## Selection table for safety switches STM with guard locking and guard lock monitoring

**Release feature, front**

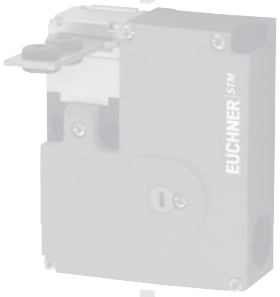
**HE** Mechanical release on the front

**Connection**

**M** Thread M20x1.5 for cable glands

**Switching element**

1 NC ⊖ (ÜK) + 2 NC ⊖ (SK) or
1 NC ⊖ (ÜK) + 1 NC ⊖ (SK) + 1 NO (SK)




| Manual release HE | Connection M | Switching element three contacts | Page |
|---|---|---|---|
| ● | ● | ● | 82 |

## Safety switch STM with guard locking and guard lock monitoring

- **Actuating head optionally made of metal or plastic**
- **Mechanical release on the front**

### Approach direction

Horizontal and vertical
Can be adjusted in 90° steps

### Mechanical release

Is used for releasing the guard locking with the aid of a tool. The mechanical release is sealed with sealing lacquer to prevent tampering.

### Solenoid operating voltage

- AC/DC 24 V +10%, -15%
- AC 230 V +10%, -15%

### Guard lockingtypes

**STM1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

**STM2** Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

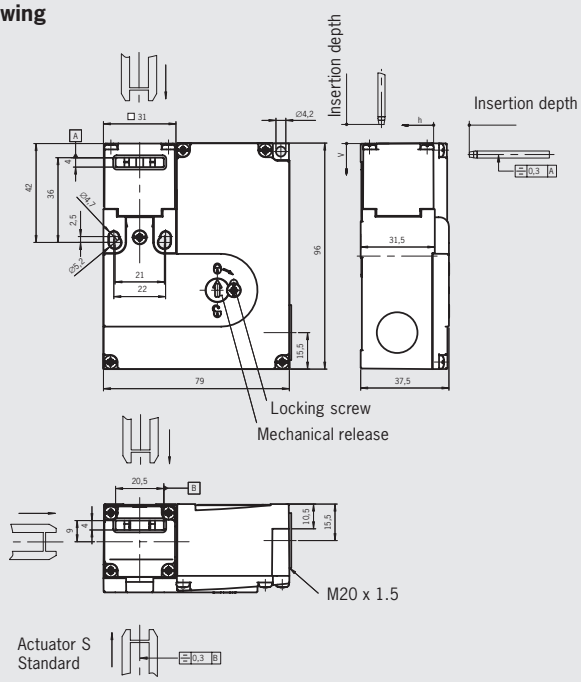
### Switching elements

**ÜK** For monitoring the guard locking (built-in solenoid)
Slow-action switching element 1 NC ⊖

**SK** For monitoring the door/actuator position
**222** Slow-action switching element 2 NC ⊖
**242** Slow-action switching element 1 NC ⊖ +1 NO

### Cable entry M20 x 1.5

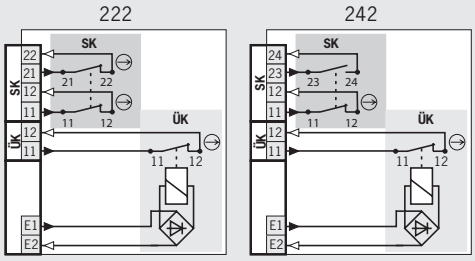
### Dimension drawing




Please order actuator separately (see pages 94-96)

For cable glands see page 104

### Wiring diagrams Actuator inserted and locked



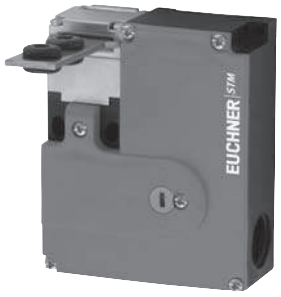

For switching functions see technical data on page 143

### Ordering table

| Series | Connection | Guard locking | Actuating head | Switching element | Solenoid operating voltage | | |
|---|---|---|---|---|---|---|---|
| | | | | | AC/DC 24 V | AC 110 V | AC 230 V |
| STM | Cable entry **1 x M20 x 1.5** | **1** Mechanical | **N** Plastic | ÜK: 1 NC ⊖ SK: **222** 2 NC ⊖ | **091865** STM1N-222B024-M | On request | **098714** STM1N-222B230-M |
| | | | | ÜK: 1 NC ⊖ SK: **242** 1 NC ⊖ + 1 NO | **092031** STM1N-242B024-M | On request | On request |
| | | | **A** Metal | ÜK: 1 NC ⊖ SK: **222** 2 NC ⊖ | **095396** STM1A-222B024-M | On request | **098036** STM1A-222B230-M |
| | | | | ÜK: 1 NC ⊖ SK: **242** 1 NC ⊖ + 1 NO | **095397** STM1A-242B024-M | On request | On request |
| | | **2** Electrical | **N** Plastic | ÜK: 1 NC ⊖ SK: **222** 2 NC ⊖ | **092048** STM2N-222B024-M | On request | On request |
| | | | | ÜK: 1 NC ⊖ SK: **242** 1 NC ⊖ + 1 NO | **092050** STM2N-242B024-M | On request | On request |
| | | | **A** Metal | ÜK: 1 NC ⊖ SK: **222** 2 NC ⊖ | **095398** STM2A-222B024-M | On request | On request |
| | | | | ÜK: 1 NC SK: **242** 1 NC ⊖ + 1 NO | **095399** STM2A-242B024-M | On request | On request |

For safety precautions see page 160
For technical data see page 117

## Safety switch STM with guard locking and guard lock monitoring




The technical data on switches, switching elements and guard locking apply to all connections. Further technical data are given for the connection selected.

### Reliability values acc. to EN ISO 13849-1

| Parameter | Value | Unit |
|---|---|---|
| $B_{10d}$ | 2 x $10^6$ operating cycles | |

### Switch

| Parameter | Value | | Unit |
|---|---|---|---|
| Housing material | Reinforced thermoplastic | | |
| Mechanical life | 2 x $10^6$ operating cycles | | |
| Ambient temperature | - 20 ... + 55 | | °C |
| Weight | approx. 0.4 | | kg |
| Max. approach speed | 20 | | m/min |
| Actuating force | 35 | | N |
| Extraction force (not locked) | 30 | | N |
| Retention force | 20 | | N |
| Locking force, max. | Approach direction | | N |
| | From top (v) | Side (h) | |
| STM.A... (metal head) | 2000 | 2000 | |
| STM.N... (plastic head) | 1000 | 1000 | |
| Locking force $F_{Zh}$ in accordance with test principles GS-ET-19 | Approach direction | | N |
| | From top (v) | Side (h) | |
| STM.A... (metal head) | 1500 | 1500 | |
| STM.N... (plastic head) | 700 | 700 | |
| Insertion depth (minimum required travel + permissible overtravel) | Actuator *S* standard | | |
| Approach direction side (h) | 24.5 + 5 | | mm |
| Approach direction from top (v) | 24.5 + 5 | | mm |

### Switching element

| Parameter | Value | | Unit |
|---|---|---|---|
| Switching principle | Slow-action switching element | | |
| Switching elements | ÜK: 1 NC ⊖<br>SK: **222** 2 NC ⊖ | ÜK: 1 NC ⊖<br>SK: **242** 1 NC ⊖ + 1 NO | |
| Switching current, min., at 24 V | 1 | | mA |
| Switching voltage, min., at 10 mA | 12 | | V |
| Contact material | Silver alloy, gold flashed | | |

### Guard locking

| Parameter | Value | Unit |
|---|---|---|
| Solenoid operating voltage | AC/DC 24 V +10/-15% | |
| Connection | Reverse polarity protected, integrated bridge rectifier | |
| Duty cycle ED | 100 | % |
| Power consumption | 6 | W |

### Connection, cable entry M20 x 1.5

| Parameter | | Value | Unit |
|---|---|---|---|
| Connection | | Screw terminal | |
| Version | | M20 x 1.5 | |
| Conductor cross-section max. | | 0.34 ... 1.5 | $mm^2$ |
| Degree of protection acc. to IEC 60529 | | IP 67 | |
| Rated insulation voltage $U_i$ | | 250 | V AC/DC |
| Rated impulse withstand voltage $U_{imp}$ | | 1.5 | kV |
| Conventional thermal current $I_{th}$ | | 4 | A |
| Short circuit protection according to IEC 60269-1 (control circuit fuse) | | 4 | A gG |
| Utilization category to IEC 60947-5-1 | AC15 | $I_e$ 4 A $U_e$ 230 V | |
| | DC13 | $I_e$ 4 A $U_e$ 24 V | |

## Switching functions STM