

Safety switch TZ with guard locking and guard lock monitoring



- ▶ Mechanical release on the front
- ▶ Actuating head fitted left or right



Mechanical release

Is used for releasing the guard locking with the aid of a tool. A seal and auxiliary tool are fitted to protect against tampering.

Guard locking types

TZ1 Closed-circuit current principle, guard locking by spring force. Release by control of AS-i output 0.

TZ2 Open-circuit current principle, guard locking by control of AS-i output 0. Release by spring force.

Control of the interlocking solenoid

The interlocking solenoid is controlled by the control system via AS-Interface bus bit D0. Simple connection to the bus is sufficient for process protection. The 24V connection can be switched safely for personal protection.

AS-Interface inputs

- ▶ **D0, D1** Door monitoring contact SK
 - ▶ **D2, D3** Solenoid monitoring contact UK
- Evaluation is performed via a safety monitor.

AS-Interface outputs

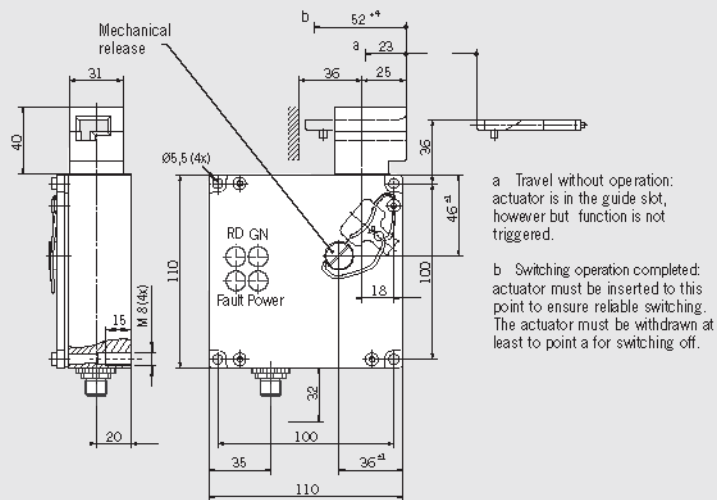
- ▶ **D0** Interlocking solenoid
- ▶ **D1** Red LED
- ▶ **D2** Green LED

LED function display

- ▶ The *Power* LED indicates the operating voltage at the bus.
- ▶ The *Fault* LED shows if a fault has been detected on the AS-Interface bus.
- ▶ The green and the red LEDs can be optionally controlled with bits D1 and D2 by the control via the bus.

Plug connector M12
4-pin

Dimension drawings Actuating head on left is a mirror image



Please order actuator separately
(see catalog of Safety Switches with
Metal Housing)

Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Order No./item
TZ	SEM4 Plug connector M12	1 Mechanical	LE Left	SK: 1 NC ⊖ UK: 1 NC ⊖	086 140 TZ1LE024SEM4AS1
			RE Right	SK: 1 NC ⊕ UK: 1 NC ⊖	086 141 TZ1RE024SEM4AS1
		2 Electrical	LE Left	SK: 1 NC ⊕ UK: 1 NC ⊖	086 990 TZ2LE024SEM4AS1
			RE Right	SK: 1 NC ⊕ UK: 1 NC ⊖	086 991 TZ2RE024SEM4AS1



Safety switch TZ with guard locking and guard lock monitoring



- ▶ Mechanical release on the front
- ▶ Escape release on the rear with key button
- ▶ Actuating head fitted left or right



Mechanical release

Is used for releasing the guard locking with the aid of a tool. A seal and auxiliary tool are fitted to protect against tampering.

Escape release

Is used for the manual release of the guard locking from within the danger area without tools. The disable can only be removed and the switch returned to its operating state using a key included.

Guard locking type

TZ1 Closed-circuit current principle, guard locking by spring force. Release by control of AS-i output 0.

Control of the interlocking solenoid

The interlocking solenoid is controlled by the control system via AS-Interface bus bit D0. Simple connection to the bus is sufficient for process protection. The 24V connection can be switched safely for personal protection.

AS-Interface inputs

- ▶ **D0, D1** Door monitoring contact SK
 - ▶ **D2, D3** Solenoid monitoring contact UK
- Evaluation is performed via a safety monitor.

AS-Interface outputs

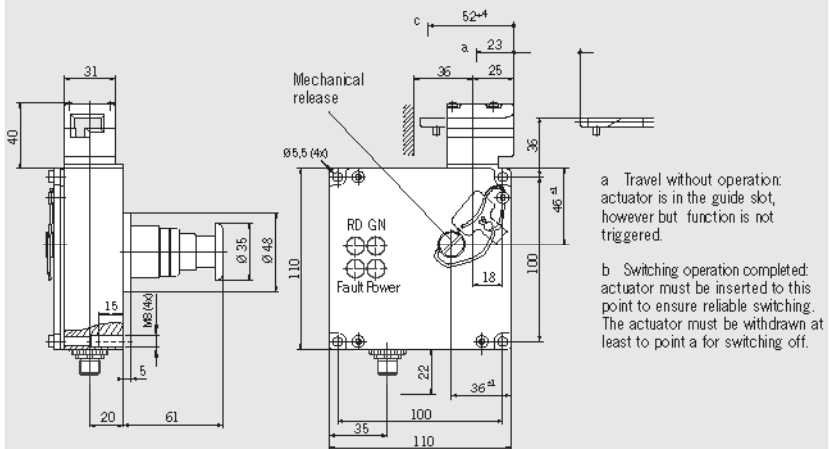
- ▶ **D0** Interlocking solenoid
- ▶ **D1** Red LED
- ▶ **D2** Green LED

LED function display

- ▶ The *Power* LED indicates the operating voltage at the bus.
- ▶ The *Fault* LED shows if a fault has been detected on the AS-Interface bus.
- ▶ The green and the red LEDs can be optionally controlled with bits D1 and D2 by the control via the bus.

Plug connector M12
4-pin

Dimension drawings Actuating head on left is a mirror image



Please order actuator separately (see catalog of Safety Switches with Metal Housings)

Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Order No./item
TZ	SEM4 Plug connector M12	1 Mechanical	LE Left	SK 1 NC ⊖ UK: 1 NC ⊖	C1815 Escape release (red key button)	094 422 TZ1LE024SEM4AS1-C1815
			RE Right	SK 1 NC ⊖ UK: 1 NC ⊖	C1815 Escape release (red key button)	094 423 TZ1RE024SEM4AS1-C1815

Safety switch TZ with guard locking and guard lock monitoring



- ▶ Emergency unlocking on the front with rotary knob
- ▶ Actuating head fitted left or right

Plug connector M12
4-pin



Emergency unlocking

Is used for the manual release of the guard locking without tools. The emergency unlocking mechanism must be returned to the locked state manually. A sealing wire is fitted to protect against tampering.

Guard locking type

TZ1 Closed-circuit current principle, guard locking by spring force. Release by control of AS-i output 0.

Control of the interlocking solenoid

The interlocking solenoid is controlled by the control system via AS-Interface bus bit D0. Simple connection to the bus is sufficient for process protection. The 24V connection can be switched safely for personal protection.

AS-Interface inputs

- ▶ **D0, D1** Door monitoring contact SK
 - ▶ **D2, D3** Solenoid monitoring contact UK
- Evaluation is performed via a safety monitor.

AS-Interface outputs

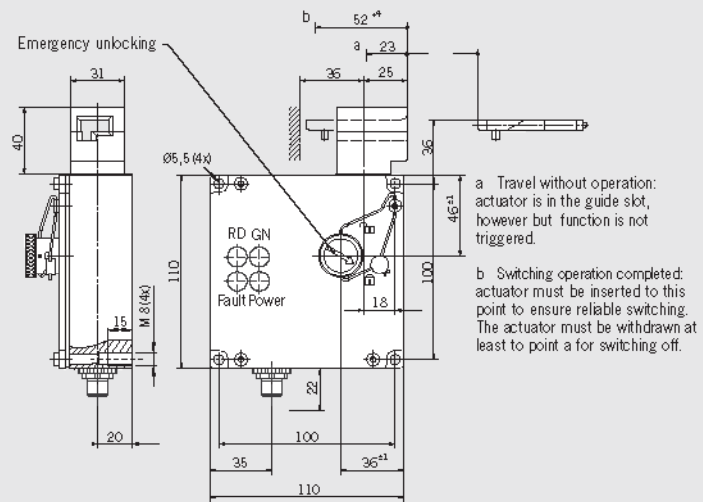
- ▶ **D0** Interlocking solenoid
- ▶ **D1** Red LED
- ▶ **D2** Green LED

LED function display

- ▶ The *Power* LED indicates the operating voltage at the bus.
- ▶ The *Fault* LED shows if a fault has been detected on the AS-Interface bus.
- ▶ The green and the red LEDs can be optionally controlled with bits D1 and D2 by the control via the bus.

Dimension drawings

Actuating head on left is a mirror image



Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Order No./Item
TZ	SEM4 Plug connector M12	1 Mechanical	LE Left	SK: 1 NC ⊖ UK: 1 NC ⊖	C1937 Emergency unlocking	090 278 TZ1LE024SEM4AS1-C1937
			RE Right	SK: 1 NC ⊖ UK: 1 NC ⊖	C1937 Emergency unlocking	090 279 TZ1RE024SEM4AS1-C1937



Safety switch TZ with guard locking and guard lock monitoring



Switch		
Parameter	Value	Unit
Housing material	Anodized die-cast alloy	
Mechanical life	2×10^6 operating cycles	
Ambient temperature	- 25 ... + 55	°C
Weight	approx. 1.2	kg
Approach speed, max.	20	m/min
Actuating force	35	N
Extraction force	30	N
Retention force	10	N
Locking force, max.	2000	N
Locking force F_{Δ} in accordance with test principles GS-ET-1.9	1500	N
Interlocking solenoid		
Solenoid operating voltage (auxiliary power on black AS-Interface cable)	24 +10%/-15% Power supply unit with electrical isolation (IEC 60742, PELV)	V DC
Solenoid operating current	350	mA
Duty cycle	100	%

AS-Interface connection		
Parameter	Value	Unit
Connection	Plug connector	
Version	M1 2 (4-pin)	
Degree of protection according to IEC 60529	IP 67 ²⁾	
Rated insulation voltage U _i	50	V AC/DC
Switching principle SK, UK	Slow-action switching element 1 NC ⊖ contact each	
EMC protection requirements	Acc. to EN 50295 (AS-Interface standard) and IEC 62026	
AS-Interface data		
Acc. to AS-Interface Specification 2.1	EA code: 7	ID code: B
Total current consumption, max.	45	mA
Valid AS-Interface addresses	1 - 31	
AS-Interface inputs		
Door monitoring contact SK	In accordance with AS-Interface Safety at Work	
Solenoid monitoring contact UK	D0, D1	
AS-Interface outputs		
D0	Interlocking solenoid, 1 = solenoid energized	
D1	Red LED, 1 = LED on	
D2	Green LED, 1 = LED on	
AS-Interface LED Power	Green, AS-Interface Power on	
AS-Interface LED Fault	Red, offline phase or address 0	

2) Screwed tight with the related plug connector