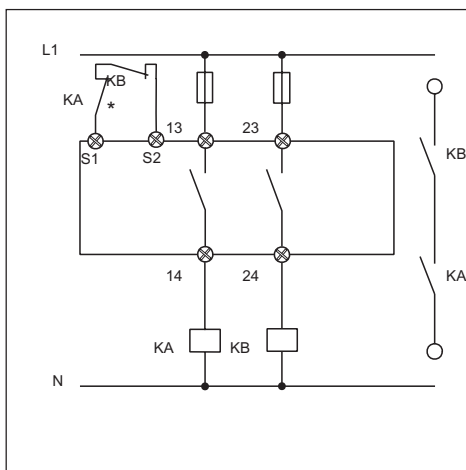


Wiring example 3:
Power level

Single channel output

Suitable for contact reinforcement and contact multiplication using relays with positively guided contacts

* Feedback loop and reset button



Wiring example 4:
Power level

Dual channel output

Suitable for contact reinforcement and contact multiplication using relays with positively guided contacts

* Feedback loop and reset button

Sales organisation



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