

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

Release feature, front	
<b>HE</b>	Mechanical release can be sealed
<b>E</b>	Mechanical release cannot be sealed
<b>HD</b>	Mechanical release for triangular key acc. to DIN 22417 (latching)
<b>ND</b>	Emergency release on the front (pushbutton)
<b>NR</b>	Emergency unlocking on the front (rotary knob can be sealed)
<b>O</b>	Without manual release feature
Release feature, rear	
<b>FS</b>	Escape release on the rear (key button)
<b>FD</b>	Escape release on the rear (pushbutton/button without key)
Version	
<b>SB</b>	Protective plate, tamper protection on the switch head
Enabling switch connection	
<b>BD4</b>	Plug connector 4-pin
<b>RC12</b>	Plug connector 12-pin
Connection	
<b>M</b>	Thread M20 x 1.5 for cable glands
<b>SR6</b>	Plug connector 6-pin + PE
<b>MR8</b>	Plug connector 7-pin + PE
<b>MR10</b>	Plug connector 9-pin + PE
<b>SR11</b>	Plug connector 11-pin + PE
<b>MR12</b>	Plug connector 11-pin + PE
<b>RC18</b>	Plug connector 18-pin + PE
Switching element	
<b>Two contacts</b>	2 x (1 NC ⊖ + 1 NO)
<b>Four contacts</b>	2 x (4 NC ⊖) or 1 x (3 NC ⊖ + 1 NO) + 1 x (2 NC ⊖ + 2 NO)



HE	Manual release							Enabling switch		Connection						Switching element		With version	Page		
	E	HD	ND	NR	O	FS	FD	SB	BD4	RC12	M	SR6	MR8	MR10	SR11	MR12	RC18			Two contacts	Four contacts
•											•							•	•	C1925	62
•												•						•		C1638	64
•																•			•	C1924	66
•																	•		•	C1826	63
•															•			•	•	C1933	65
•						•					•							•	•	C1815 / C1828	76
•						•									•		•	•	•	C1815 / C1828	77
•							•				•							•	•	C1684	80
•							•								•			•		C1684	81
•								•			•							•	•		68
•								•				•			•			•	•	C1677	69
•								•			•						•		•		70
•									•		•								•	C2082	78
•										•							•		•	C2140	79
	•												•	•				•	•	C1903	67
		•									•							•	•	C2159	71
			•								•							•	•	C1816 / C1823	72
				•											•		•	•	•	C1816 / C1823	73
					•												•		•		74
						•											•		•	C1937	75
							•										•		•	C2123	82
								•			•						•		•	C1623 / C2100	83
									•				•						•		84
										•							•		•	C1902 / C1971	85
									•			•						•		C1662	86
										•							•		•	C1803	87

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



- ▶ Mechanical release on the front
- ▶ Two LEDs, red and green
- ▶ Plug connector optional
- ▶ Actuating head fitted left or right



### Mechanical release

Is used for releasing the guard locking with the aid of a tool. A sealing wire can be fitted to protect against tampering. Lead sealing kit and tool included.

### Solenoid operating voltage and LED function display

The following voltage ranges are available:

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

### Guard locking types

**TZ1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the solenoid.

**TZ2** Open-circuit current principle, guard locking by applying voltage to the solenoid. Release by spring force.

### Switching elements (see also Page 13/14)

**SK** For monitoring the door/actuator position

**ÜK** For monitoring the guard locking (built-in solenoid)

For combinations available see ordering table:

- ▶ **528H** Slow-action switching element  
1 NC ⊖ + 1 NO
- ▶ **2121H** Slow-action switching element  
4 NC ⊖
- ▶ **2131H** Slow-action switching element  
3 NC ⊖ + 1 NO
- ▶ **3131H** Slow-action switching element  
2 NC ⊖ + 2 NO

### Ordering table

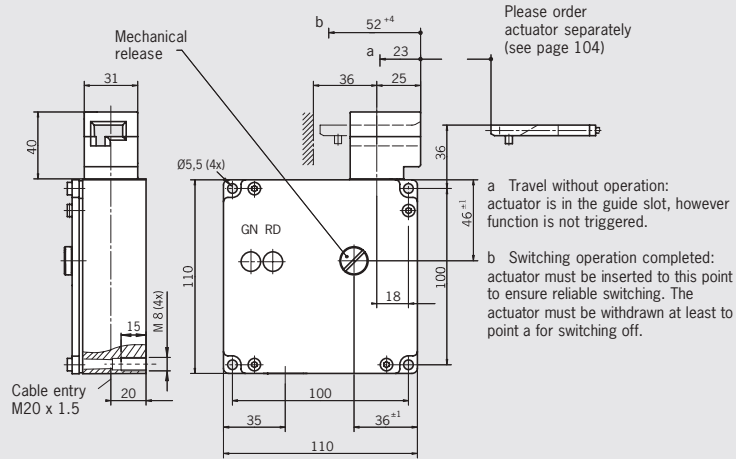
Series	Connection	Guard locking	Switch head	Switching element	Black cover			Red cover	
					24 V	110 V	230 V	24 V	110 V
TZ	M20x1.5	1 Mechanical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO	082 050	083 160	083 166	083 164	083 168
				ÜK: 528H, 1 NC ⊖ + 1 NO	TZ1LE024M	TZ1LE110M	TZ1LE220M	TZ1LE024M-R	TZ1LE110M-R
				SK: 2121H, 4 NC ⊖	On request	On request	On request	089 464 <sup>1)</sup>	On request
			ÜK: 2121H, 4 NC ⊖				TZ1LE024MVFG-RC1925	On request	
			SK: 2131H, 3 NC ⊖ + 1 NO	083 965	088 023	088 029	089 434	On request	
			ÜK: 3131H, 2 NC ⊖ + 2 NO	TZ1LE024MVAB	TZ1LE110MVAB	TZ1LE220MVAB	TZ1LE024MVAB-R	On request	
		2 Electrical	RE Right	SK: 528H, 1 NC ⊖ + 1 NO	082 051	083 161	083 167	083 165	089 448
				ÜK: 528H, 1 NC ⊖ + 1 NO	TZ1RE024M	TZ1RE110M	TZ1RE220M	TZ1RE024M-R	TZ1RE110M-R
				SK: 2121H, 4 NC ⊖	On request	On request	On request	089 465 <sup>1)</sup>	On request
			ÜK: 2121H, 4 NC ⊖				TZ1RE024MVFG-RC1925	On request	
			SK: 2131H, 3 NC ⊖ + 1 NO	083 966	088 024	088 030	083 233	On request	
			ÜK: 3131H, 2 NC ⊖ + 2 NO	TZ1RE024MVAB	TZ1RE110MVAB	TZ1RE220MVAB	TZ1RE024MVAB-R	On request	
LE Left	SK: 528H, 1 NC ⊖ + 1 NO	090 559	083 162	088 031	089 445	On request			
	ÜK: 528H, 1 NC ⊖ + 1 NO	TZ2LE024M	TZ2LE110M	TZ2LE220M	TZ2LE024M-R	On request			
	SK: 2131H, 3 NC ⊖ + 1 NO	088 070	088 025	088 027	On request	On request			
ÜK: 3131H, 2 NC ⊖ + 2 NO	TZ2LE024MVAB	TZ2LE110MVAB	TZ2LE220MVAB	On request	On request				
RE Right	SK: 528H, 1 NC ⊖ + 1 NO	090 560	083 163	088 032	089 446	On request			
	ÜK: 528H, 1 NC ⊖ + 1 NO	TZ2RE024M	TZ2RE110M	TZ2RE220M	TZ2RE024M-R	On request			
	SK: 2131H, 3 NC ⊖ + 1 NO	088 071	088 026	088 028	On request	On request			
ÜK: 3131H, 2 NC ⊖ + 2 NO	TZ2RE024MVAB	TZ2RE110MVAB	TZ2RE220MVAB	On request	On request				

1) No BG approval

### Cable entry M20 x 1.5

### Dimension drawings

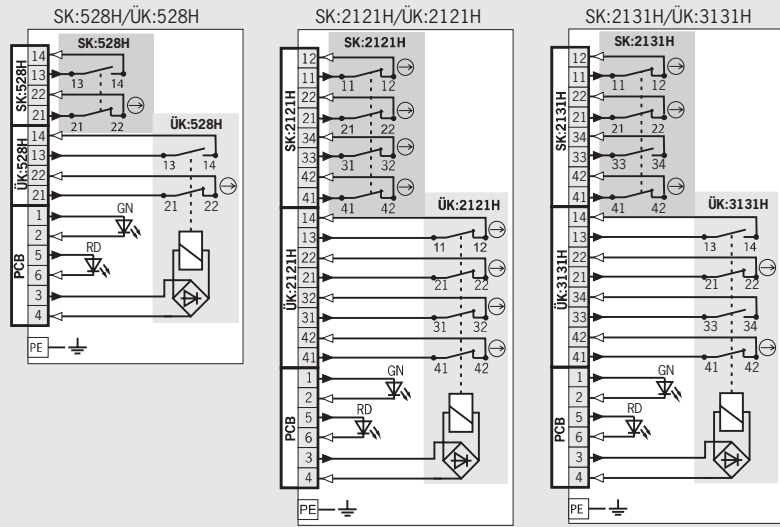
Actuating head on left is a mirror image



For cable glands see page 115

### Wiring diagrams

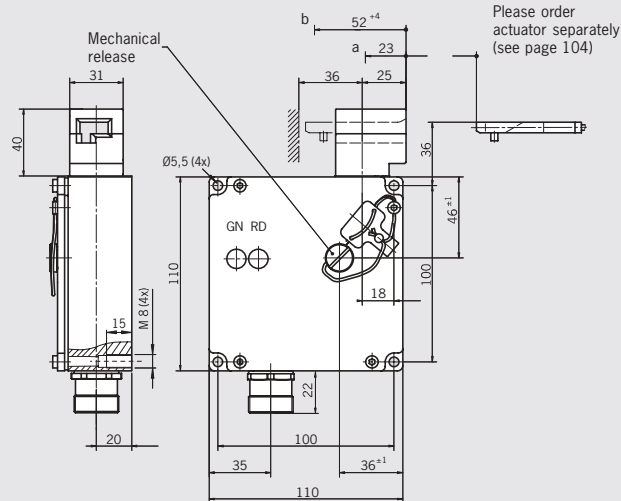
Actuator inserted and locked



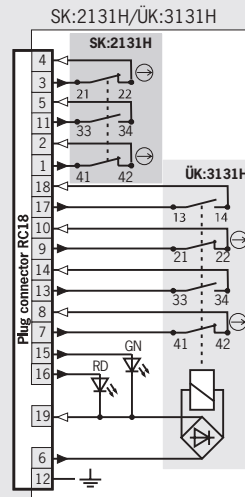


**Plug connector RC18**  
18-pin + PE

**Dimension drawings** Actuating head on left is a mirror image



**Wiring diagrams** Actuator inserted and locked



**Ordering table**

Series	Connection	Guard locking	Switch head	Switching element	Black cover 24 V
TZ	RC18 <sup>2)</sup> Plug connector	1 Mechanical	LE	SK: <b>2131H</b> , 3 NC ⊖ + 1 NO	<b>084 246</b> <sup>3)</sup>
			Left	ÜK: <b>3131H</b> , 2 NC ⊖ + 2 NO	TZ1LE024RC18VAB-C1826
			RE	SK: <b>2131H</b> , 3 NC ⊖ + 1 NO	<b>084 247</b> <sup>3)</sup>
		Right	ÜK: <b>3131H</b> , 2 NC ⊖ + 2 NO	TZ1RE024RC18VAB-C1826	
		2 Electrical	LE	SK: <b>2131H</b> , 3 NC ⊖ + 1 NO	<b>085 180</b> <sup>3)</sup>
			Left	ÜK: <b>3131H</b> , 2 NC ⊖ + 2 NO	TZ2LE024RC18VAB-C1826
RE	SK: <b>2131H</b> , 3 NC ⊖ + 1 NO		<b>085 181</b> <sup>3)</sup>		
		Right	ÜK: <b>3131H</b> , 2 NC ⊖ + 2 NO	TZ2RE024RC18VAB-C1826	

2) **Important:** use suitable mating connector with option C1825!

3) Approval pending

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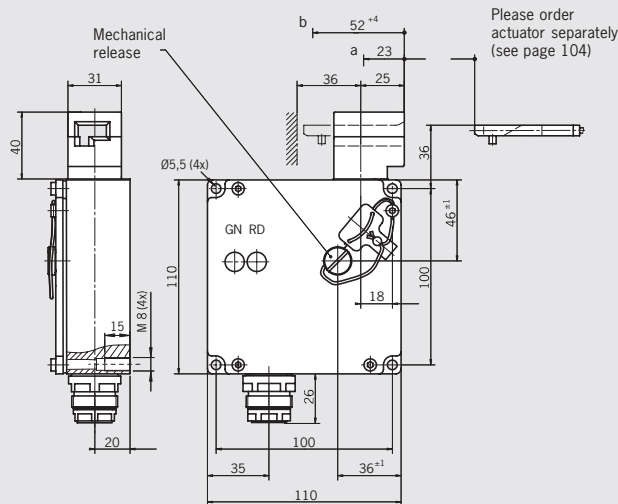
For safety precautions see page 164  
For technical data see page 139





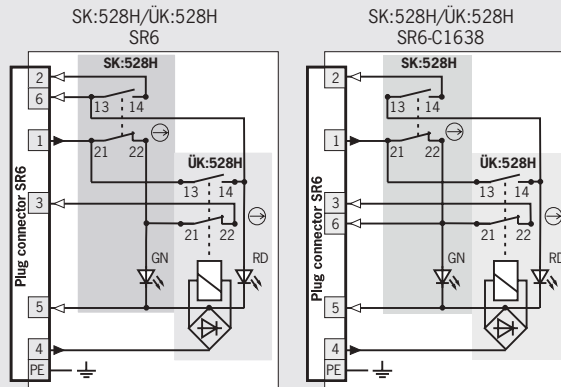
## Plug connector SR6 6-pin + PE

### Dimension drawings Actuating head on left is a mirror image



For mating connectors see page 112

### Wiring diagrams Actuator inserted and locked



### Ordering table

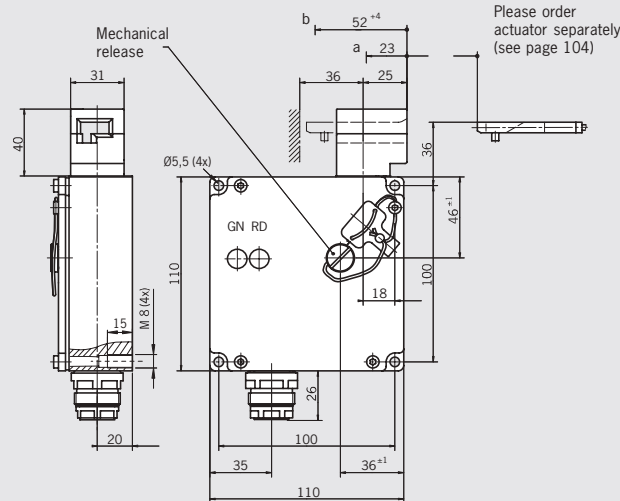
Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover			Red cover
						24 V	110 V	230 V	24 V
TZ	SR6 Plug connector	1 Mechanical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO		<b>046 502</b>	<b>046 503</b>	<b>046 504</b>	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO		TZ1LE024SR6	TZ1LE110SR6	TZ1LE220SR6	
			RE Right	SK: 528H, 1 NC ⊖ + 1 NO		<b>089 476</b> <sup>1)</sup>	On request	On request	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO		TZ1RE024SR6-C1638	TZ1RE110SR6	TZ1RE220SR6	
		2 Electrical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO		<b>046 190</b>	<b>046 191</b>	<b>051 879</b>	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO		TZ2LE024SR6	TZ2LE110SR6	TZ2LE220SR6	
			RE Right	SK: 528H, 1 NC ⊖ + 1 NO		<b>070 529</b> <sup>1)</sup>	On request	On request	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO		TZ2RE024SR6-C1638	TZ2RE110SR6	TZ2RE220SR6	

1) No BG approval



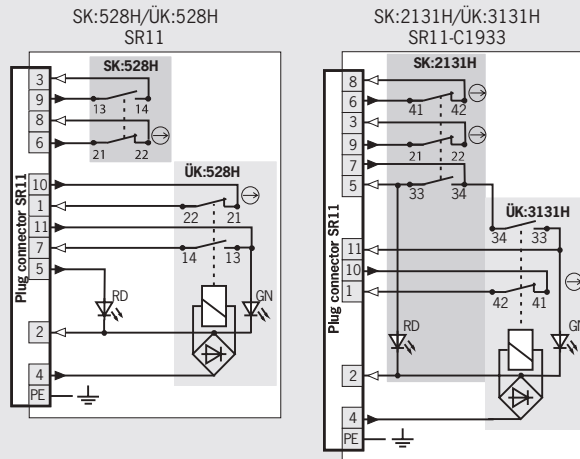
## Plug connector SR11 11-pin + PE

### Dimension drawings Actuating head on left is a mirror image



For mating connectors see page 112

### Wiring diagrams Actuator inserted and locked



Please turn over

### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover 24 V
TZ	SR11 Plug connector	1 Mechanical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO	C1933 <sup>1)</sup> Alternative wiring	070 828
				ÜK: 528H, 1 NC ⊖ + 1 NO		TZ1LE024SR11
			RE Right	SK: 2131H, 3 NC ⊖ + 1 NO		083 230 <sup>1)</sup>
				ÜK: 3131H, 2 NC ⊖ + 2 NO		TZ1LE024SR11VAB-C1933
		2 Electrical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO	C1933 <sup>1)</sup> Alternative wiring	070 826
				ÜK: 528H, 1 NC ⊖ + 1 NO		TZ1RE024SR11
		RE Right	SK: 2131H, 3 NC ⊖ + 1 NO	083 231 <sup>1)</sup>		
			ÜK: 3131H, 2 NC ⊖ + 2 NO	TZ1RE024SR11VAB-C1933		
			LE Left	SK: 528H, 1 NC ⊖ + 1 NO	070 958	
			ÜK: 528H, 1 NC ⊖ + 1 NO	TZ2LE024SR11		
			RE Right	SK: 528H, 1 NC ⊖ + 1 NO	070 957	
			ÜK: 528H, 1 NC ⊖ + 1 NO	TZ2RE024SR11		

1) No BG approval

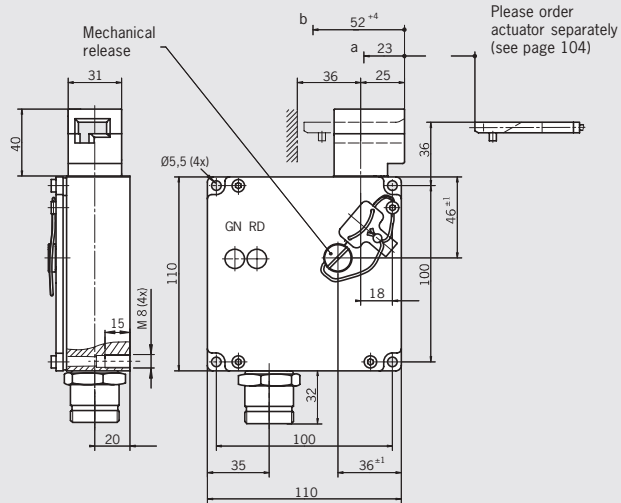
For safety precautions see page 164  
For technical data see page 139





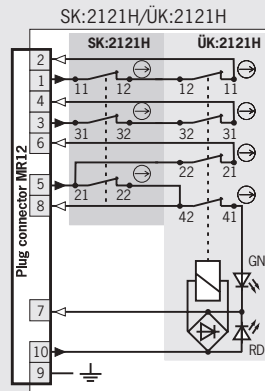
**Plug connector MR12**  
11-pin + PE

**Dimension drawings** Actuating head on left is a mirror image



For mating connectors see page 124

**Wiring diagrams** Actuator inserted and locked



**Ordering table**

Series	Connection	Guard locking	Switch head	Switching element	Ver-sion	Black cover			Red cover
						24 V	110 V	230 V	24 V
TZ	MR12 Plug connector	1 Mechanical	LE Left	SK: 2121H, 4 NC ⊖ ÜK: 2121H, 4 NC ⊖		On request	On request	On request	083 190 TZ1LE024BHAVFG-RC1924
			RE Right	SK: 2121H, 4 NC ⊖ ÜK: 2121H, 4 NC ⊖		On request	On request	On request	083 191 TZ1RE024BHAVFG-RC1924

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



- ▶ Mechanical release on the front
- ▶ Protective plate for switch head
- ▶ Two LEDs, red and green
- ▶ Plug connector optional
- ▶ Actuating head fitted left or right



### Mechanical release

Is used for releasing the guard locking with the aid of a tool. A sealing wire can be fitted to protect against tampering. Lead sealing kit and tool included.

### Protective plate for switch head

Makes it more difficult to tamper with the switch.

### Solenoid operating voltage and LED function display

The following voltage range is available:

- ▶ 24 V AC/DC -15%, +10%

### Guard locking types

**TZ1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the solenoid.

**TZ2** Open-circuit current principle, guard locking by applying voltage to the solenoid. Release by spring force.

### Switching elements (see also Page 13/14)

**SK** For monitoring the door/actuator position  
**ÜK** For monitoring the guard locking (built-in solenoid)

For combinations available see ordering table:

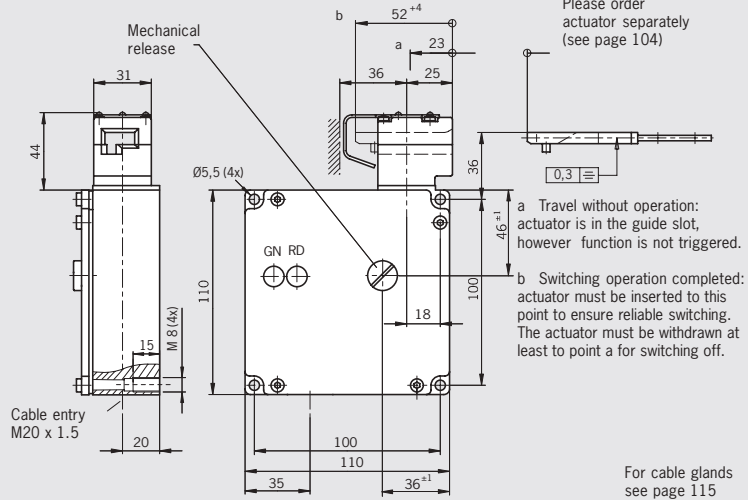
- ▶ **528H** Slow-action switching element  
1 NC ⊖ + 1 NO
- ▶ **2131H** Slow-action switching element  
3 NC ⊖ + 1 NO
- ▶ **3131H** Slow-action switching element  
2 NC ⊖ + 2 NO

### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover
						24 V
TZ	M20x1.5	1 Mechanical	LE	SK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>089 470</b>
			Left	ÜK: 528H, 1 NC ⊖ + 1 NO		TZ1LE024M-089470
			RE	SK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>089 471</b>
			Right	ÜK: 528H, 1 NC ⊖ + 1 NO		TZ1RE024M-089471

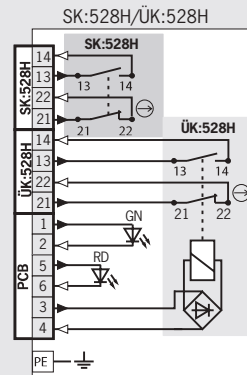
### Cable entry M20 x 1.5

### Dimension drawings Actuating head on left is a mirror image



For cable glands see page 115

### Wiring diagrams Actuator inserted and locked

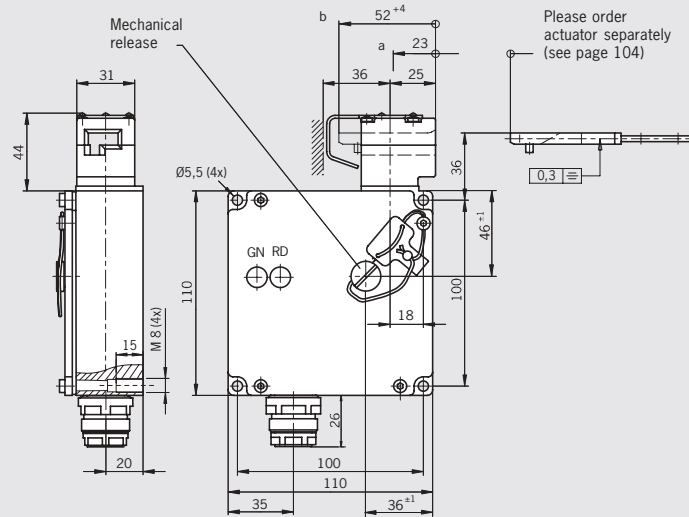




**Plug connector SR6**  
6-pin + PE

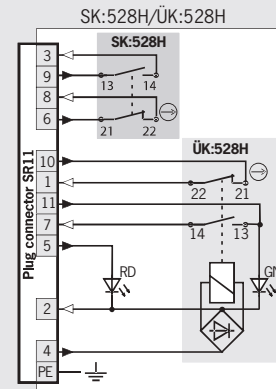
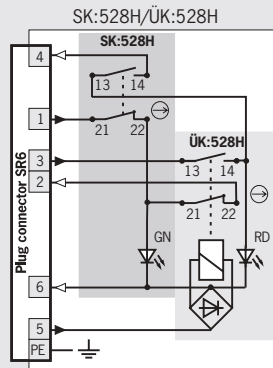
**Plug connector SR11**  
11-pin + PE

**Dimension drawings** Actuating head on left is a mirror image



For mating connectors see page 112

**Wiring diagrams** Actuator inserted and locked



Please turn over

## Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover
						24 V
TZ	SR6 Plug connector	1 Mechanical	LE	SK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>059 694</b> TZ1LE024SR6-C1677
			RE	ÜK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>059 692</b> TZ1RE024SR6-C1677
		2 Electrical	LE	SK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>059 852</b> TZ2LE024SR6-C1677
			RE	ÜK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>059 699</b> TZ2RE024SR6-C1677
	SR11 Plug connector	1 Mechanical	LE	SK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>093 860</b> TZ1LE024SR11-093860
			RE	ÜK: 528H, 1 NC ⊖ + 1 NO	With protective plate	<b>093 861</b> TZ1RE024SR11-093861

For safety precautions see page 164  
For technical data see page 139

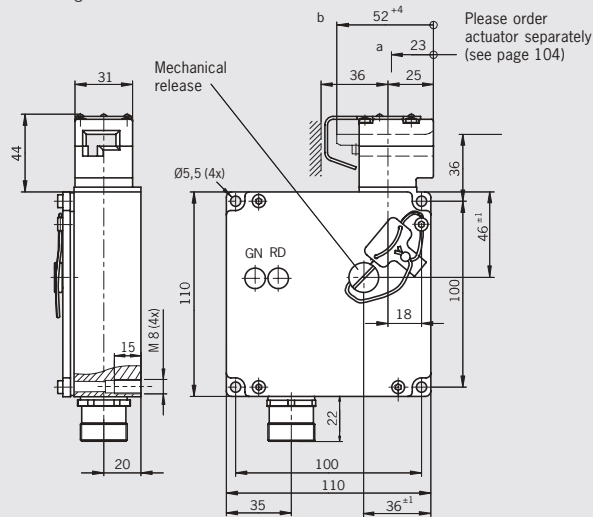






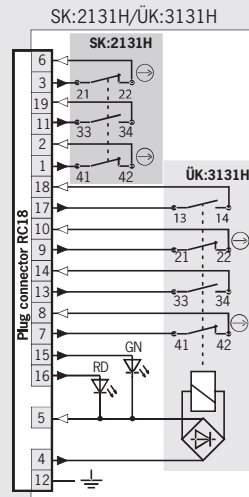
**Plug connector RC18**  
18-pin + PE

**Dimension drawings** Actuating head on left is a mirror image



For mating connectors see page 114

**Wiring diagrams** Actuator inserted and locked



**Ordering table**

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover
						24 V
TZ	RC18 Plug connector	2 Electrical	LE	SK: <b>2131H</b> , 3 NC ⊖ + 1 NO	With	<b>093 862</b>
			Left	ÜK: <b>3131H</b> , 2 NC ⊖ + 2 NO	protective plate	TZ1LE024RC18VAB-093862
			RE	SK: <b>2131H</b> , 3 NC ⊖ + 1 NO	With	<b>093 863</b>
			Right	ÜK: <b>3131H</b> , 2 NC ⊖ + 2 NO	protective plate	TZ1RE024RC18VAB-093863

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



- ▶ Mechanical release on the front
- ▶ Escape release on the rear with key button
- ▶ Two LEDs, red and green
- ▶ Plug connector optional
- ▶ Actuating head fitted left or right



### 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 (2 keys included).

### Solenoid operating voltage and LED function display

The following voltage range is available:

- ▶ 24 V AC/DC -15%, +10%
- ▶ 110 V AC -15%, +10%

### Guard locking types

**TZ1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the solenoid.

**TZ2** Open-circuit current principle, guard locking by applying voltage to the solenoid. Release by spring force.

### Switching elements (see also Page 13/14)

**SK** For monitoring the door/actuator position

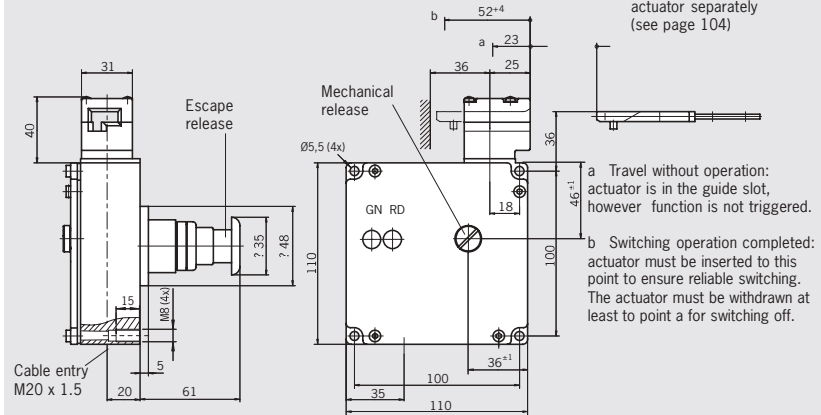
**ÜK** For monitoring the guard locking (built-in solenoid)

For combinations available see ordering table:

- ▶ **528H** Slow-action switching element  
1 NC ⊖ + 1 NO
- ▶ **2131H** Slow-action switching element  
3 NC ⊖ + 1 NO
- ▶ **3131H** Slow-action switching element  
2 NC ⊖ + 2 NO

### Cable entry M20 x 1.5

### Dimension drawings Actuating head on left is a mirror image

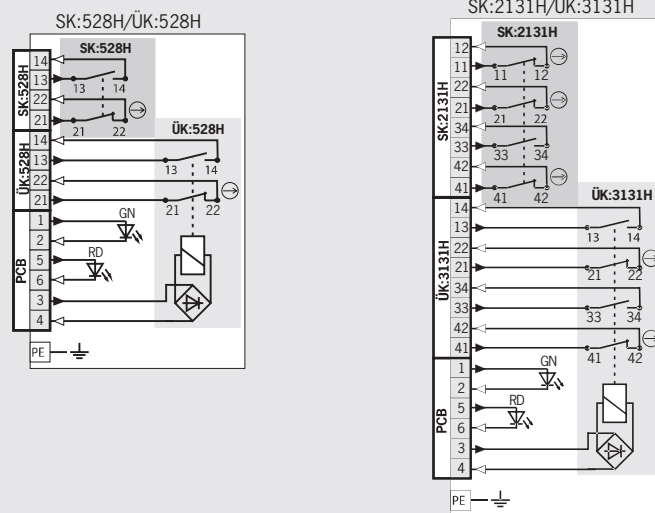


Please order actuator separately (see page 104)

- a Travel without operation: actuator is in the guide slot, however function is not triggered.
- b Switching operation completed: actuator must be inserted to this point to ensure reliable switching. The actuator must be withdrawn at least to point a for switching off.

For cable glands see page 115

### Wiring diagrams Actuator inserted and locked



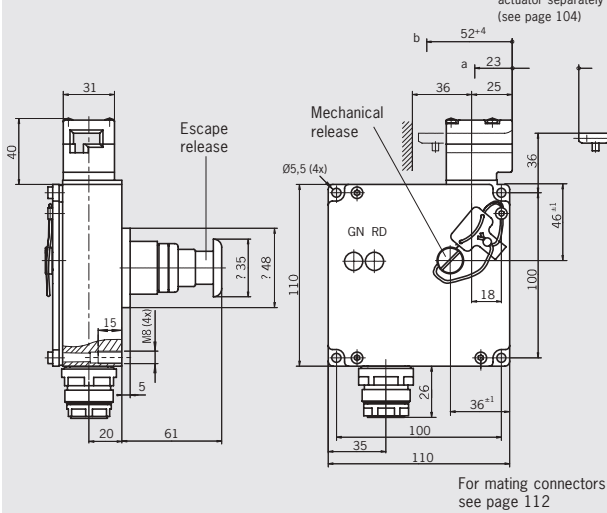
### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover	
						24 V	110 V
TZ	M20x1.5	1 Mechanical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO	Escape release	<b>087 990</b>	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO	(red key button)	TZ1LE024M-C1815	
				SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>089 468</b>	<b>094 311</b>
			ÜK: 3131H, 2 NC ⊖ + 2 NO	(red key button)	TZ1LE024MVAB-C1828	TZ1LE110MVAB-C1828	
			RE Right	SK: 528H, 1 NC ⊖ + 1 NO	Escape release	<b>087 991</b>	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO	(red key button)	TZ1RE024M-C1815	
		SK: 2131H, 3 NC ⊖ + 1 NO		Escape release	<b>089 469</b>	<b>094 312</b>	
		ÜK: 3131H, 2 NC ⊖ + 2 NO	(red key button)	TZ1RE024MVAB-C1828	TZ1RE110MVAB-C1828		
		2 Electrical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO	Escape release	<b>089 460</b>	On request
				ÜK: 528H, 1 NC ⊖ + 1 NO	(red key button)	TZ2LE024M-C1815	
				SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>087 290</b>	On request
			ÜK: 3131H, 2 NC ⊖ + 2 NO	(red key button)	TZ2LE024MVAB-C1828		
RE Right	SK: 528H, 1 NC ⊖ + 1 NO		Escape release	<b>089 461</b>	On request		
	ÜK: 528H, 1 NC ⊖ + 1 NO		(red key button)	TZ2RE024M-C1815			
	SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>087 291</b>	On request			
ÜK: 3131H, 2 NC ⊖ + 2 NO	(red key button)	TZ2RE024MVAB-C1828					

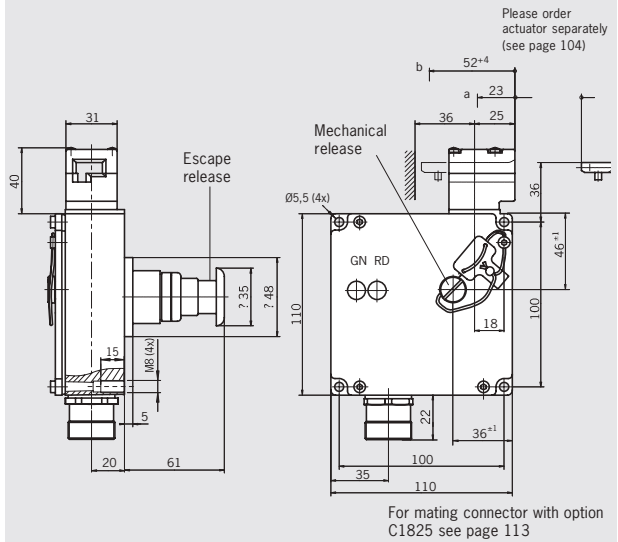


## Plug connector SR11 11-pin + PE

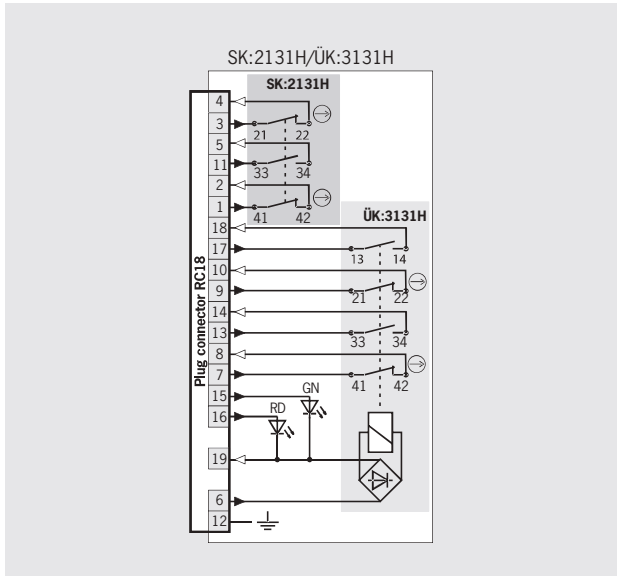
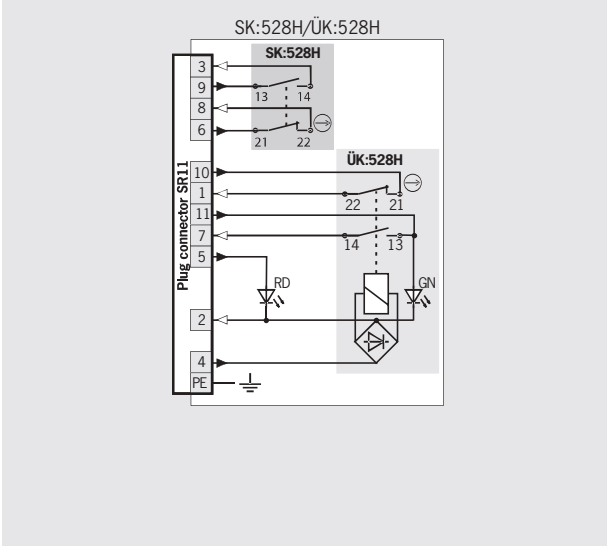
### Dimension drawings



## Plug connector RC18 18-pin + PE



### Wiring diagrams



### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover
						24 V
TZ	SR11 Plug connector	2 Electrical	LE	SK: 528H, 1 NC ⊖ + 1 NO	Escape release	<b>079 660</b>
			Left	ÜK: 528H, 1 NC ⊖ + 2 NO	Escape release (key button)	TZ2LE024SR11-C1815
		2 Electrical	RE	SK: 528H, 1 NC ⊖ + 1 NO	Escape release	<b>079 661</b>
			Right	ÜK: 528H, 1 NC ⊖ + 1 NO	Escape release (key button)	TZ2RE024SR11-C1815
	RC18 <sup>1)</sup> Plug connector	1 Mechanical	LE	SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>090 352</b>
			Left	ÜK: 3131H, 2 NC ⊖ + 2 NO	Escape release (key button)	TZ1LE024RC18VAB-C1828
		2 Electrical	RE	SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>090 353</b>
			Right	ÜK: 3131H, 2 NC ⊖ + 2 NO	Escape release (key button)	TZ1RE024RC18VAB-C1828
RC18 <sup>1)</sup> Plug connector	1 Mechanical	LE	SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>093 103</b>	
		Left	ÜK: 3131H, 2 NC ⊖ + 2 NO	Escape release (key button)	TZ2LE024RC18VAB-C1828	
	2 Electrical	RE	SK: 2131H, 3 NC ⊖ + 1 NO	Escape release	<b>093 104</b>	
		Right	ÜK: 3131H, 2 NC ⊖ + 2 NO	Escape release (key button)	TZ2RE024RC18VAB-C1828	

1) Important: use suitable mating connector with option C1825!

For safety precautions see page 164  
For technical data see page 139



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



- ▶ Mechanical release on the front
- ▶ Escape release on the rear with pushbutton
- ▶ Two LEDs, red and green
- ▶ Plug connector optional
- ▶ Actuating head fitted left or right



### Escape release

Is used for the manual release of the guard locking from within the danger area without tools.

### Solenoid operating voltage and LED function display

The following voltage ranges are available:

- ▶ 24 V AC/DC -15%, +10%
- ▶ 110 V AC -15%, +10%

### Guard locking types

**TZ1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the solenoid.

### Switching elements (see also Page 13/14)

**SK** For monitoring the door/actuator position

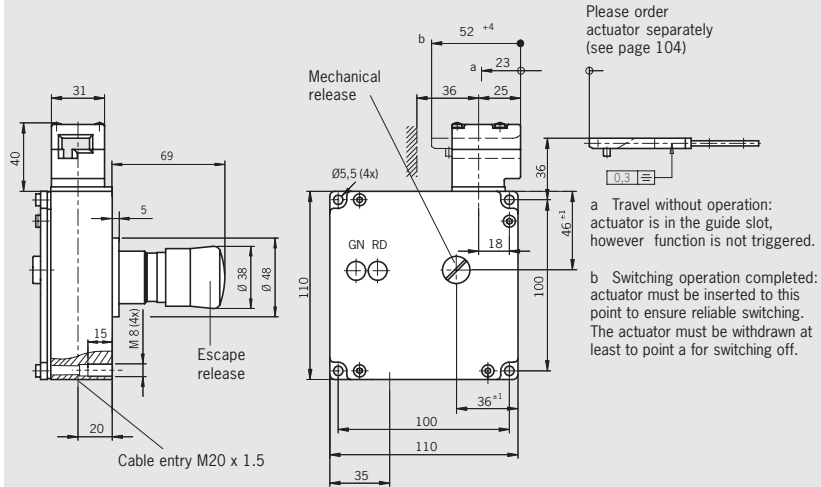
**ÜK** For monitoring the guard locking (built-in solenoid)

For combinations available see ordering table:

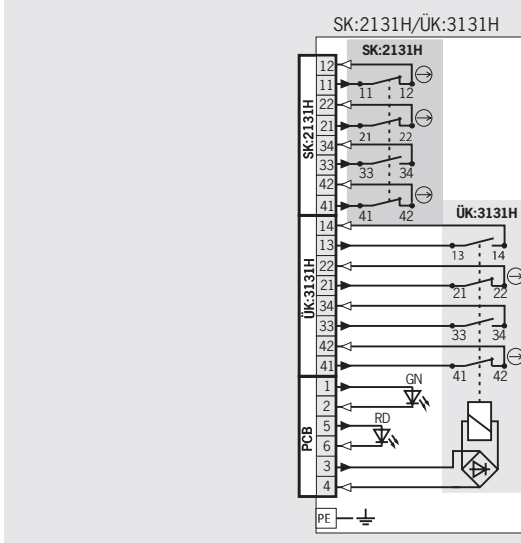
- ▶ **2131H** Slow-action switching element  
3 NC ⊖ + 1 NO
- ▶ **3131H** Slow-action switching element  
2 NC ⊖ + 2 NO

### Cable entry M20 x 1.5

### Dimension drawings Actuating head on left is a mirror image



### Wiring diagrams Actuator inserted and locked



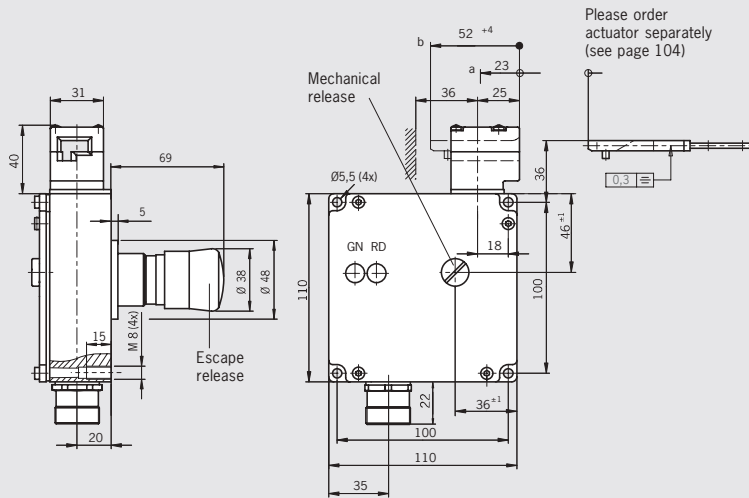
### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover	
						24 V	110 V
TZ	M20x1.5	1 Mechanical	LE Left	SK: 2131H, 3 NC ⊖ + 1 NO ÜK: 3131H, 2 NC ⊖ + 2 NO	C2082 Escape release (pushbutton)	096 487 TZ1LE024MVAB-C2082	095 992 TZ1LE110MVAB-C2082
			RE Right	SK: 2131H, 3 NC ⊖ + 1 NO ÜK: 3131H, 2 NC ⊖ + 2 NO	C2082 Escape release (pushbutton)	096 488 TZ1RE024MVAB-C2082	095 103 TZ1RE110MVAB-C2082



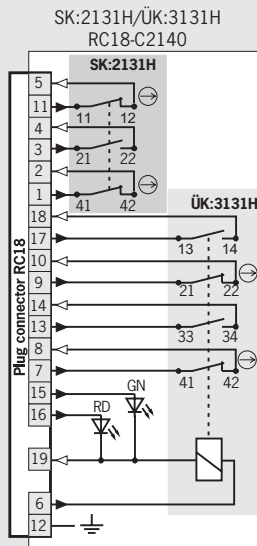
**Plug connector RC18**  
18-pin + PE

**Dimension drawings** Actuating head on left is a mirror image



For mating connectors see page 114

**Wiring diagrams** Actuator inserted and locked



**Ordering table**

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover
						24 V
TZ	RC18 Plug connector	1 Mechanical	LE Left	SK: <b>2131H</b> , 3 NC ⊕ + 1 NO ÜK: <b>3131H</b> , 2 NC ⊕ + 2 NO	<b>C2140</b> Escape release (pushbutton)	<b>098 297</b> TZ1LE024RC18VAB-C2140
			RE Right	SK: <b>2131H</b> , 3 NC ⊕ + 1 NO ÜK: <b>3131H</b> , 2 NC ⊕ + 2 NO	<b>C2140</b> Escape release (pushbutton)	<b>098 298</b> TZ1RE024RC18VAB-C2140

For safety precautions see page 164  
For technical data see page 139



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



- ▶ Mechanical release on the front
- ▶ Escape release on the rear with pushbutton
- ▶ Two LEDs, red and green
- ▶ Plug connector optional
- ▶ Actuating head fitted left or right



### Escape release

Is used for the manual release of the guard locking from within the danger area without tools.

### Solenoid operating voltage and LED function display

The following voltage ranges are available:

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

### Guard locking types

**TZ1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the solenoid.

### Switching elements (see also Page 13/14)

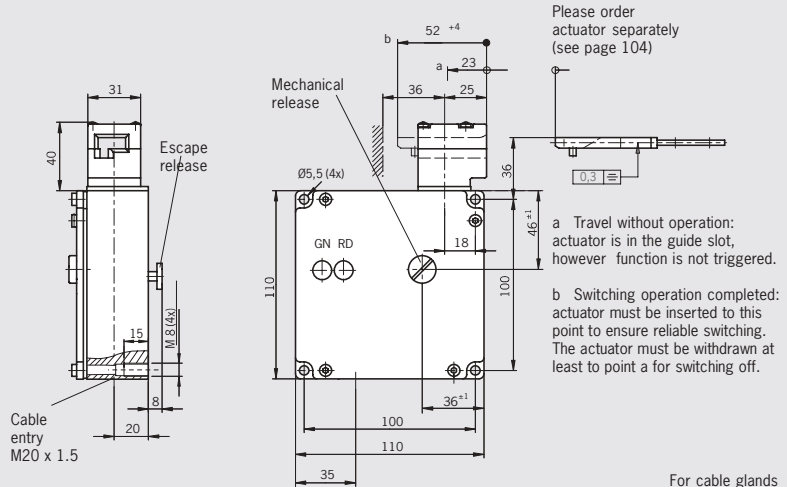
**SK** For monitoring the door/actuator position  
**ÜK** For monitoring the guard locking (built-in solenoid)

For combinations available see ordering table:

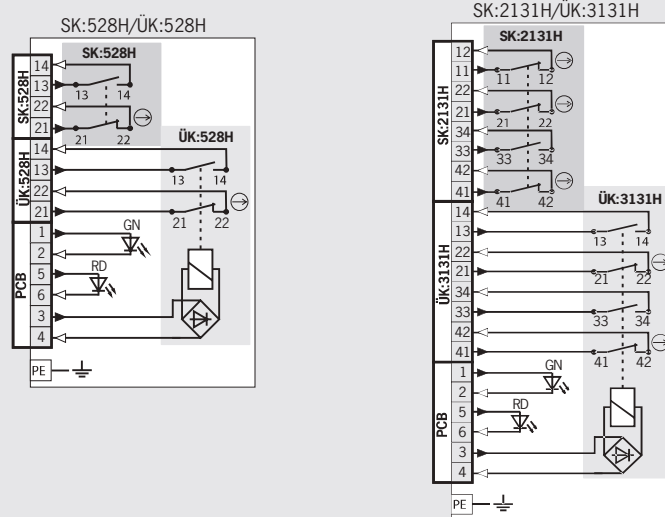
- ▶ **528H** Slow-action switching element  
1 NC ⊖ + 1 NO
- ▶ **2131H** Slow-action switching element  
3 NC ⊖ + 1 NO
- ▶ **3131H** Slow-action switching element  
2 NC ⊖ + 2 NO

### Cable entry M20 x 1.5

### Dimension drawings Actuating head on left is a mirror image



### Wiring diagrams Actuator inserted and locked



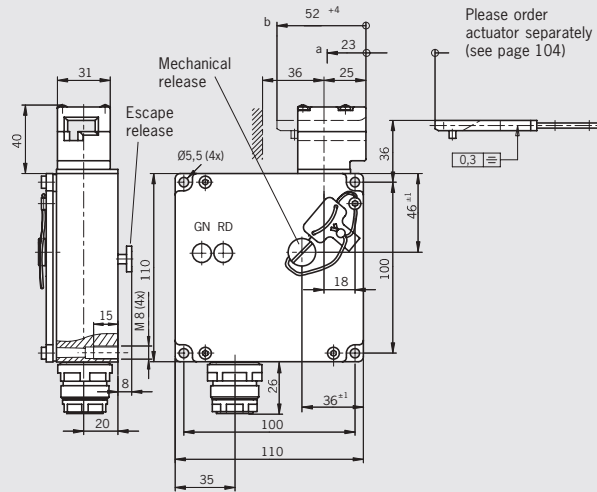
### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover		
						24 V	110 V	230 V
TZ	M20x1.5	1 Mechanical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO ÜK: 528H, 1 NC ⊖ + 1 NO	<b>C1684</b> Escape release (pushbutton)	<b>083 170</b> TZ1LE024M-C1684	<b>089 924</b> TZ1LE110M-C1684	<b>093 770</b> TZ1LE220M-C1684
				SK: 2131H, 3 NC ⊖ + 1 NO ÜK: 3131H, 2 NC ⊖ + 2 NO	<b>C1684</b> Escape release (pushbutton)	<b>084 820</b> TZ1LE024MVAB-C1684	on request	On request
			RE Right	SK: 528H, 1 NC ⊖ + 1 NO ÜK: 528H, 1 NC ⊖ + 1 NO	<b>C1684</b> Escape release (pushbutton)	<b>083 171</b> TZ1RE024M-C1684	<b>089 475</b> TZ1RE110M-C1684	<b>093 771</b> TZ1RE220M-C1684
				SK: 2131H, 3 NC ⊖ + 1 NO ÜK: 3131H, 2 NC ⊖ + 2 NO	<b>C1684</b> Escape release (pushbutton)	<b>088 084</b> TZ1RE024MVAB-C1684	On request	On request



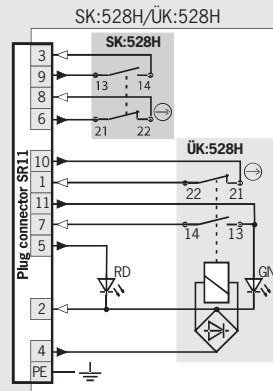
## Plug connector SR11 11-pin + PE

### Dimension drawings Actuating head on left is a mirror image



For mating connectors see page 112

### Wiring diagrams Actuator inserted and locked



### Ordering table

Series	Connection	Guard locking	Switch head	Switching element	Version	Black cover
						24 V
TZ	SR11 Plug connector	1 Mechanical	LE Left	SK: 528H, 1 NC ⊖ + 1 NO ÜK: 528H, 1 NC ⊖ + 1 NO	C1684 Escape release (pushbutton)	<b>070 886</b> TZ1LE024SR11-C1684
			RE Right	SK: 528H, 1 NC ⊖ + 1 NO ÜK: 528H, 1 NC ⊖ + 1 NO	C1684 Escape release (pushbutton)	<b>070 884</b> TZ1RE024SR11-C1684


For safety precautions see page 164  
For technical data see page 139




## Safety switch TZ 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.

Switch			
Parameter		Value	Unit
Housing material		Anodized die-cast alloy	
Mechanical life		2 x 10 <sup>6</sup> operating cycles	
Ambient temperature		- 25 ... + 80	°C
Weight		Approx. 1.2	kg
Max. approach speed		20	m/min
Actuating force		35	N
Extraction force		30	N
Retention force		10	N
Locking force, max.		2000	N
Locking force F <sub>Zl</sub> in accordance with test principles GS-ET-19		1500	N


  

Switching element			
Parameter		Value	Unit
Switching principle		Slow-action switching element	
Switching elements with 2 switching elements		SK: <b>528H</b> / ÜK: <b>528H</b> 1 NC + 1 NO / 1 NC + 1 NO	
Switching elements with 4 switching elements		SK: <b>2131H</b> / ÜK: <b>3131H</b> / SK: <b>2121H</b> / ÜK: <b>2121H</b> 3 NC + 1 NO / 2 NC + 2 NO / 4 NC / NC	
Switching current, min., at 24 V		1	mA
Rated impulse withstand voltage U <sub>imp</sub>		2.5	kV
Contact material		Silver alloy, gold flashed	


  

Guard locking			
Parameter		Value	Unit
Solenoid operating voltage	AC/DC 24 V +10/-15%	AC 110 V +10/-15% / AC 230 V +10/-15%	
Duty cycle ED		100	%
Power consumption		7	W

Connection, cable entry M20 x 1.5			
Parameter		Value	Unit
Connection		Screw terminal	
Version		M20 x 1.5	
Conductor cross-section max.		per wire 1.5 mm <sup>2</sup>	
Degree of protection acc. to IEC 60529	IP 67	IP 65: With escape release TZ...C1815, TZ...C1828 With emergency release TZ...C1816, TZ...C1823	
Rated insulation voltage U <sub>i</sub>		250	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 230 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

Connection, plug connector RC18			
Parameter		Value	Unit
Connection		Plug connector	
Version		RC18 (18-pin + PE)	
Degree of protection according to IEC 60529		IP 65 <sup>1)</sup>	
Rated insulation voltage U <sub>i</sub>		110	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 110 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

1) Screwed tight with the related plug connector (see page 113)



## Connection, plug connector SR6



Parameter		Value	Unit
Connection		Plug connector	
Version		SR6 (6-pin + PE)	
Degree of protection according to IEC 60529		IP 65 <sup>1)</sup>	
Rated insulation voltage U <sub>i</sub>		250	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 230 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

1) Screwed tight with the related plug connector (see page 112)

### Standard wiring TZ...SR6

The green LED indicates the state of the safety circuit and the red LED the state of the monitoring circuit.

**Green only:** Safety circuit closed  
**Red only:** Actuator unlocked, safety circuit open

LED		Actuator		Safety circuit	
Red	Green	Locked	Unlocked	Closed	Open
ON	ON		X	X	
ON	OFF		X		X
OFF	ON	X		X	
OFF	OFF	Not defined or no power			

The exact states of the safety circuit and the actuator can be seen in the adjacent table for the safety switch TZ...SR6.

## Connection, plug connector SR11



Parameter		Value	Unit
Connection		Plug connector	
Version		SR11 (11-pin + PE)	
Degree of protection according to IEC 60529		IP 65 <sup>1)</sup>	
Rated insulation voltage U <sub>i</sub>		50	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 50 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

## Connection, plug connector MR8



Parameter		Value	Unit
Connection		Plug connector	
Version		MR8 (7-pin + PE)	
Degree of protection according to IEC 60529		IP 65 <sup>1)</sup>	
Rated insulation voltage U <sub>i</sub>		250	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 230 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

## Connection, plug connector MR10



Parameter		Value	Unit
Connection		Plug connector	
Version		MR10 (9-pin + PE)	
Degree of protection according to IEC 60529		IP 65 <sup>1)</sup>	
Rated insulation voltage U <sub>i</sub>		250	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 230 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

## Connection, plug connector MR12



Parameter		Value	Unit
Connection		Plug connector	
Version		MR12 (11-pin + PE)	
Degree of protection according to IEC 60529		IP 65 <sup>1)</sup>	
Rated insulation voltage U <sub>i</sub>		230	V AC/DC
Conventional thermal current I <sub>th</sub>		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 <sub>e</sub> 4 A U <sub>e</sub> 60 V	
	DC13	I <sub>e</sub> 4 A U <sub>e</sub> 24 V	

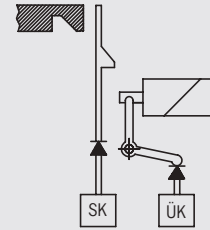
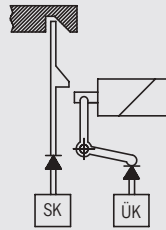
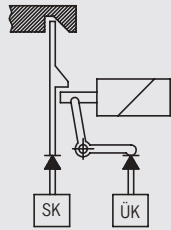
## Switching functions TZ

Actuator:  
Switching  
position:

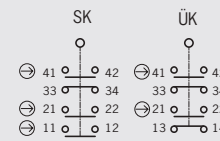
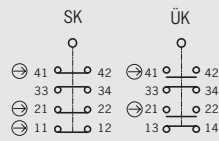
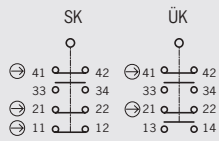
Inserted  
locked

Inserted  
not locked

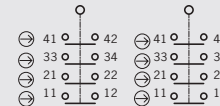
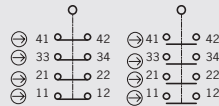
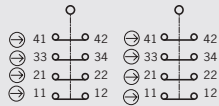
Removed  
not locked



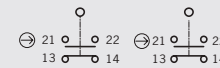
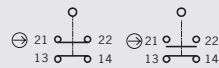
SK ÜK  
SK 2131H  
ÜK 3131H



SK ÜK  
SK 2121H  
ÜK 2121H



SK ÜK  
SK 528H  
ÜK 528H



SK ÜK  
SK 538H  
ÜK 538H

