

Safety Switches with Separate Actuator, Plastic Housing **EUCHNER**

Selection table for safety switches TP with guard locking and guard lock monitoring

Release feature													
HE		Mechanical release on the front											
FE		Escape release on the rear side											
Door monitoring													
TP1/2		Without door monitoring contact											
TP3/4		With door monitoring contact											
TP5/6		With door unlock request contact											
Overtravel													
A		Increased horizontal overtravel											
K		Increased horizontal and vertical overtravel											
Connection													
M		Thread M20x1.5 for cable glands											
SR6		Plug connector; 6-pin+PE											
SM8		Plug connector M12; 8-pin											
SR11		Plug connector; 11-pin+PE											
BHA12		Plug connector; 12-pin											
RC18		Plug connector; 18-pin. + PE											
Release feature		Door monitoring			Overtravel		Connection						Page
HE	FE	TP1/2	TP3/4	TP5/6	A	K	M	SR6	SM8	SR11	BHA12	RC18	
●		●			●		●						44
●		●			●			●		●			45
●		●				●	●						46
●		●				●		●		●			47
●			●		●		●						48 - 51
●			●		●			●	●				52
●			●		●					●			53
●			●			●	●						54
●			●			●		●		●			55
●				●	●		●			●			56
●	●		●		●		●			●			57
●			●		●						●	●	58
●	●		●		●							●	59



Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ Without door monitoring contact
- ▶ Increased horizontal overtravel



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

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 110 V +10%, -15%
- ▶ AC 230 V +10%, -15%

LED function display (optional)

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

- ▶ AC/DC 24 V +10%, -15%

Guard locking types

TP1 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

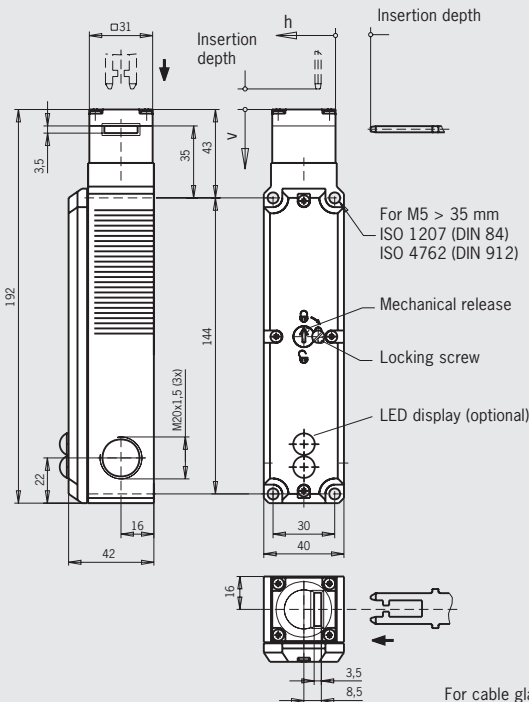
TP2 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

- ▶ **528** Slow-action switching element 1 NC ⊖ + 1 NO
- ▶ **538** Slow-action switching element 2 NC ⊖
- ▶ **2121** Slow-action switching element 4 NC ⊖
- ▶ **4131** Slow-action switching element 2 NC ⊖ + 2 NO

Cable entry M20 x 1.5

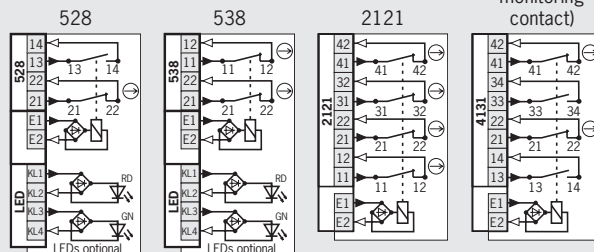
Dimension drawing



Please order actuator separately (see pages 90-93)

For cable glands see page 104

Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 131

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TP	M Cable entry 3 x M20 x 1.5	1 Mechanical	528 1 NC ⊖ + 1 NO		084295 TP1-528A024M	084300 TP1-528A110M	084304 TP1-528A230M
			528 1 NC ⊖ + 1 NO	024L LED display AC/DC 24 V	094058 TP1-528A024L024M	-	-
			538 2 NC ⊖		084310 TP1-538A024M	084315 TP1-538A110M	084320 TP1-538A230M
			538 2 NC	024L LED display AC/DC 24 V	093459 TP1-538A024L024M	-	-
		2 Electrical	4131 2 NC ⊖ + 2 NO		084115 TP1-4131A024M	084116 TP1-4131A110M	084117 TP1-4131A230M
			528 1 NC ⊖ + 1 NO		084325 TP2-528A024M	084330 TP2-528A110M	084332 TP2-528A230M
			538 2 NC ⊖		084333 TP2-538A024M	084334 TP2-538A110M	084335 TP2-538A230M
			2121 4 NC ⊖		096528 TP2-2121A024M	-	-
	4131 2 NC ⊖ + 2 NO		084125 TP2-4131A024M	084126 TP2-4131A110M	084128 TP2-4131A230M		

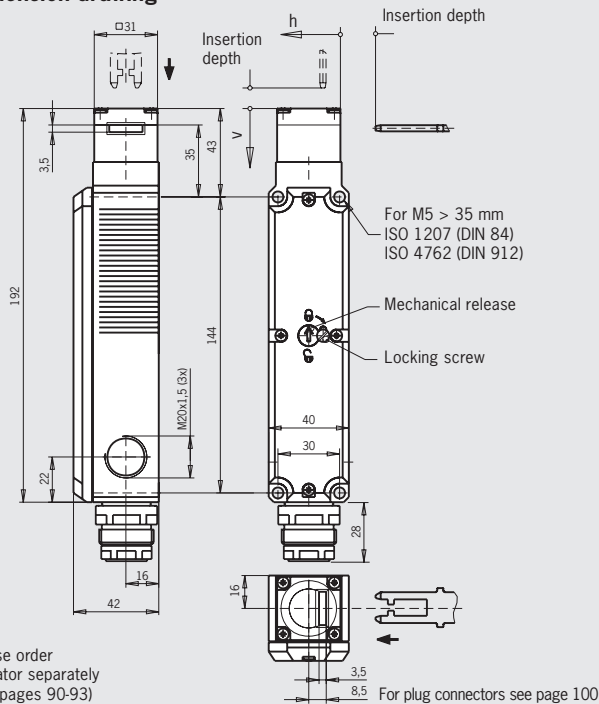
1) with cable entry M, DC 24 V / AC 110 V

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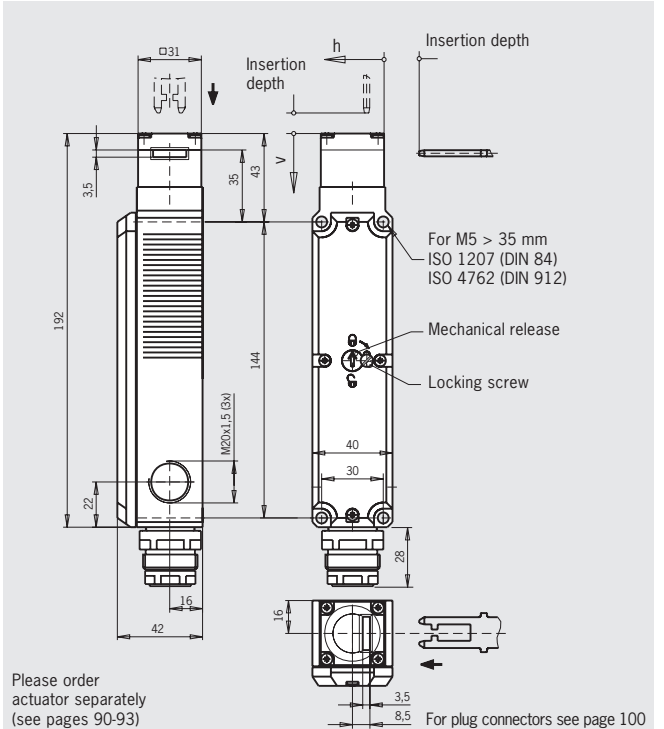


Plug connector SR6 6-pin + PE

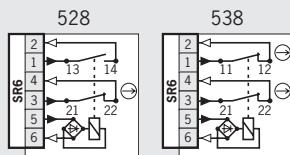
Dimension drawing



Plug connector SR11 11-pin + PE

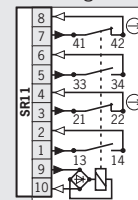


Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 131

4131 (without door monitoring contact)



For switching functions see technical data on page 131

Ordering table

Series	Connection	Guard locking	Switching element	Solenoid operating voltage		
				AC/DC 24 V	AC 110 V	AC 230 V
TP	SR6 Plug connector	1 Mechanical	528 1 NC ⊖ + 1 NO	087431 TP1-528A024SR6	087435 TP1-528A110SR6	087438 TP1-528A230SR6
			538 2 NC ⊖	087433 TP1-538A024SR6	087436 TP1-538A110SR6	087439 TP1-538A230SR6
		2 Electrical	528 1 NC ⊖ + 1 NO	087441 TP2-528A024SR6	087444 TP2-528A110SR6	087448 TP2-528A230SR6
			538 2 NC ⊖	087442 TP2-538A024SR6	087446 TP2-538A110SR6	087449 TP2-538A230SR6
	SR11 Plug connector	1 Mechanical	4131 2 NC ⊖ + 2 NO	088202 TP1-4131A024SR11	-	-
		2 Electrical	4131 2 NC ⊖ + 2 NO	088203 TP2-4131A024SR11	-	-

2) With solenoid operating voltage AC/DC 24 V only

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





Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ Without door monitoring contact
- ▶ Increased overtravel for horizontal and vertical approach direction



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal and vertical approach direction.

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 110 V +10%, -15%
- ▶ AC 230 V +10%, -15%

Guard locking types

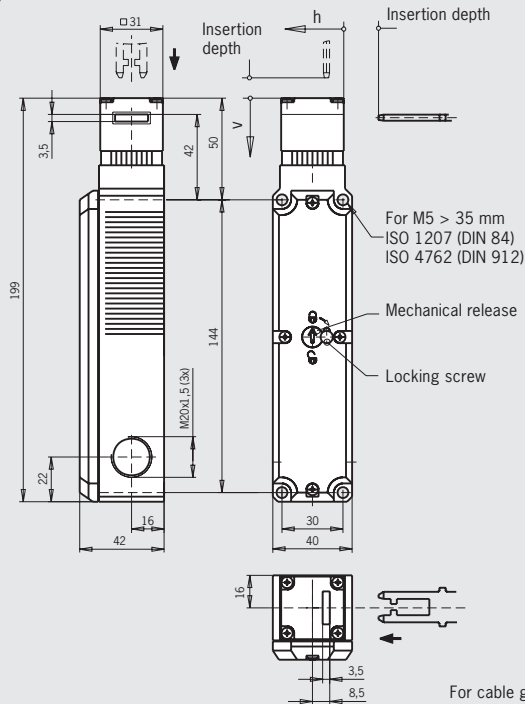
- TP1** Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.
- TP2** Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

- ▶ **528** Slow-action switching element 1 NC ⊖ + 1 NO
- ▶ **538** Slow-action switching element 2 NC ⊖
- ▶ **4131** Slow-action switching element 2 NC ⊖ + 2 NO

Cable entry M20 x 1.5

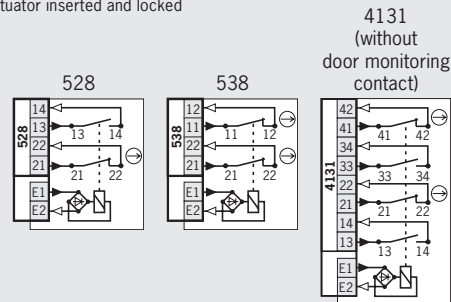
Dimension drawing



Please order actuator separately (see pages 90-93)

For cable glands see page 104

Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 131

Ordering table

Series	Connection	Guard locking	Switching element	Solenoid operating voltage		
				AC/DC 24 V	AC 110 V	AC 230 V
TP	M Cable entry 3 x M20 x 1.5	1 Mechanical	528 1 NC ⊖ + 1 NO	084342 TP1-528K024M	On request	On request
			538 2 NC ⊖	084343 TP1-538K024M	On request	On request
			4131 2 NC ⊖ + 2 NO	084150 TP1-4131K024M	084254 TP1-4131K110M	084255 TP1-4131K230M
		2 Electrical	528 1 NC ⊖ + 1 NO	084344 TP2-528K024M	On request	On request
			538 2 NC ⊖	084346 TP2-538K024M	On request	On request
			4131 2 NC ⊖ + 2 NO	084253 TP2-4131K024M	On request	On request

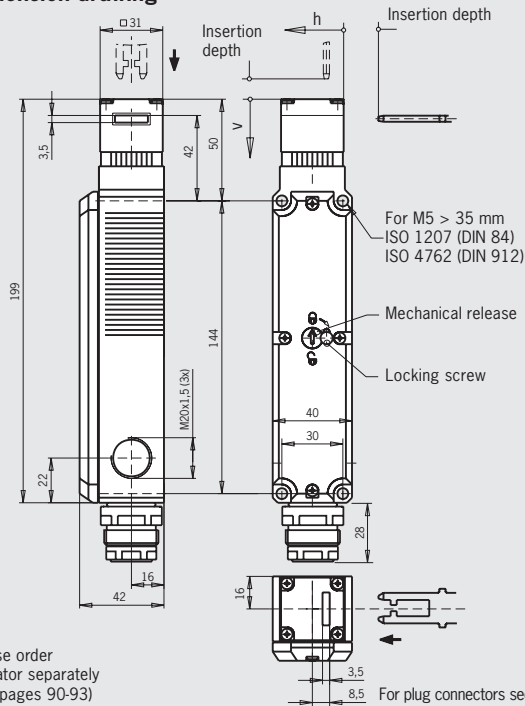
1) With cable entry M, DC 24 V / AC 110 V

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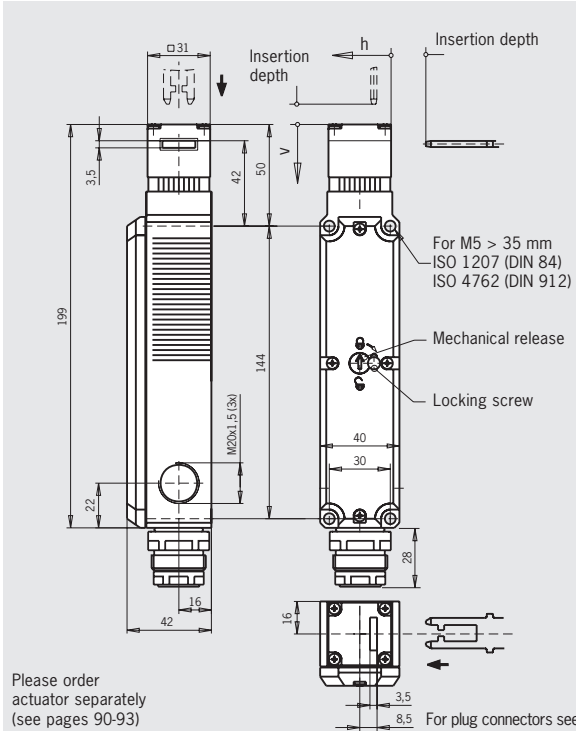


Plug connector SR6 6-pin + PE

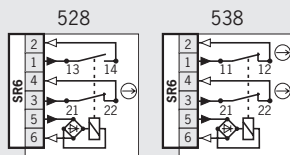
Dimension drawing



Plug connector SR11 11-pin + PE

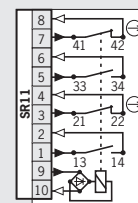


Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 131

4131 (without door monitoring contact)



For switching functions see technical data on page 131

Ordering table

Series	Connection	Guard locking	Switching element	Solenoid operating voltage		
				AC/DC 24 V	AC 110 V	AC 230 V
TP	SR6 Plug connector	1 Mechanical	528 1 NC ⊖ + 1 NO	088210 TP1-528K024SR6	On request	On request
			538 2 NC ⊖	088212 TP1-538K024SR6	On request	On request
		2 Electrical	528 1 NC ⊖ + 1 NO	088214 TP2-528K024SR6	On request	On request
			538 2 NC ⊖	088215 TP2-538K024SR6	On request	On request
	SR11 Plug connector	1 Mechanical	4131 2 NC ⊖ + 2 NO	088217 TP1-4131K024SR11	-	-
		2 Electrical	4131 2 NC ⊖ + 2 NO	088218 TP2-4131K024SR11	-	-

2) With solenoid operating voltage AC/DC 24 V only

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





Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ With door monitoring contact
- ▶ Increased horizontal overtravel



Approach direction

Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.



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 110 V +10%, -15%
- ▶ AC 230 V +10%, -15%

Guard locking types

TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

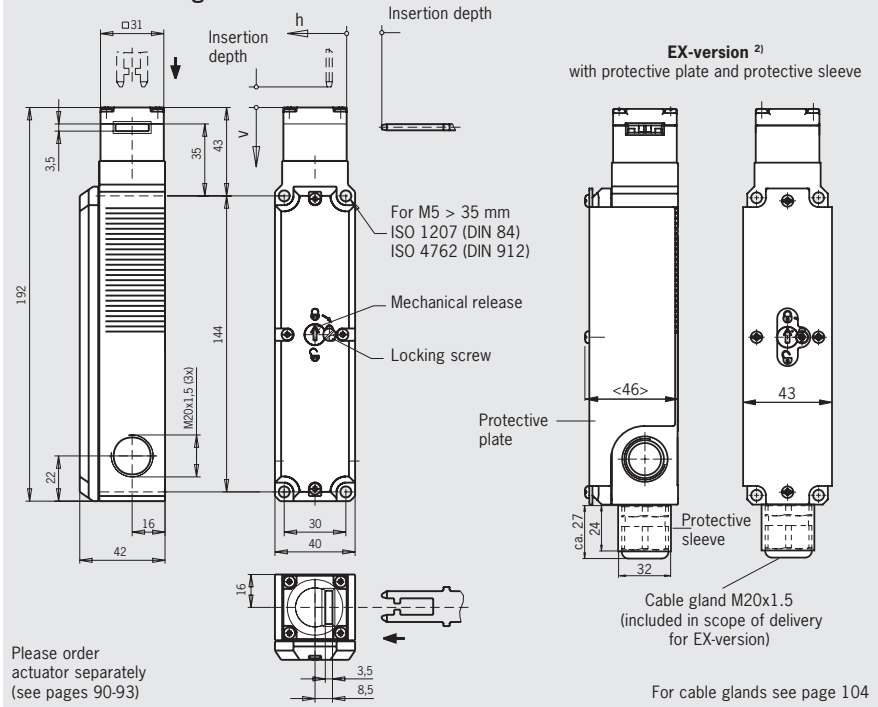
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

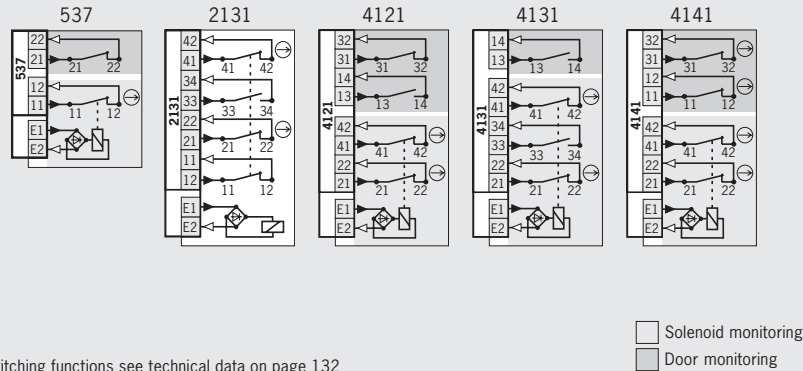
- ▶ **537** Slow-action switching element
1 NC ⊖ + 1 NC (door monitoring contact)
- ▶ **2131** Slow-action switching element
2 NC ⊖ + 1 NO + 1 NC (door monitoring contact)
- ▶ **4121** Slow-action switching element
2 NC ⊖ + 1 NC / 1 NO (door monit. contact)
- ▶ **4131** Slow-action switching element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



Wiring diagrams Actuator inserted and locked



Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TP	M Cable entry 3 x M20 x 1.5	3 Mechanical	537 1 NC ⊖ + 1 NC		084336 TP3-537A024M	084337 TP3-537A110M	084338 TP3-537A230M
					084142 TP3-2131A024M	084143 TP3-2131A110M	084144 TP3-2131A230M
			2131 2 NC ⊖ + 1 NO + 1 NC	ATEX Incl. cable gland	093791 2) TP3-2131A024M-EX	-	-
				C1761 Cable wiring in rear of housing	084290 3) TP3-2131A024MC1761	-	-
			4121 2 NC ⊖ + 1 NC / 1 NO		084135 TP3-4121A024M	084137 TP3-4121A110M	084138 TP3-4121A230M
			4131 2 NC ⊖ + 1 NO + 1 NO		084129 TP3-4131A024M	084130 TP3-4131A110M	084131 TP3-4131A230M
4141 2 NC ⊖ + 2 NC ⊖		084270 TP3-4141A024M	088264 TP3-4141A110M	-			

1) With cable entry M, DC 24 V / AC 110 V 2) Ⓜ III 3 G Ex nC IIB T4 X / Ⓜ II 3 D Ex tD A22 T110°C X 3) No approvals

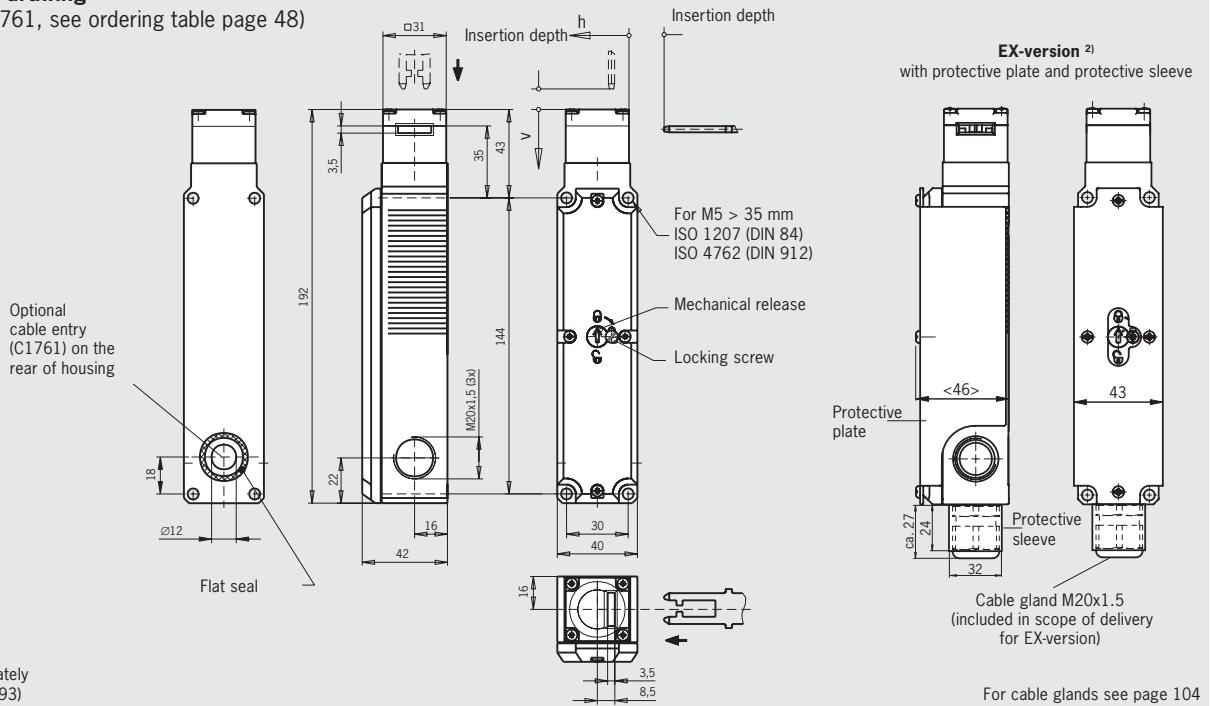
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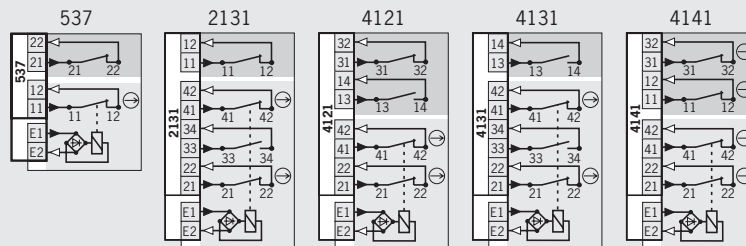
Cable entry M20 x 1.5

Dimension drawing

(Version C1761, see ordering table page 48)



Wiring diagrams Actuator inserted and locked



□ Solenoid monitoring
■ Door monitoring

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TP	M Cable entry 3 x M20 x 1.5	4 Electrical	537 1 NC ⊖ + 1 NC		084339 TP4-537A024M	084340 TP4-537A110M	084341 TP4-537A230M
			2131 2 NC ⊖ + 1 NO + 1 NC		084145 TP4-2131A024M	084147 TP4-2131A110M	084148 TP4-2131A230M
			2131 2 NC ⊖ + 1 NO + 1 NC	ATEX Incl. cable gland	093793 ²⁾ TP4-2131A024M-EX	-	-
			4121 2 NC ⊖ + 1 NC / 1 NO		084139 TP4-4121A024M	084140 TP4-4121A110M	084141 TP4-4121A230M
			4131 2 NC ⊖ + 1 NO + 1 NO		084132 TP4-4131A024M	084133 TP4-4131A110M	084134 TP4-4131A230M
			4141 2 NC ⊖ + 2 NC ⊖		084275 TP4-4141A024M	-	-

1) With cable entry M, DC 24 V / AC 110 V 2) Ⓜ II 3 G Ex nC IIB T4 X / Ⓜ II 3 D Ex tD A22 T110°C X

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





Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ With door monitoring contact
- ▶ Increased horizontal overtravel



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

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%

LED function display

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

- ▶ AC/DC 24 V +10%, -15%

Guard locking types

TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

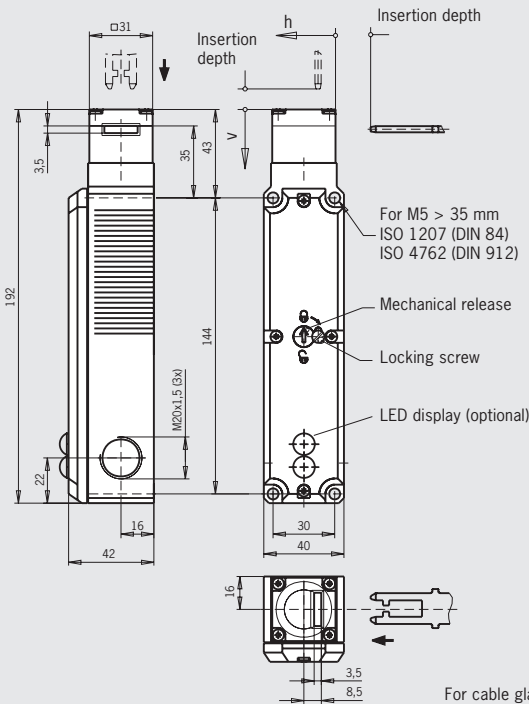
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

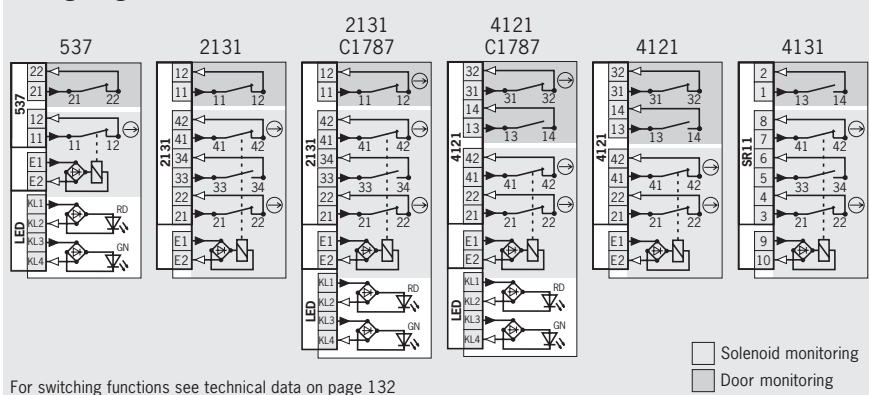
- ▶ **537** Slow-action switching element
1 NC ⊖ + 1 NC (door monitoring contact)
- ▶ **2131** Slow-action switching element
2 NC ⊖ + 1 NO + 1 NC (door monit. contact)
- ▶ **4121** Slow-action switching element
2 NC ⊖ + 1 NC / 1 NO (door monit. contact)
- ▶ **4131** Slow-action switching element
2 NC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

Cable entry M20 x 1.5

Dimension drawing



Wiring diagrams Actuator inserted and locked



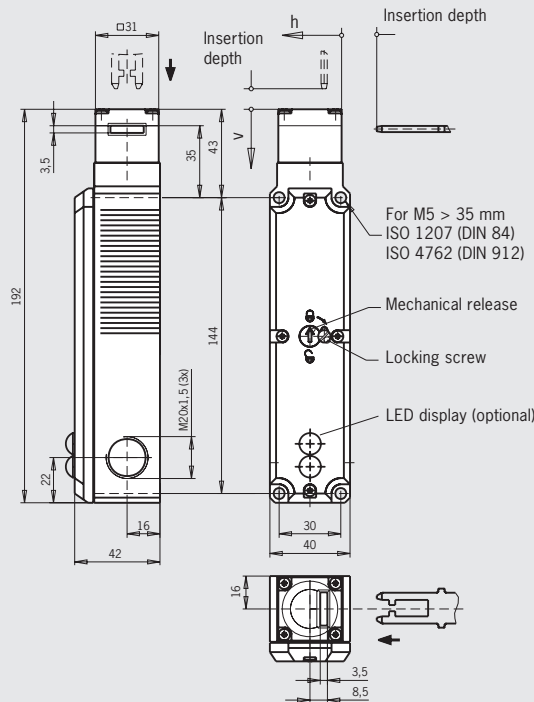
Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage
					AC/DC 24 V
TP	M Cable entry 3 x M20 x 1.5	3 Mechanical	537 1 NC ⊖ + 1 NC	O24L LED display AC/DC 24 V	093460 TP3-537A024L024M
			2131 2 NC ⊖ + 1 NO + 1 NC	O24L LED display AC/DC 24 V	093634 TP3-2131A024L024M
			2131 2 NC ⊖ + 1 NO + 1 NC ⊖	C1787 3 positively driven contacts	084289 TP3-2131A024MC1787
			4121 2 NC ⊖ + 1 NC / 1NO	O24L LED display AC/DC 24 V	093636 TP3-4121A024L024M
			4121 2 NC ⊖ + 1 NC ⊖ + 1 NO	C1787 3 positively driven contacts	084158 TP3-4121A024MC1787
			4131 2 NC ⊖ + 1 NO + 1NO	O24L LED display AC/DC 24 V	098403 TP3-4131A024L024M



Cable entry M20 x 1.5

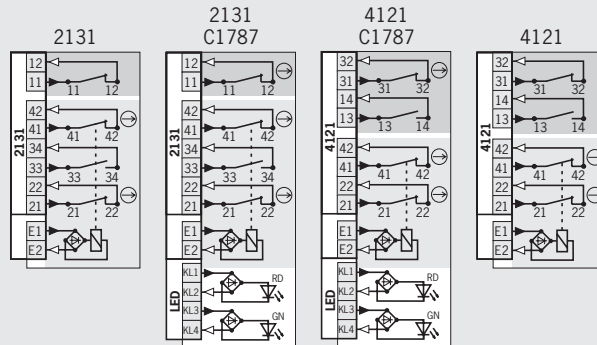
Dimension drawing



Please order actuator separately (see pages 90-93)

For cable glands see page 104

Wiring diagrams Actuator inserted and locked



Solenoid monitoring
 Door monitoring

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage
					AC/DC 24 V
TP	M Cable entry 3 x M20 x 1.5	4 Electrical	2131 2 NC ⊖ + 1 NO + 1 NC	O24L LED display AC/DC 24 V	093635 TP4-2131A024L024M
			2131 2 NC ⊖ + 1 NO + 1 NC ⊖	C1787 3 positively driven contacts	084159 TP4-2131A024MC1787
			4121 2 NC ⊖ + 1 NC / 1 NO	O24L LED display AC/DC 24 V	093637 TP4-4121A024L024M
			4121 2 NC ⊖ + 1 NC ⊖ + 1 S	C1787 3 positively driven contact	084160 TP4-4121A024MC1787

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



Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ With door monitoring contact
- ▶ Increased horizontal overtravel



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

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 110 V +10%, -15%
- ▶ AC 230 V +10%, -15%

Guard locking types

TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

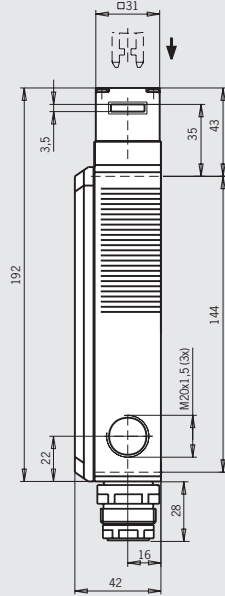
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

- ▶ **537** Slow-action switching element
1 NC ⊖ + 1 NC (door monitoring contact)
- ▶ **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)

Plug connector SR6 6-pin + PE

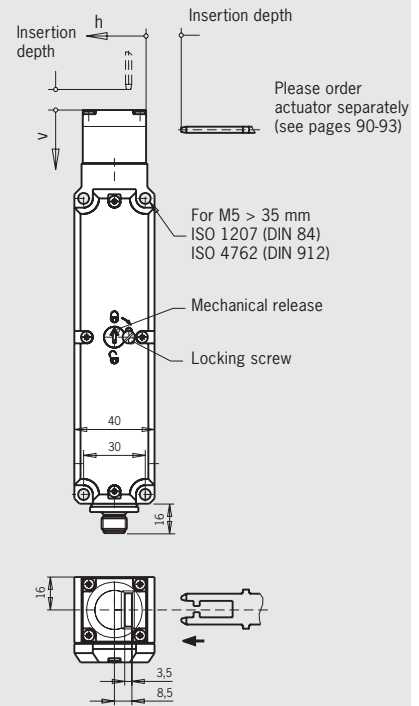
Dimension drawing



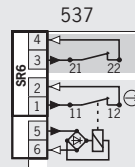
Please order actuator separately (see pages 90-93)

For plug connectors see page 100

Plug connector SM8 Plug M12, 8-pin

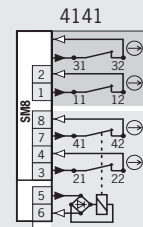


Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 132



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TP	SR6 Plug connector	3 Mechanical	537 1 NC ⊖ + 1 NC	C1992 Direct connection to safe bus module	087434 TP3-537A024SR6	087437 TP3-537A110SR6	087440 TP3-537A230SR6
		4 Electrical	537 1 NC ⊖ + 1 NC		087443 TP4-537A024SR6	087447 TP4-537A110SR6	087450 TP4-537A230SR6
	SM8 Plug connector M12	3 Mechanical	4141 2 NC ⊖ + 2 NC ⊖	C1992 Direct connection to safe bus module	087377 ¹⁾ TP3-4141A024SM8C1992	-	-
		4 Electrical	4141 2 NC ⊖ + 2 NC ⊖		087378 ¹⁾ TP4-4141A024SM8C1992	-	-

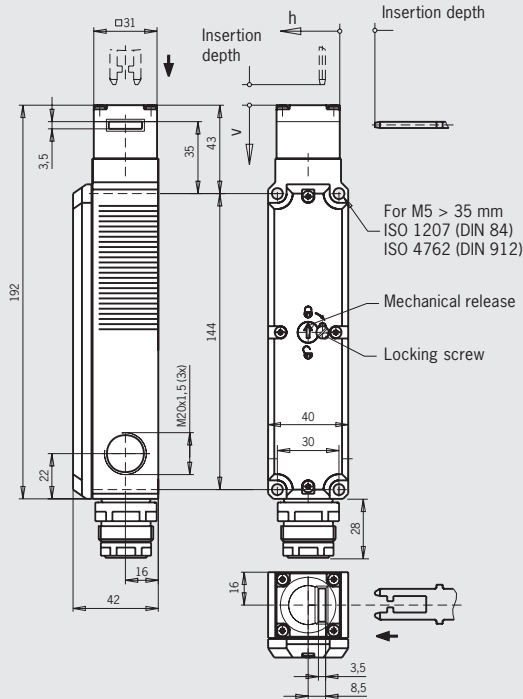
1) No BG approval

2) With solenoid operating voltage AC/DC 24 V only



Plug connector SR11 11-pin + PE

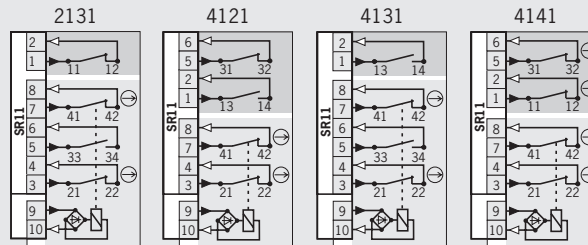
Dimension drawing



Please order actuator separately (see pages 90-93)

For plug connectors see page 100

Wiring diagrams Actuator inserted and locked



□ Solenoid monitoring
■ Door monitoring

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TP	SR11 Plug connector	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC		088205 TP3-2131A024SR11	-	-
			4121 2 NC ⊖ + 1 NC / 1 NO		088206 TP3-4121A024SR11	-	-
			4131 2 NC ⊖ + 1 NO + 1 NO		088204 TP3-4131A024SR11	-	-
			4141 2 NC ⊖ + 2 NC ⊖		088922 TP3-4141A024SR11	-	-
			2131 2 NC ⊖ + 1 NO + 1 NC		088208 TP4-2131A024SR11	-	-
		4 Electrical	4121 2 NC ⊖ + 1 NC / 1 NO		088209 TP4-4121A024SR11	-	-
			4131 2 NC ⊖ + 1 NO + 1 NO		088207 TP4-4131A024SR11	-	-
			4141 2 NC ⊖ + 2 NC ⊖		088923 TP4-4141A024SR11	-	-

2) With solenoid operating voltage AC/DC 24 V only

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





Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ With door monitoring contact
- ▶ Increased overtravel for horizontal and vertical approach direction



Approach direction

Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal and vertical approach direction.

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 110 V +10%, -15%
- ▶ AC 230 V +10%, -15%

Guard locking types

TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

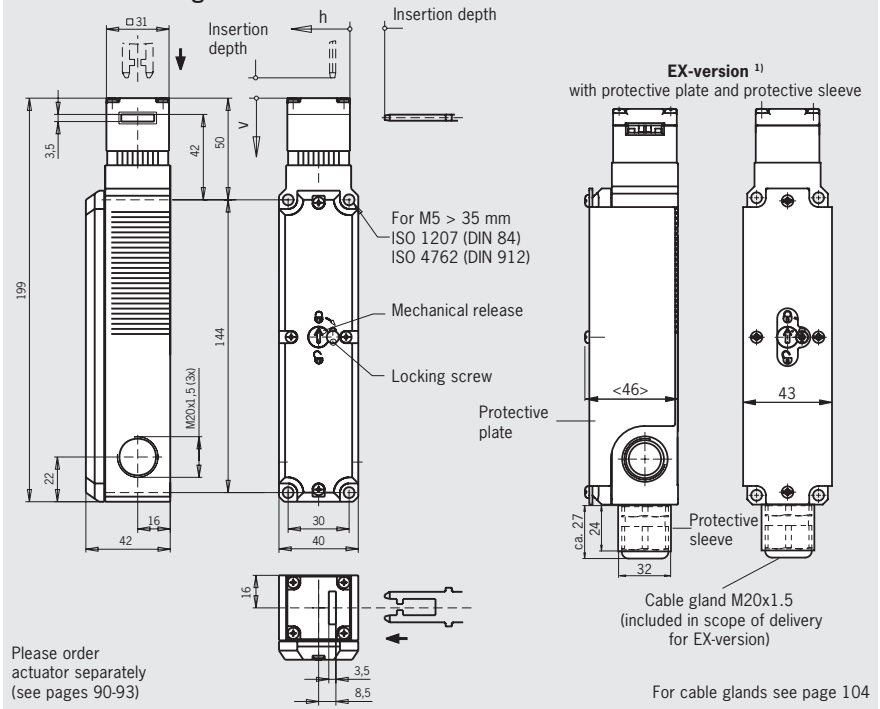
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

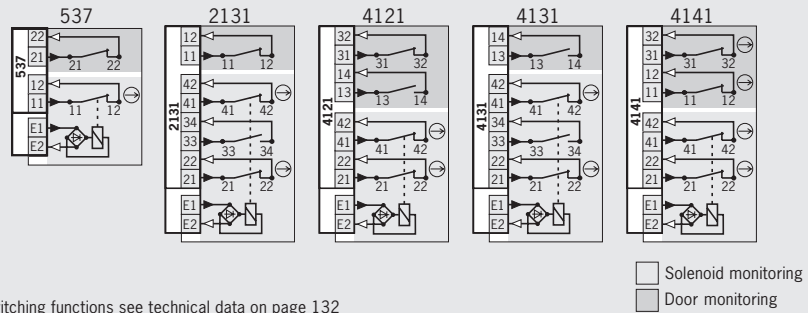
- ▶ **537** Slow-action switching element
1 NC ⊖ + 1 NC (door monitoring contact)
- ▶ **2131** Slow-action switching element
2 NC ⊖ + 1 NO + 1 NC (door monit. contact)
- ▶ **4121** Slow-action switching element
2 NC ⊖ + 1 NC / 1 NO (door monit. contact)
- ▶ **4131** Slow-action switching element
2 NC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

Cable entry M20 x 1.5

Dimension drawing



Wiring diagrams Actuator inserted and locked



Ordering table

Series	Connection	Guard locking	Switching element	Solenoid operating voltage		
				AC/DC 24 V	AC 110 V	AC 230 V
TP	M Cable entry 3 x M20 x 1.5	3 Mechanical	537 1 NC ⊖ + 1 NO	084347 TP3-537K024M	On request	On request
			2131 2 NC ⊖ + 1 NO + 1 NC	084264 TP3-2131K024M	On request	084265 TP3-2131K230M
			4121 2 NC ⊖ + 1 NC + 1 NO	084260 TP3-4121K024M	084261 TP3-4121K110M	084262 TP3-4121K230M
			4121 2 NC ⊖ + 1 NC / 1 NO	094152 ²⁾ TP3-4121K024M-EX	-	-
			4131 2 NC ⊖ + 1 NO + 1 NO	084256 TP3-4131K024M	084257 TP3-4131K110M	084258 TP3-4131K230M
		4141 2 NC ⊖ + 2 NC ⊖	100684 TP3-4141K024M	-	-	
		4 Electrical	537 1 NC ⊖ + 1 NO	084348 TP4-537K024M	084349 TP4-537K110M	On request
			2131 2 NC ⊖ + 1 NO + 1 NC	084266 TP4-2131K024M	On request	On request
			4121 2 NC ⊖ + 1 NC / 1 NO	084263 TP4-4121K024M	084380 TP4-4121K110M	On request
			4131 2 NC ⊖ + 1 NO + 1 NO	084259 TP4-4131K024M	On request	On request
4141 2 0 ⊖ + 2 0 ⊖	096296 TP4-4141K024M		-	-		

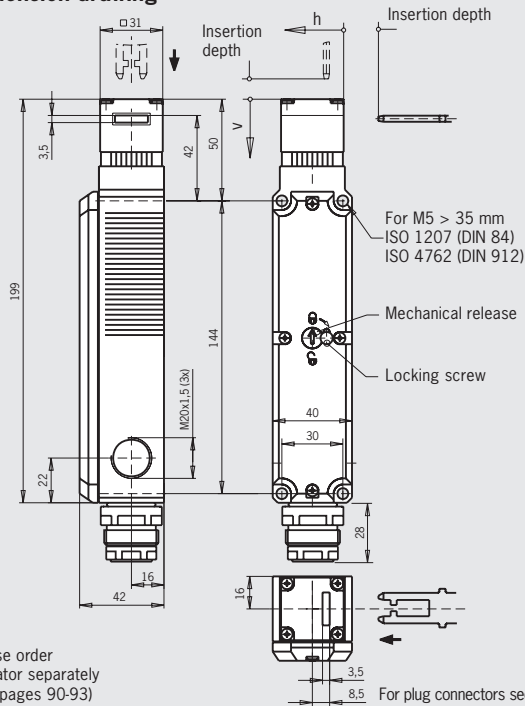
1) With cable entry M, DC 24 V / AC 110 V 2) Ex II 3 G Ex nC IIB T4 X / Ex II 3 D Ex tD A22 T110°C X

Safety Switches with Separate Actuator, Plastic Housing **EUCHNER**

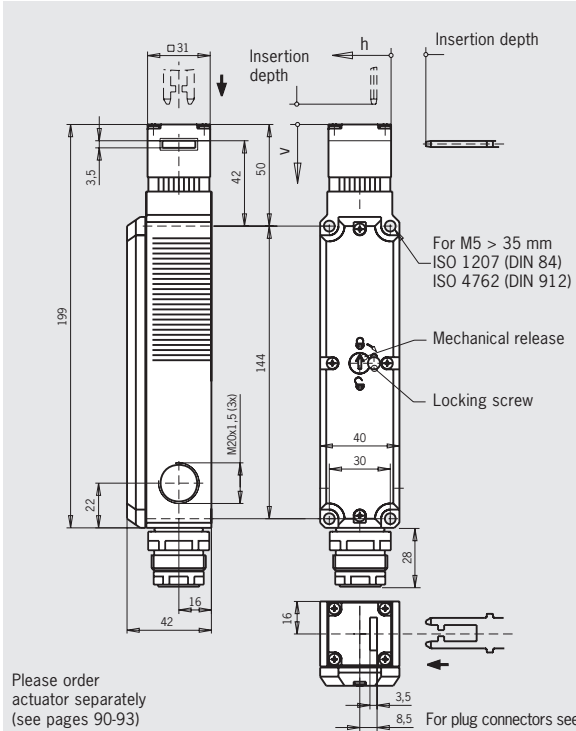


Plug connector SR6 6-pin + PE

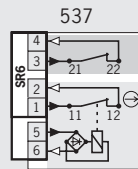
Dimension drawing



Plug connector SR11 11-pin + PE

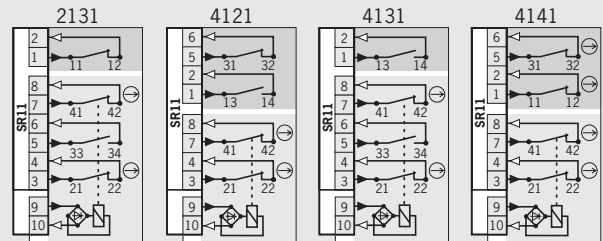


Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 132



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Solenoid operating voltage	
				AC/DC 24 V	
TP	SR6 Plug connector	3 Mechanical	537 1 NC ⊖ + 1 NO	088213	TP3-537K024SR6
		4 Electrical	537 1 NC ⊖ + 1 NO	088216	TP4-537K024SR6
	SR11 Plug connector	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC	088220	TP3-2131K024SR11
			4121 2 NC ⊖ + 1 NC / 1 NO	088221	TP3-4121K024SR11
			4131 2 NC ⊖ + 1 NO + 1 NO	088219	TP3-4131K024SR11
			2131 2 NC ⊖ + 1 NO + 1 NC	088223	TP4-2131K024SR11
		4 Electrical	4121 2 NC ⊖ + 1 NC / 1 NO	088224	TP4-4121K024SR11
			4131 2 NC ⊖ + 1 NO + 1 NO	088222	TP4-4131K024SR11
			4141 2 NC ⊖ + 2 NC ⊖	088230	TP4-4141K024SR11

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





Safety switch TP with guard locking and guard lock monitoring

- ▶ Auxiliary shutdown feature on the front
- ▶ With door unlock request contact
- ▶ Increased horizontal overtravel



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

Auxiliary shutdown feature

When actuated, positively driven contacts 21-22 are opened. The safety guard remains locked. The auxiliary shutdown feature must be sealed to prevent tampering (for example with sealing lacquer).

Door unlock request contact

When the actuator is in the locked state positively driven contact 21-22 is opened by pulling the safety guard (6 mm actuator stroke) as a result of which a signal is forwarded to the controlling PLC. Depending on the control concept, the safety guard can be unlocked automatically – when machine components which were still running have stopped.

Solenoid operating voltage

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

LED function display (optional)

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

- ▶ AC/DC 24 V +10%, -15%

Guard locking types

TP5 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

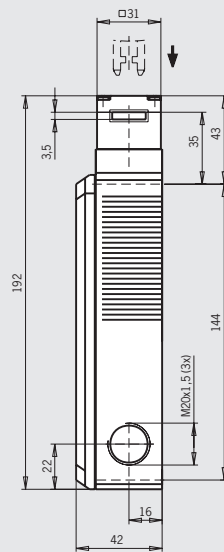
TP6 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

Switching elements

- ▶ **4120** Slow-action switching element
 - 1 NC ⊖ (door unlock request contact) +
 - 1 NC ⊕ + 1 NO (solenoid monit. contact)

Cable entry M20 x 1.5

Dimension drawing

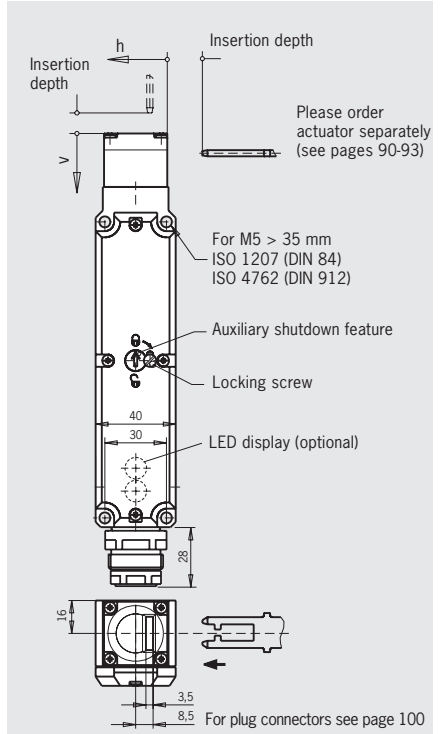


Please order actuator separately (see pages 90-93)

For cable glands see page 104

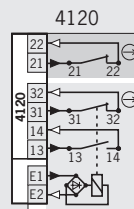
Plug connector SR11

11-pin + PE



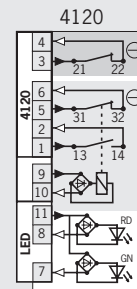
For plug connectors see page 100

Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door unlock request contact

For switching functions see technical data on page 132



- Solenoid monitoring
- Door unlock request contact

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage		
					AC/DC 24 V	AC 110 V	AC 230 V
TP	M Cable entry 3 x M20 x 1.5	5 Mechanical	4120 1 NC ⊖ + 1 NC ⊕ + 1 NO		084279 TP5-4120A024M	On request	088241 TP5-4120A230M
		6 Electrical	4120 1 NC ⊖ + 1 NC ⊕ + 1 NO		084280 TP6-4120A024M	On request	On request
	SR11 Plug connector	5 Mechanical	4120 1 NC ⊖ + 1 NC ⊕ + 1 NO		094895 ²⁾ TP5-4120A024SR11	-	-
		5 Mechanical	4120 1 NC ⊖ + 1 NC ⊕ + 1 NO	024L LED display AC/DC 24 V	094902 ²⁾ TP5-4120A024L024SR11	-	-
		6 Electrical	4120 1 NC ⊖ + 1 NC ⊕ + 1 NO		096204 ²⁾ TP6-4120A024SR11	-	-
		6 Electrical	4120 1 NC ⊖ + 1 NC ⊕ + 1 NO			-	-

1) With cable entry M, DC 24 V / AC 110 V 2) With solenoid operating voltage AC/DC 24 V only

Safety switch TP with guard locking and guard lock monitoring

- ▶ Escape release from the rear
- ▶ With door monitoring contact
- ▶ Increased horizontal overtravel



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

Escape release

Is used for the manual release of the guard locking from within the danger area without tools. With identification of On/Off position.

Solenoid operating voltage

- ▶ AC/DC 24 V +10%, -15%

Guard locking types

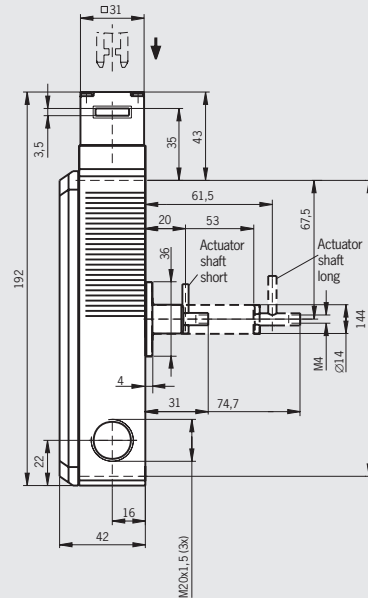
TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

Switching elements

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

Cable entry M20 x 1.5

Dimension drawing

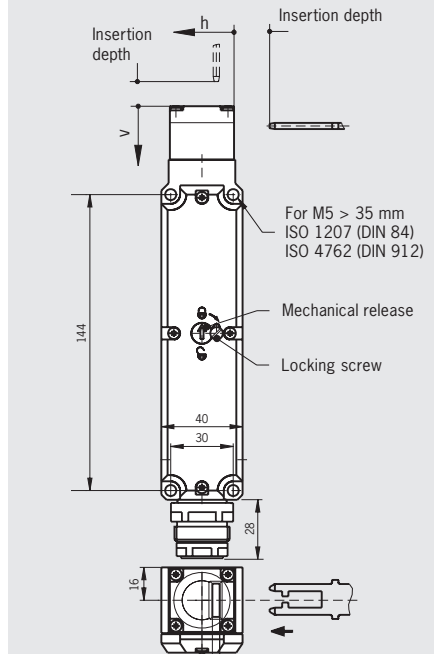


Please order actuator separately (see pages 90-93)

For cable glands see page 104

Plug connector SR11

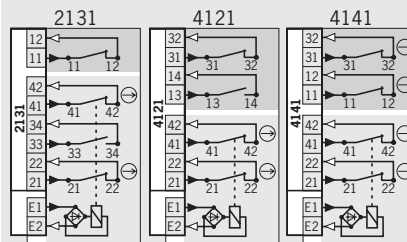
11-pin + PE



Please order actuator separately (siehe Seite 90-93)

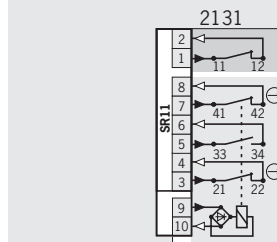
For cable glands see page 104

Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 132



- Solenoid monitoring
- Door monitoring

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage	
					AC/DC 24 V	
TP	M Cable entry 3 x M20 x 1.5	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC	C1743 Short actuator shaft	084285	TP3-2131A024MC1743
				C1993 Long actuator shaft	087400	TP3-2131A024MC1993
			4121 2 NC ⊖ + 1 NC / 1 NO	C1743 Short actuator shaft	087427	TP3-4121A024MC1743
				C1993 Long actuator shaft	106155	TP3-4121A024MC1993
			4141 2 NC ⊖ + 2 NC ⊖	C1743 Short actuator shaft	086165	TP3-4141A024MC1743
				C1993 Long actuator shaft	097897	TP3-2131A024SR11C1743
	SR11 Plug connector	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC	C1993 Long actuator shaft		

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

Safety switch TP with guard locking and guard lock monitoring

- ▶ Mechanical release on the front
- ▶ Pushbutton and cover for indicators
- ▶ Without door monitoring contact
- ▶ Increased horizontal overtravel



Plug connector BHA12
12-pin

Plug connector RC18
18-pin + PE

Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

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%

Cover for indicators

A cover for indicators (1 LED, green) is available for following voltage ranges:

▶ DC 24 V +10%, -15%

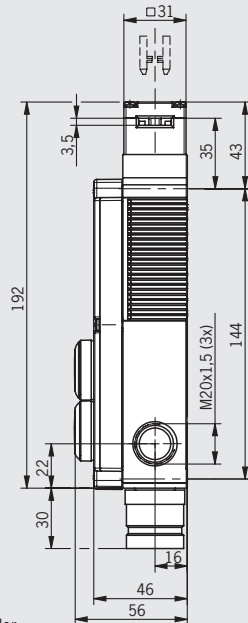
Guard locking types

TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

Switching elements

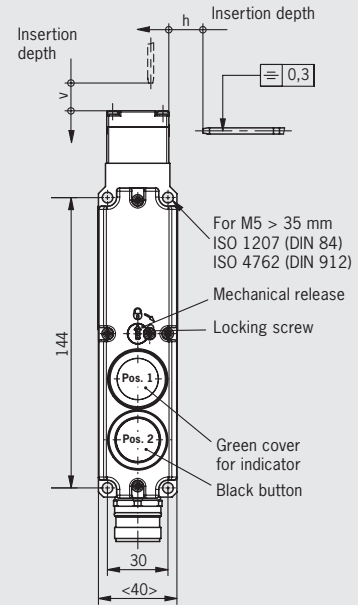
- ▶ **4121** Slow-action switching element
2 NC ⊖ + 1 NC / 1 NO (door monit. contact)
- ▶ **4141** Slow-action switching element
2 NC ⊖ + 2 NC (door monit. contact)

Dimension drawing



Please order actuator separately (see pages 90-93)

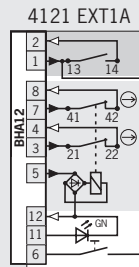
For plug connectors see page 103



Please order actuator separately (see pages 90-93)

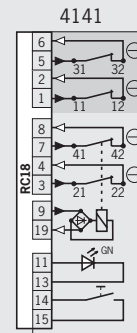
For plug connectors see page 101/102

Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door unlock request contact

For switching functions see technical data on page 132



- Solenoid monitoring
- Door unlock request contact

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage
					AC/DC 24 V
TP	BHA12 Plug connector	3 Mechanical	4121 2 NC ⊖ + 1 NC / 1 NO	Pos. 1: Green cover for indicator Pos. 2: Black button	105388 TP3-4121A024BHA12EXT1A
	RC18 Plug-connector	3 Mechanical	4141 2 NC ⊖ + 2 NC ⊖	Pos. 1: Green cover for indicator Pos. 2: Black button	103339 TP3-4141A024RC18EXT1



Safety switch TP with guard locking and guard lock monitoring

- ▶ Escape release from the rear
- ▶ 2 illuminated pushbuttons
- ▶ Without door monitoring contact
- ▶ Increased horizontal overtravel



Approach direction



Horizontal and vertical
Can be adjusted in 90° steps
Increased overtravel for horizontal approach direction.

Escape release

Is used for the manual release of the guard locking from within the danger area without tools. With identification of On/Off position.

Solenoid operating voltage

- ▶ AC/DC 24 V +10%, -15%

LED button

A cover for indicators (1 LED, green) is available for following voltage ranges:

- ▶ DC 24 V +10%, -15%

Guard locking types

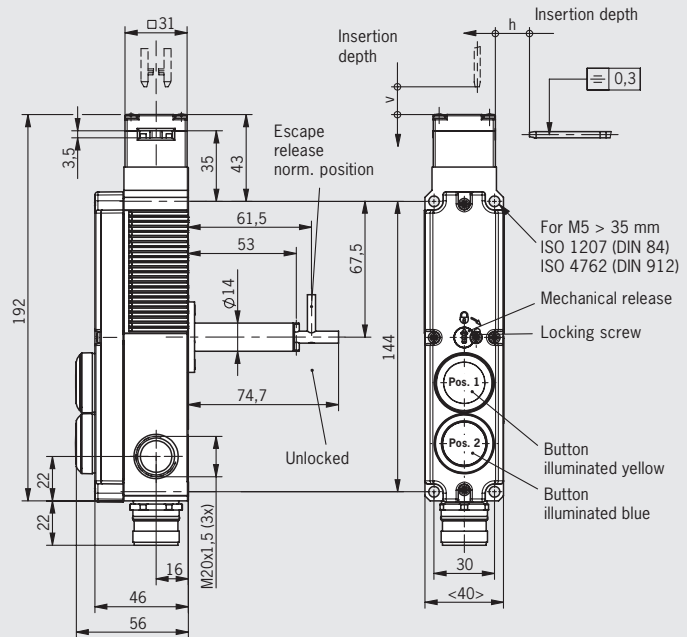
TP3 Closed-circuit current principle, guard locking by spring force. Release by applying voltage to the interlocking solenoid.

Switching elements

- ▶ **2131** Slow-action switching element
2 NC ⊖ + 1 NO + 1 NC
(door monitoring contact)

Plug connector RC18
18-pin + PE

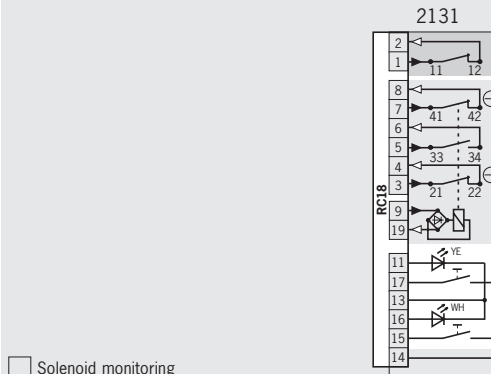
Dimension drawing



Please order actuator separately (see pages 90-93)

For plug connectors see page 101/102

Wiring diagrams Actuator inserted and locked



- Solenoid monitoring
- Door unlock request contact

For switching functions see technical data on page 132

Ordering table

Series	Connection	Guard locking	Switching element	Version	Solenoid operating voltage	
					AC/DC 24 V	
TP	RC18 Plug connector	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC	C1993 Long actuator shaft Pos. 1: White button Pos. 2: Blue button	105546	
					TP3-2131A024RC18C1993EXT2	

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



Safety switch TP... 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}	3 x 10 ⁶ operating cycles	

Switch			
Parameter	Value		Unit
Housing material	Reinforced thermoplastic		
Mechanical life	1 x 10 ⁶ operating cycles		
Ambient temperature	- 20 ... + 55		°C
Weight	approx. 0.5		kg
Max. approach speed	20		m/min
Actuating force	10		N
Extraction force (not locked)	20		N
Retention force	10		N
Locking force, max.	Approach direction		
	From top (v) 1300	Side (h) 1300	N
	(800 with door unlock request contact)	(800 with door unlock request contact)	
Locking force F _{Zh} in accordance with test principles GS-ET-19	Approach direction		
	From top (v) 1000	Side (h) 1000	N
Insertion depth (minimum required travel + permissible overtravel)	Standard actuators	Overtravel actuator	
Approach direction side (h)	28 + 2		mm
Approach direction from top (v)	29.5 + 1.5		mm

Switching element				
Parameter	Value			Unit
Switching principle	Slow-action switching element			
Switching elements with 2 switching elements	528 1 NC \ominus + 1 NO	537 1 NC \ominus + 1 NC	538 2 NC \ominus + 1 NC	
	4120 2 NC \ominus + 1 NO			
Switching elements with door unlock request contact	2131 2 NC \ominus + 1 NO + 1 NC	4121 2 NC \ominus + 1 NC + 1 NO	4131 2 NC \ominus + 2 NO	4141 4 NC \ominus
Switching current, min., at DC 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%	AC 110 V +10/-15%	AC 230 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				
Parameter	Value			Unit
Connection	Screw terminal			
Version	M20 x 1.5			
Conductor cross-section max.	0.34 ... 1.5			mm ²
Degree of protection according to IEC 60529	IP 67			
Rated insulation voltage U _i	250			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	AC15	I _e 4 A U _e 230 V		
	DC13	I _e 4 A U _e 24 V		

Plug connector SR6 connection



Parameter		Value	Unit
Connection		Plug connector	
Version		6-pin + PE	
Degree of protection according to IEC 60529		IP 65 ¹⁾	
Rated insulation voltage U_i		250	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 230 V	
	DC-13	I_e 4 A U_e 24 V	

1) Screwed tight with the related plug connector (see page 100)

Plug connector SM8 connection



Parameter		Value	Unit
Connection		Plug connector	
Version		8-pin	
Degree of protection according to IEC 60529		IP 67 ¹⁾	
Rated insulation voltage U_i		30	V AC/DC
Rated impulse withstand voltage U_{imp}		1.5	kV
Conventional thermal current I_{th}		1	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)		1	A gG
Utilization category to IEC 60947-5-1	AC-15	I_e 1 A U_e 24 V	
	DC-13	I_e 1 A U_e 24 V	

1) Screwed tight with the related plug connector

Plug connector SR11 connection



Parameter		Value	Unit
Connection		Plug connector	
Version		11-pin + PE	
Degree of protection according to IEC 60529		IP 65 ¹⁾	
Rated insulation voltage U_i		50	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	AC-15	I_e 4 A U_e 50 V	
	DC-13	I_e 4 A U_e 24 V	

1) Screwed tight with the related plug connector (see page 100)

Plug connector BHA12 connection



Parameter		Value	Unit
Connection		Plug connector	
Version		12-pin	
Degree of protection according to IEC 60529		IP 65 ¹⁾	
Rated insulation voltage U_i		50	V AC/DC
Rated impulse withstand voltage U_{imp}		1.5	kV
Conventional thermal current I_{th}		2	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)		2	A gG
Utilization category to IEC 60947-5-1	AC-15	I_e 2 A U_e 50 V	
	DC-13	I_e 2 A U_e 24 V	

1) Screwed tight with the related plug connector (see page 103)

2) Version TP...EXT... with button/cover for indicator IP 54

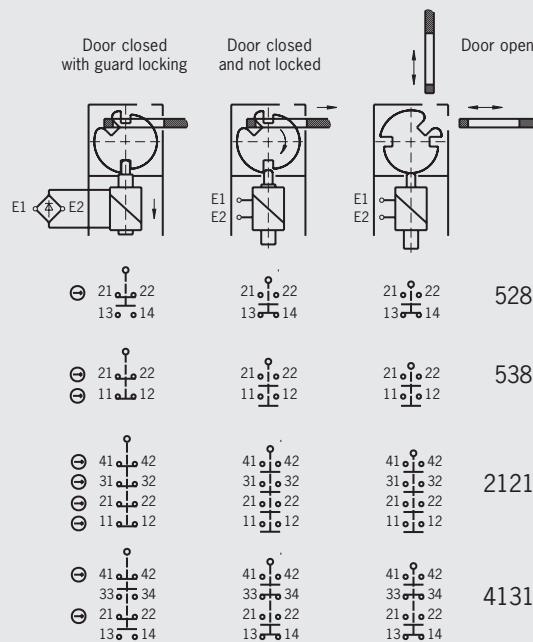
Connection, plug connector RC18



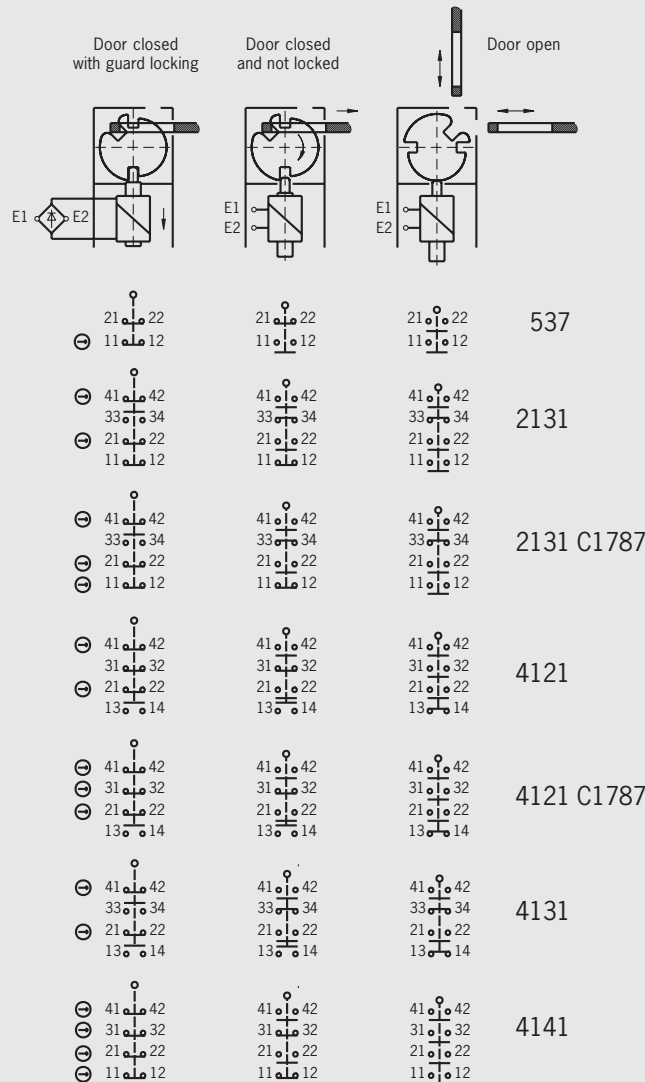
Parameter		Value	Unit
Connection		Plug connector	
Version		RC18 (18-pin + PE)	
Degree of protection according to IEC 60529		IP 65 ¹⁾	
Rated insulation voltage U_i		110	V AC/DC
Rated impulse withstand voltage U_{imp}		2.5	kV
Conventional thermal current I_{th}		4	A
Short circuit protection according to 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 101-102)

Switching functions TP1/TP2 without door monitoring contact



**Switching functions TP3/TP4
with door monitoring contact**



**Switching functions TP5/TP6
with door unlock request contact**

