


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

Release feature					
HE	Mechanical release on the front				
	Door monitoring				
	STA3/4	With door monitoring contact			
	STA1/2	Without door monitoring contact			
	Connection				
			M	Thread M20x1.5 for cable gland	
				RC18	Plug connector; 18-pin + PE
Release feature	Door monitoring		Connection		Page
HE	STA3/4	STA1/2	M	RC18	
●	●		●		104
●	●			●	105
●		●	●		106





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

- ▶ Mechanical release on the front
- ▶ With door monitoring contact
- ▶ Plug connector optional



### 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 must be sealed to prevent tampering (for example with sealing lacquer).

### Solenoid operating voltage

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

### LED function display (optional)

A function display (2 LEDs, red and green) is available for the following voltage ranges:

DC 24 V +10%, -15%

### Guard locking types

**STA3** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

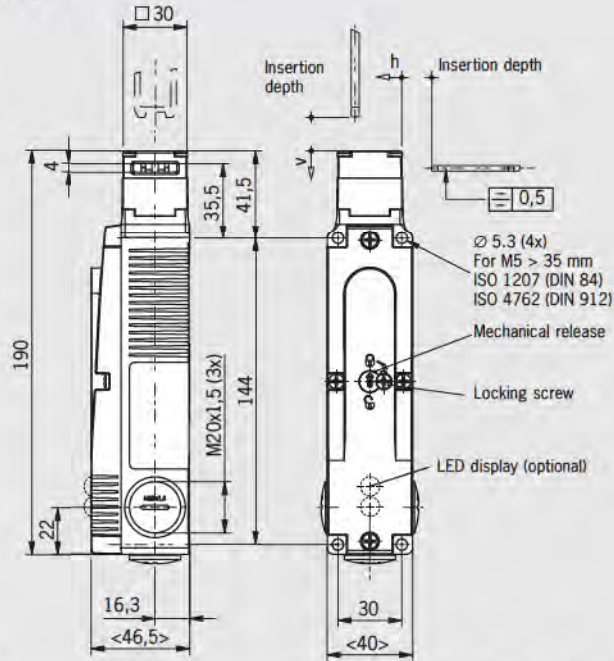
**STA4** Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

### Switching elements (see also page 13)

- ▶ **2131** Slow-action switching element  
2 NC ⊖ + 1 NO + 1 NC (door monit. contact)
- ▶ **4121** Slow-action switching element  
2 NC ⊖ + 1 NC / 1 NO (door monit. contact)
- ▶ **4131** Slow-action switching element  
2 NC ⊖ + 1 NO + 1 NO (door monit. contact)
- ▶ **4141** Slow-action switching element  
2 NC ⊖ + 2 NC (door monit. contacts)

Cable entry M20 x 1.5

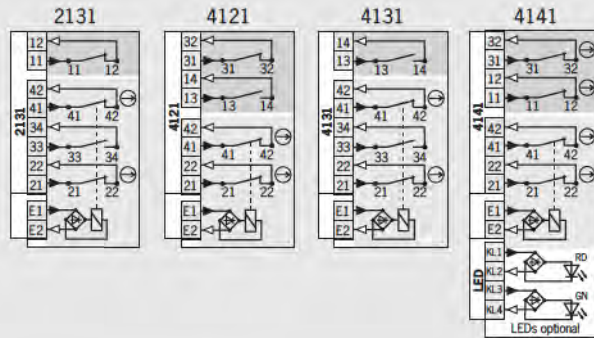
### Dimension drawing



Please order actuator separately (see page 116)

For cable glands see page 124

### Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 175

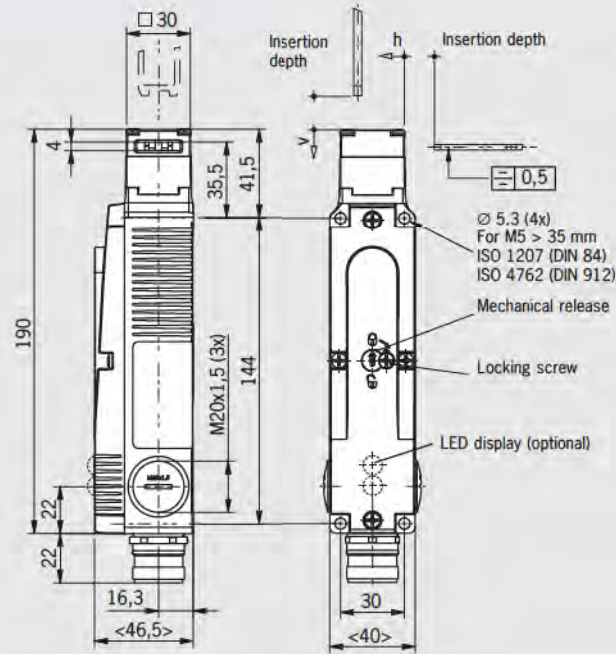
### Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage	
					AC/DC 24 V	
STA	M Cable- entry 3 x M20x1,5	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC		096 938 STA3A-2131A024M	
			4121 2 NC ⊖ + 1 NC / 1 NO		096 936 STA3A-4121A024M	
			4131 2 NC ⊖ + 1 NO + 1 NO		099 480 STA3A-4131A024M	
			4141 2 NC ⊖ + 2 NC ⊖		099 274 STA3A-4141A024M	
				024L LED display AC/DC 24 V	100 898 STA3A-4141A024L024M	
		4 Electrical	2131 2 NC ⊖ + 1 NO + 1 NC		096 939 STA4A-2131A024M	
			4121 2 NC ⊖ + 1 NC / 1 NO		096 937 STA4A-4121A024M	
			4131 2 NC ⊖ + 1 NO + 1 NC		099 481 STA4A-4131A024M	



## Plug connector RC18 18-pin + PE

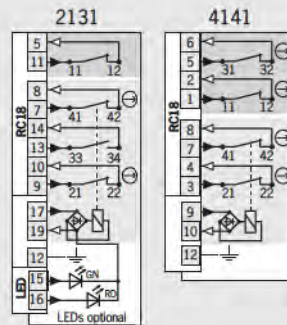
### Dimension drawing



Please order actuator separately (see page 116)

Plug connector see page 124

### Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 175

- Solenoid monitoring
- Door monitoring

### Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage	
					AC/DC 24 V	
STA	RC18 Plug-connector	3 Mechanical	2131 2 NC ⊖ + 1 NC + 1 NC	024L LED display AC/DC 24 V	099 658	STA3A-2131A024L024RC18
			4141 2 NC ⊖ + 2 NC ⊖		100 029	STA3A-4141A024RC18



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

- ▶ Mechanical release on the front
- ▶ Without door monitoring contact



### 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 must be sealed to prevent tampering (for example with sealing lacquer).

### Solenoid operating voltage

▶ AC/DC 24 V +10%, -15%

### Guard locking types

**STA1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

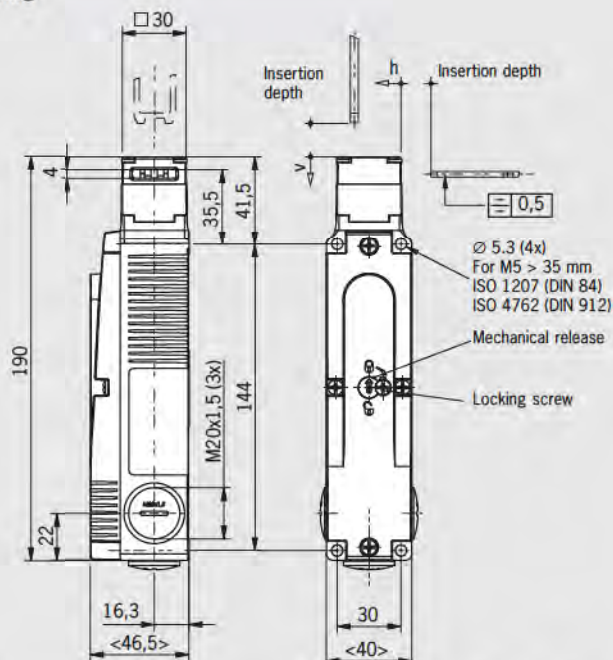
**STA2** Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

### Switching elements (see also page 13)

- ▶ **4131** Slow-action switching element  
2 NC ⊖ + 2 NO

Cable entry M20 x 1.5

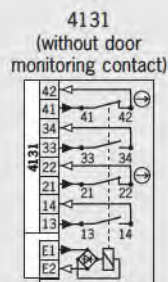
### Dimension drawing



Please order actuator separately (see page 116)

For cable glands see page 124

### Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 175

### Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage	
					AC/DC 24 V	
STA	M Cable entry 3 x M20x1.5	1 Mechanical	4131 2 NC ⊖ + 2 NO		096 439 STA1A-4131A024M	
		2 Electrical	4131 2 NC ⊖ + 2 NO		096 935 STA2A-4131A024M	

## Safety switch STA... 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		Value		Unit
Housing material		Anodized die-cast		
Mechanical life		1 x 10 <sup>6</sup> operating cycles		
Ambient temperature		- 20 ... + 80		°C
Weight		Approx. 0.6		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		
		From top (v)	Side (h)	N
		3000	3000	
Locking force F <sub>Zh</sub> in accordance with test principles GS-ET-19		Approach direction		
		From top (v)	Side (h)	N
	Straight actuator	2300	2300	
Insertion depth (minimum required travel + permissible overtravel)	Standard actuator S	Actuator L for insertion funnel		
Approach direction side (h)		24.5 + 5	28.5 + 5	mm
Approach direction from top (v)		24.5 + 5	28.5 + 5	mm

Switching element		Value			Unit
Switching principle		Slow-action switching element			
Switching elements	<b>2131</b>	<b>4121</b>	<b>4131</b>	<b>4141</b>	
with 4 switching elements	2 NC + 1 NO + 1 NC	2 NC + 1 NC + 1 NO	2 NC + 2 NO	2 NC + 2 NC	
Switching current, min., at 24 V DC		1			mA
Switching voltage, min., at 10 mA		12			V
Contact material		Silver alloy, gold flashed			

Guard locking		Value		Unit
Solenoid operating voltage		AC/DC 24 V +10/-15%		
Connection		Reverse polarity protected, integrated bridge rectifier		
Duty cycle ED		100		%
Power consumption		8		W

Connection, cable entry M20 x 1.5		Value		Unit
Connection		Screw terminal		
Version		M20 x 1.5		
Conductor cross-section max.		0.34 ... 1.5		mm <sup>2</sup>
Degree of protection according to IEC 60529		IP 67		
Rated impulse withstand voltage U <sub>imp</sub>		2.5		kV
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	Ie 4 A Ue 230 V	
	DC13	Ie 4 A Ue 24 V		

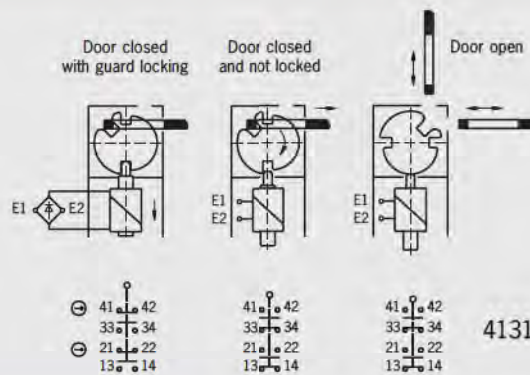
**Connection, plug connector RC18**



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 $U_i$		110	V AC/DC
Rated impulse withstand voltage $U_{imp}$		2.5	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	AC-15	$I_e$ 4 A $U_e$ 110 V	
	DC-13	$I_e$ 4 A $U_e$ 24 V	

1) Screwed tight with the related plug connector (see page 121)

**Switching functions STA1/STA2 without door monitoring contact**



**Switching functions STA3/STA4 with door monitoring contact**

