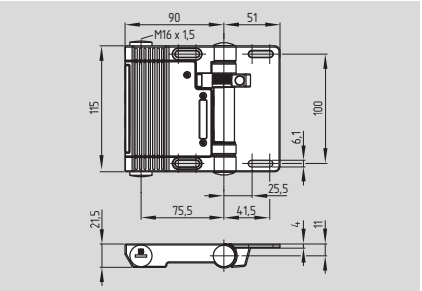
# Safety switch for hinged guards

## TVS 410






- Metal enclosure
- Adjustable switching angle
- Opening angle 180°
- Mountable on the inside and the outside of the safety guard
- Screw terminals, cage clamps or connector
- Simple mounting, for all common profile systems (30 … 60 mm)
- Oil and petroleum resistant
- 2 cable entries M16 x 1.5
- For left or right hinged doors

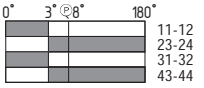
**Approvals**

## Technical data

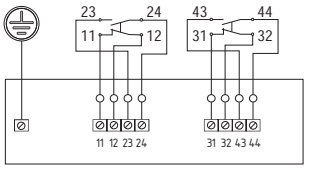
| | |
|---|---|
| Standards: | IEC/EN 60947-5-1<br>BG-GS-ET-15 |
| Enclosure: | light-alloy diecast |
| Protection class: | IP 65 to EN 60529 |
| Contact material: | AgNi10 |
| Contact type: | 2x change-over contact with double break, type Zb |
| Switching system: | ⊖ IEC 60947-5-1<br>slow action,<br>NC contact with positive break |
| Connection: | Screw terminals<br>or Cage clamps<br>or connector |
| Cable section: | max. 1 mm² (incl. conductor ferrules) |
| Cable entry: | 2 x M16 x 1.5 |
| $U_{imp}$: | 2.5 kV |
| $U_i$: | 250 V |
| $I_{the}$: | 2.5 A |
| Utilisation category: | DC-13 |
| $I_e/U_e$: | 1 A / 24 VDC |
| Max. fuse rating: | 2 A gG D-fuse to DIN EN 60269-1 |
| Ambient temperature: | – 25 °C … + 65 °C |
| Mechanical life: | > 1 million operations |
| Switching frequency: | 1200/h |
| Positive break angle: | min. 5°, max. 8° |

## Contact variants

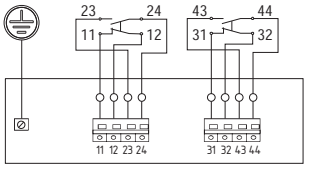
**2 NO/2 NC**



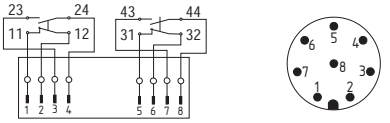

**Screw terminals**



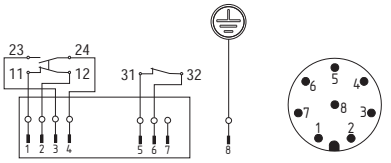

**Cage clamps**



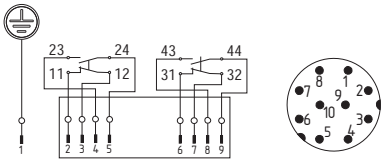

**Connector ST1 or ST2**
**Version 11/11**




**Version 11/01**




**Connector ST4 or ST5**




## Ordering details

**TVS 410 ①-②③④**

| No. | Option | Description |
|---|---|---|
| ① | SK | Screw terminals |
| | CC | Cage clamps |
| | ST1 | Connector M12 bottom |
| | ST2 | Connector M12 top |
| | ST4 | Connector M16 bottom |
| | ST5 | Connector M16 top |
| ② | 11/11 | 2NC/2NO<br>versions ST1, ST2<br>only for PELV circuits |
| | 11/01 | 2NC/1NO<br>versions ST1, ST2<br>with PIN 8 as PE |

## Ordering details

| No. | Option | Description |
|---|---|---|
| ③ | U | Adjustable switching angle (incl. adjustment tool) |
| | I | Inside installation (with fixed switching angle) * |
| | A | Outside installation (with fixed switching angle) * |
| ④ | | Without alignment aid |
| | N | With alignment aid |

## Note

Contact switch travel diagrams: 0° = safety guard closed.

Caution! The versions ST1 and ST2 11/11 may only be used in PELV circuits to EN 60204-1.

* **The factory-set switching angle is 3°.**
The positive break angle is 5°.
Until the limit of the mechanical life has been reached the angle can increase up to 8° under normal wear-out conditions.



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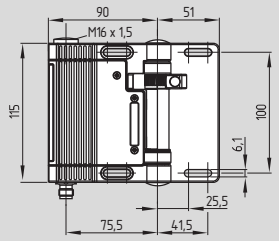
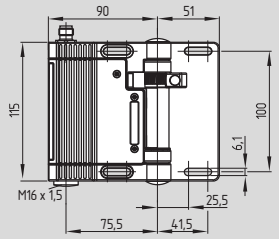
# Safety switch for hinged guards

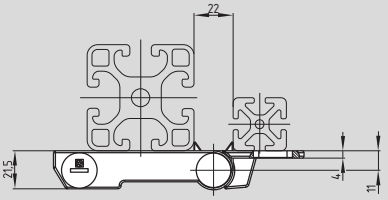
## System components




**Bottom connector ST1, ST4**

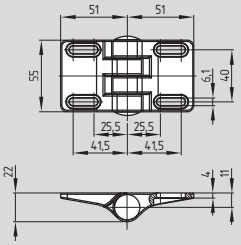



**Top connector ST2, ST5**

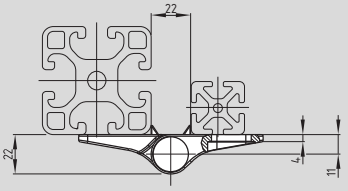



**With alignment aid, ordering suffix N**

## System components




**Additional hinge Z 410**




**Additional hinge Z 410-N**



**Adjustment tool K 410**

## Ordering details

| | |
|---|---|
| Connector M12, 8 pins, 24 VDC, | |
| bottom | **ST1** |
| top | **ST2** |
| Connector M16, 10 pins, 250 VAC, | |
| bottom | **ST4** |
| top | **ST5** |

With alignment aid **ordering suffix N**

## Ordering details

| | |
|---|---|
| Additional hinge | |
| without alignment aid | **Z 410** |
| with alignment aid | **Z 410-N** |
| Adjustment tool | **K 410** |

Further information can be found:
**List ELAN, Wettenberg**



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