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

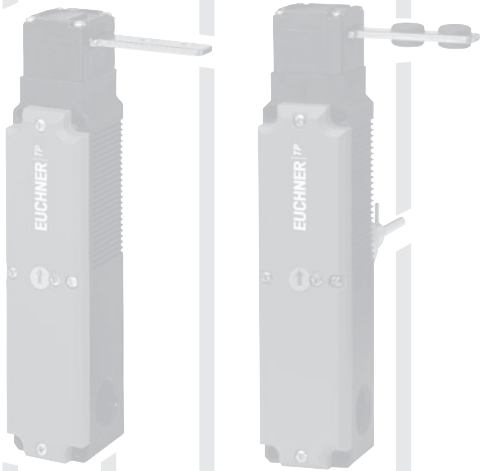
- **TP1/2** Without door monitoring contact
- **TP3/4** With door monitoring contact
- **TP5/6** With door unlock request contact

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%

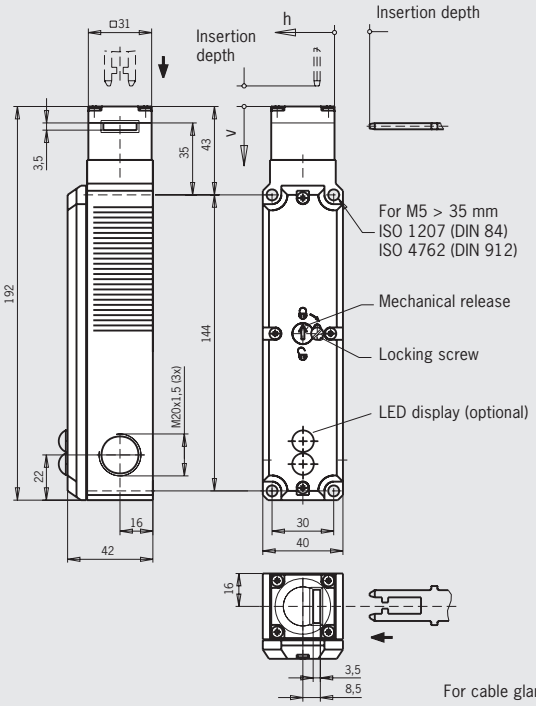
LED function display (optional)
A function display (2 LEDs, red and green) is available for the following voltage ranges:
- AC/DC 24 V +10%, -15%

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

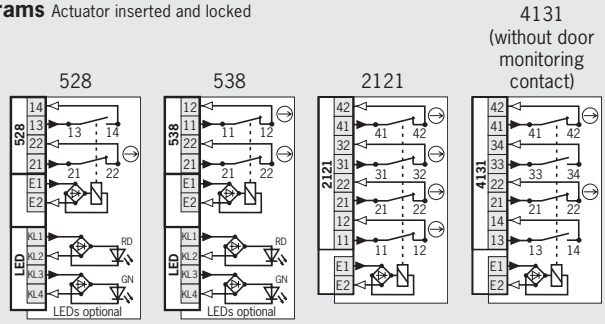
Dimension drawing



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

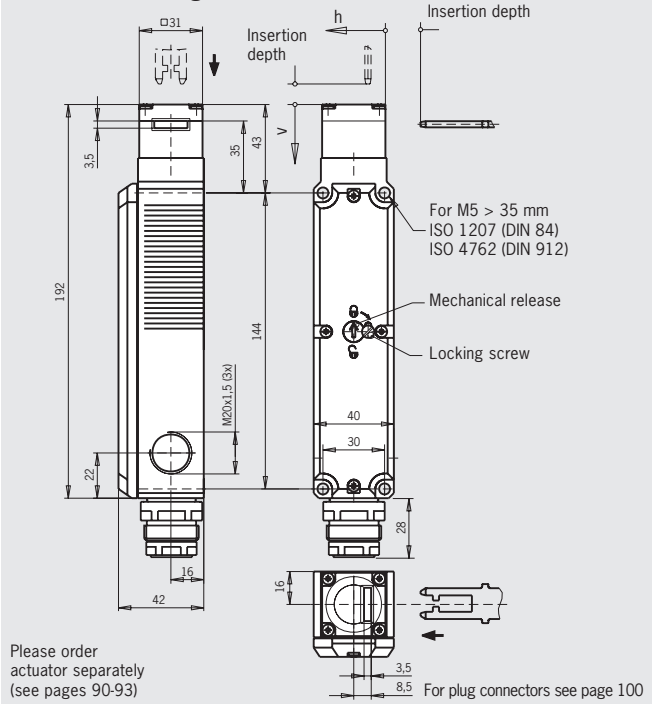
Ordering table

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	-	-
			4131 2 NC ⊖ + 2 NO		**084115** TP1-4131A024M	**084116** TP1-4131A110M	**084117** TP1-4131A230M
		2 Electrical	**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

Plug connector SR6
6-pin + PE

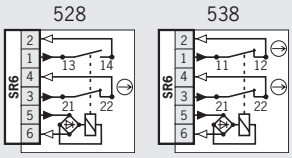
Dimension drawing



Please order actuator separately (see pages 90-93)

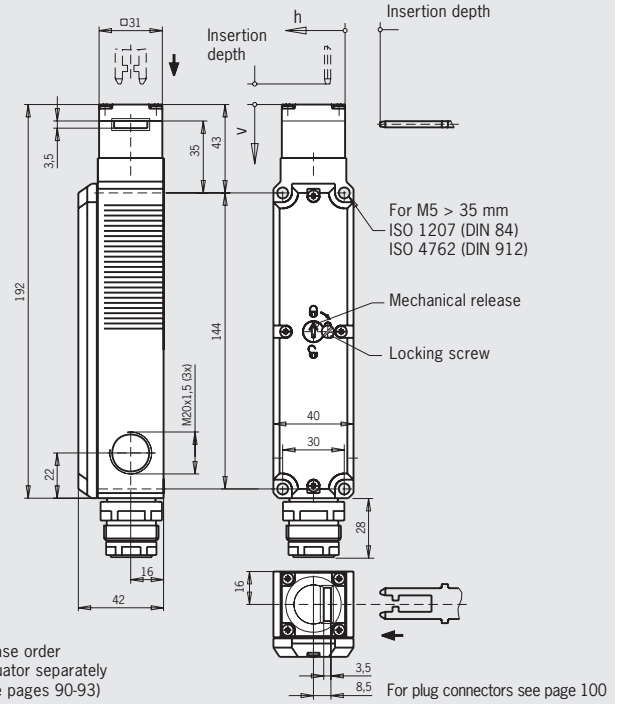
For plug connectors see page 100

Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 131

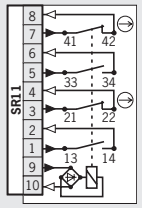
Plug connector SR11
11-pin + PE



Please order actuator separately (see pages 90-93)

For plug connectors see page 100

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.

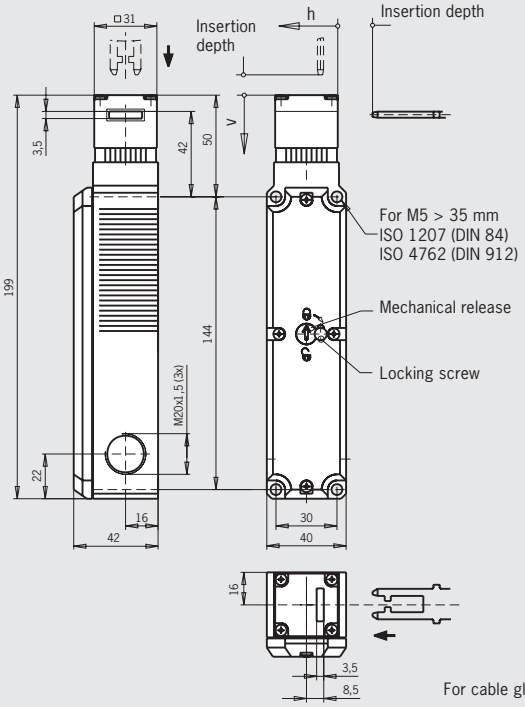
TP2 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

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

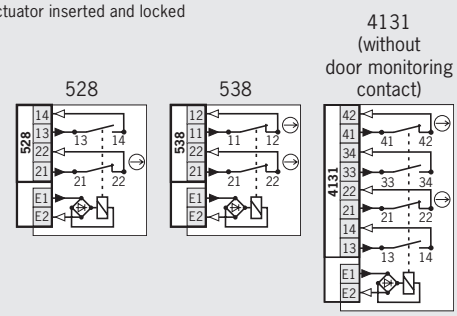
Dimension drawing



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

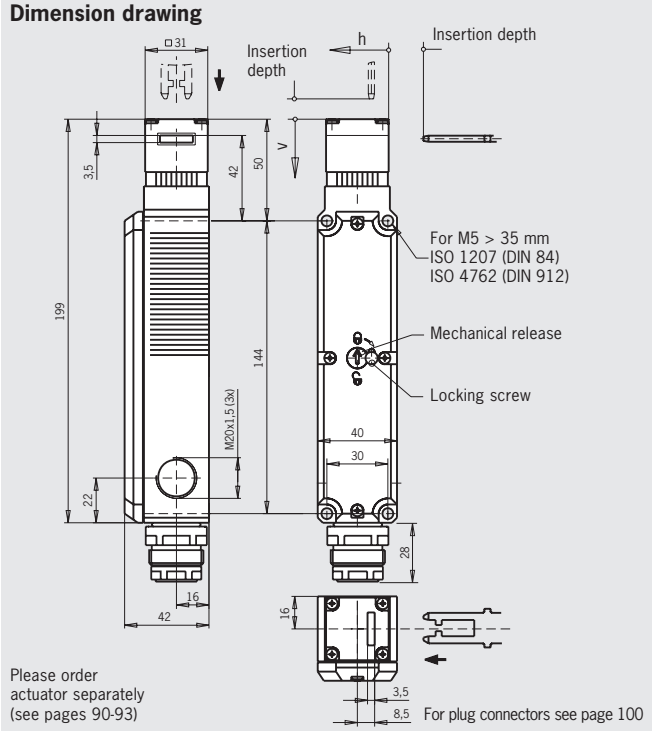
Ordering table

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

Plug connector SR6
6-pin + PE

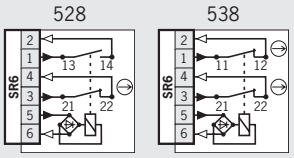
Dimension drawing



Please order actuator separately (see pages 90-93)

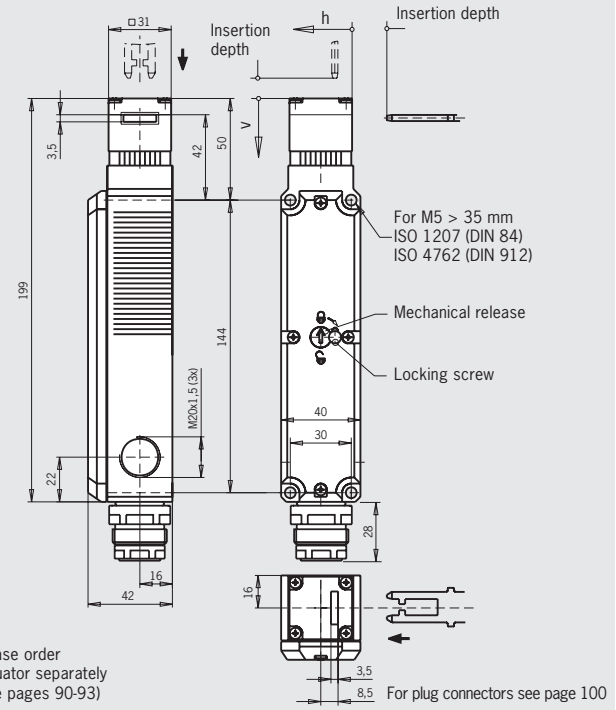
For plug connectors see page 100

Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 131

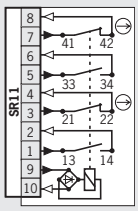
Plug connector SR11
11-pin + PE



Please order actuator separately (see pages 90-93)

For plug connectors see page 100

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

1) 2)

- **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.

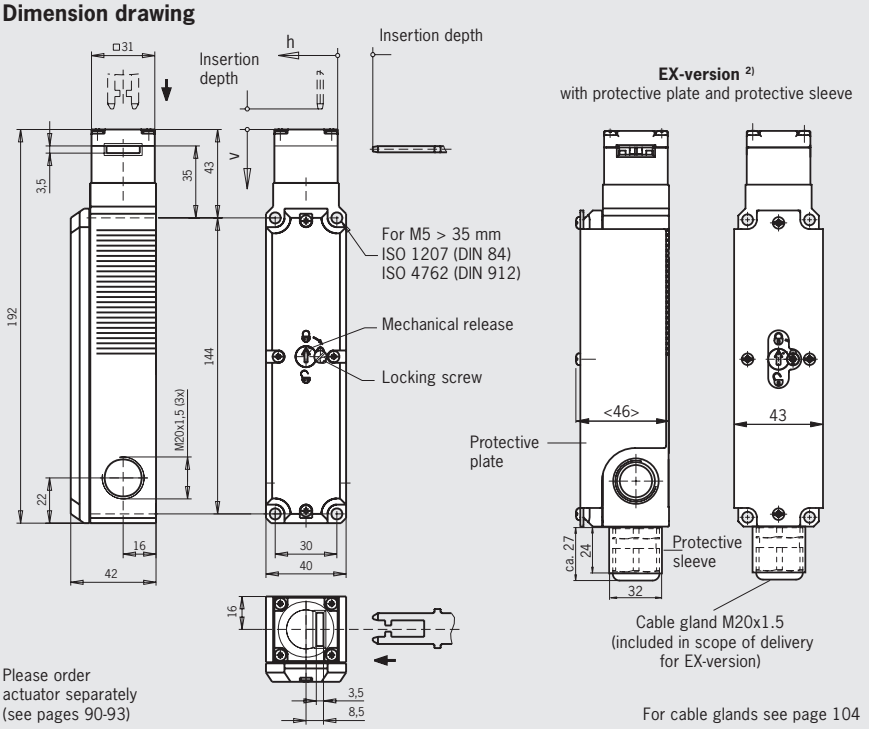
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

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 ⊖ + 2NC (door monit. contacts)

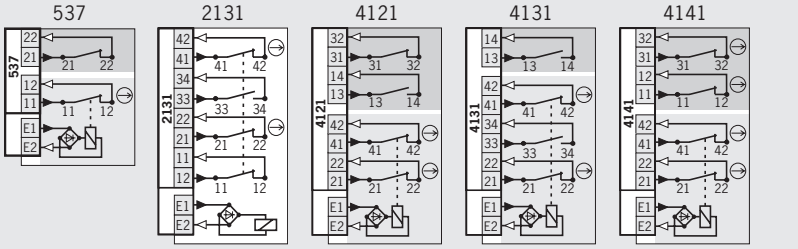
Cable entry M20 x 1.5

Dimension drawing



For cable glands see page 104

Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 132

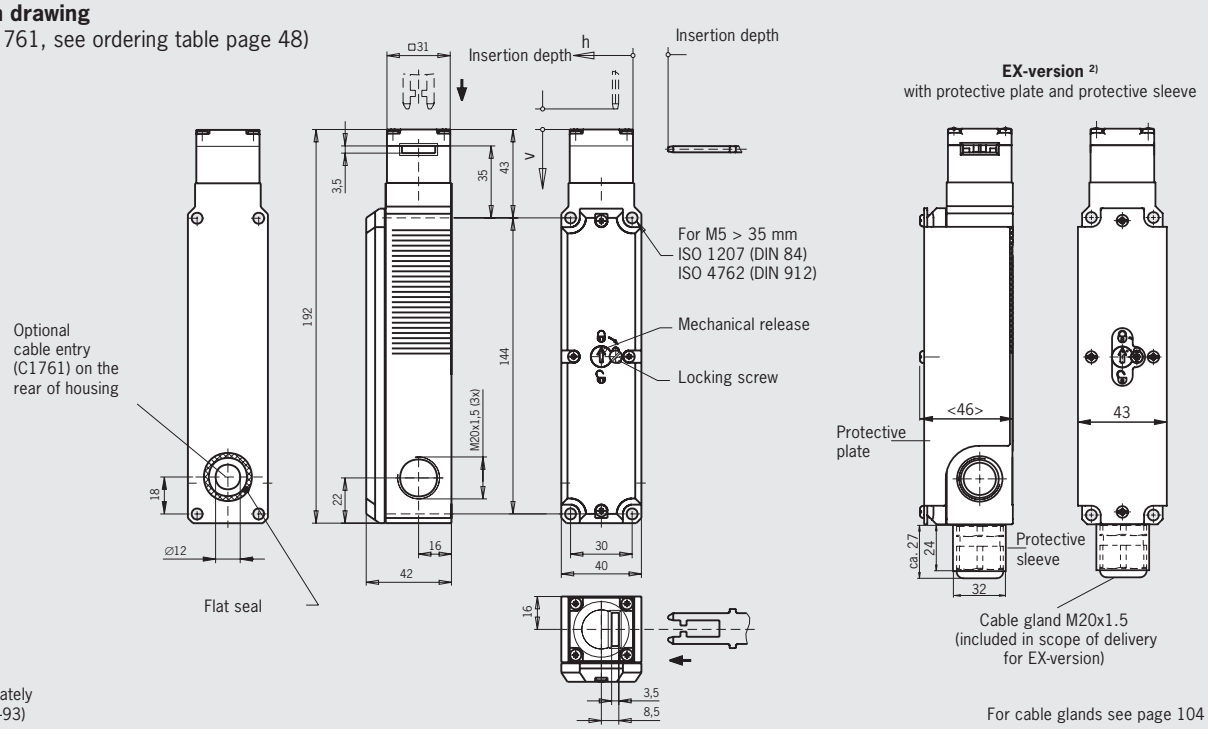
Ordering table

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	3 Mechanical	**537** 1 NC ⊖ + 1 NC		**084336** TP3-537A024M	**084337** TP3-537A110M	**084338** TP3-537A230M
			2131 2 NC ⊖ + 1 NO + 1 NC		**084142** TP3-2131A024M	**084143** TP3-2131A110M	**084144** TP3-2131A230M
				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) Ex II 3 G Ex nC IIB T4 X / Ex II 3 D Ex tD A22 T110°C X 3) No approvals

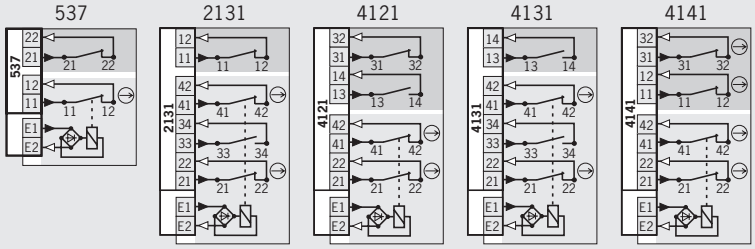
Cable entry M20 x 1.5

Dimension drawing
(Version C1761, see ordering table page 48)



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	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 + 1NC		**084145** TP4-2131A024M	**084147** TP4-2131A110M	**084148** TP4-2131A230M
			2131 2 NC ⊖ + 1 NO + 1NC	**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) Ⓔx II 3 G Ex nC IIB T4 X / Ⓔ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.

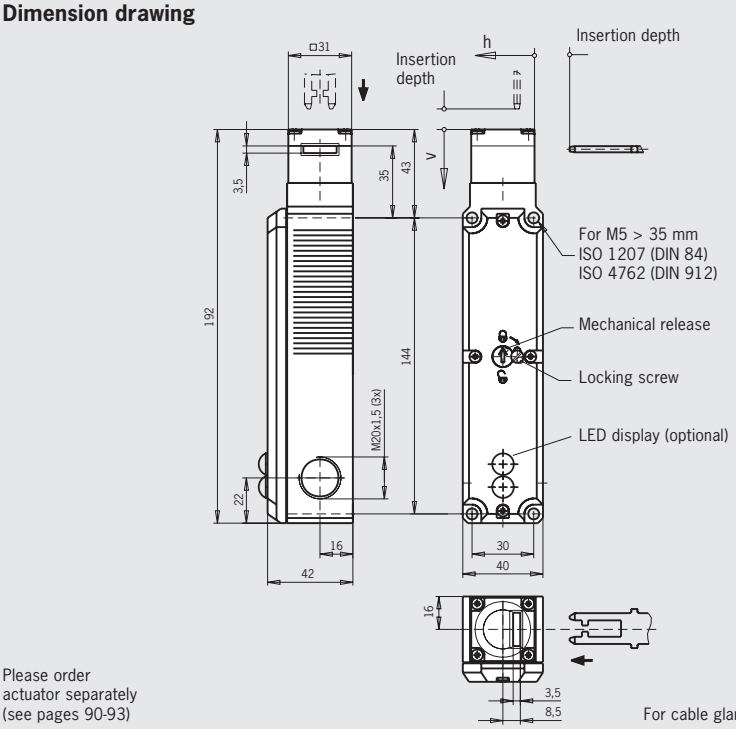
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

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

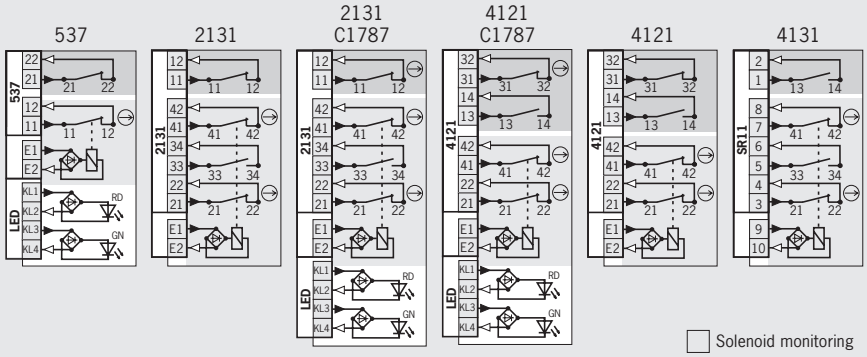
Dimension drawing



Please order actuator separately (see pages 90-93)

For cable glands see page 104

Wiring diagrams Actuator inserted and locked



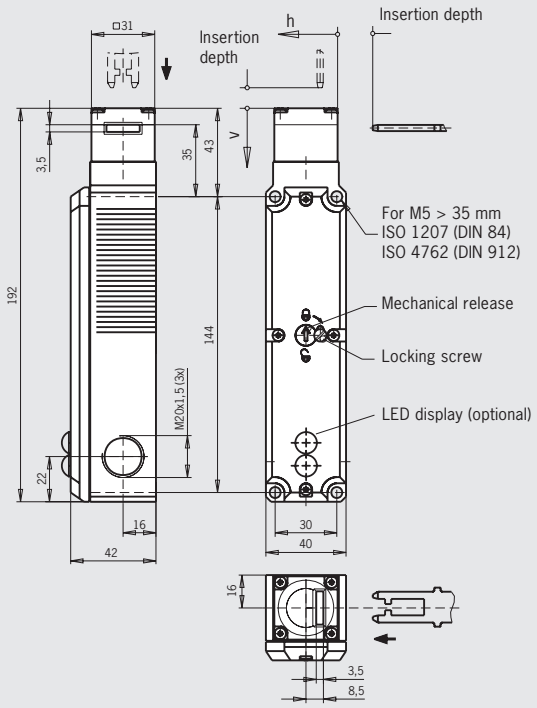
For switching functions see technical data on page 132

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	**537** 1 NC ⊖ + 1 NC	**024L** LED display AC/DC 24 V	**093460** TP3-537A024L024M
			2131 2 NC ⊖ + 1 NO + 1NC	**024L** 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	**024L** 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	**024L** LED display AC/DC 24 V	**098403** TP3-4131A024L024M

Cable entry M20 x 1.5

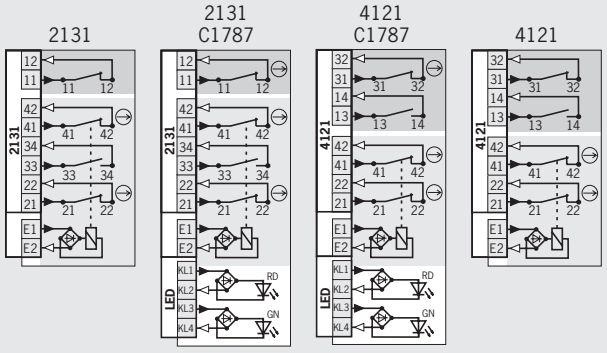
Dimension drawing



Please order actuator separately (see pages 90-93)

For cable glands see page 104

Wiring diagrams Actuator inserted and locked



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 + 1NC	024L 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	024L 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.

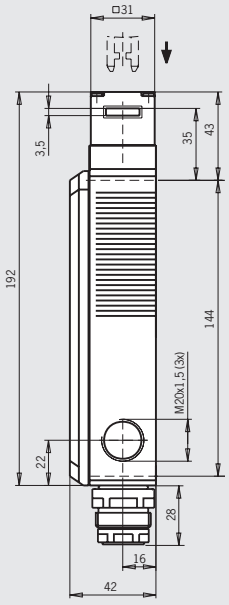
Switching elements

- **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 ⊖ + 2NC ⊖ (door monit. contacts)

Plug connector SR6
6-pin + PE

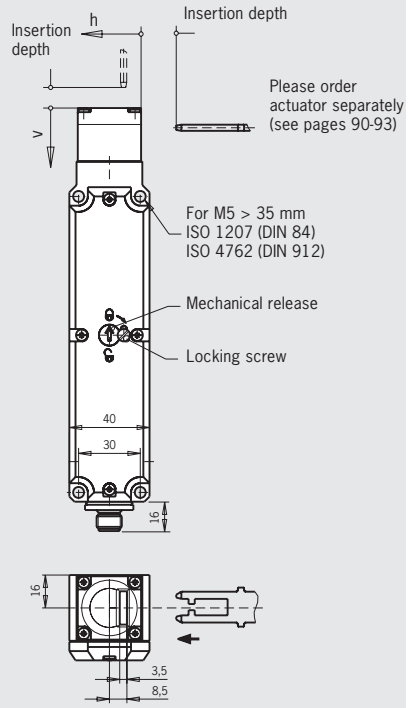
Plug connector SM8
Plug M12, 8-pin

Dimension drawing

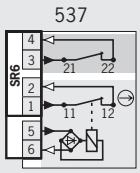


Please order actuator separately (see pages 90-93)

For plug connectors see page 100

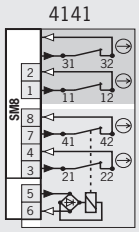


Wiring diagrams Actuator inserted and locked



☐ Solenoid monitoring
☐ Door monitoring

For switching functions see technical data on page 132



☐ Solenoid monitoring
☐ Door monitoring

For switching functions see technical data on page 132

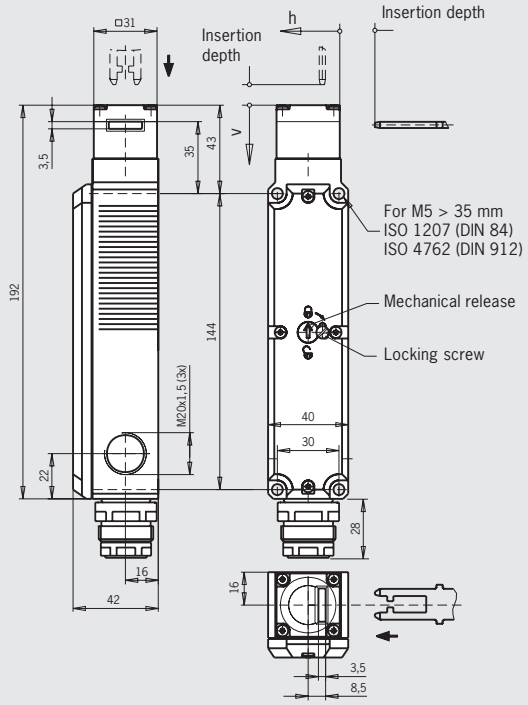
Ordering table

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		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 ⊖	C1992 Direct connection to safe bus module	087378 [1] TP4-4141A024SM8C1992	-	-

1) No BG approval
2) With solenoid operating voltage AC/DC 24 V only

Plug connector SR11
11-pin + PE

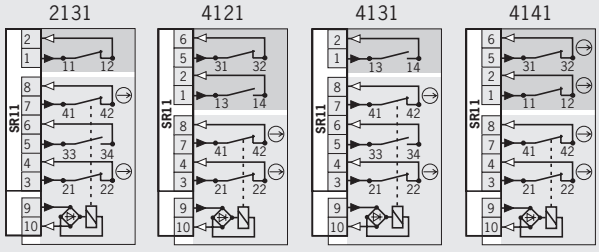
Dimension drawing



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 + 1NC		**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	-	-
		4 Electrical	**2131** 2 NC ⊖ + 1 NO + 1NC		**088208** TP4-2131A024SR11	-	-
			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.

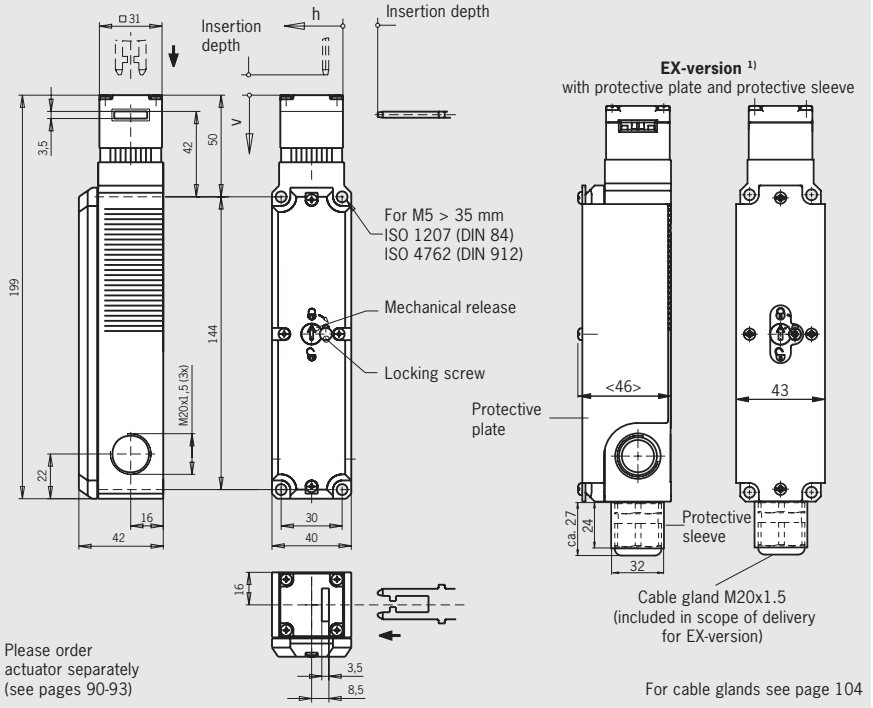
TP4 Open-circuit current principle, guard locking by applying voltage to the interlocking solenoid. Release by spring force.

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)

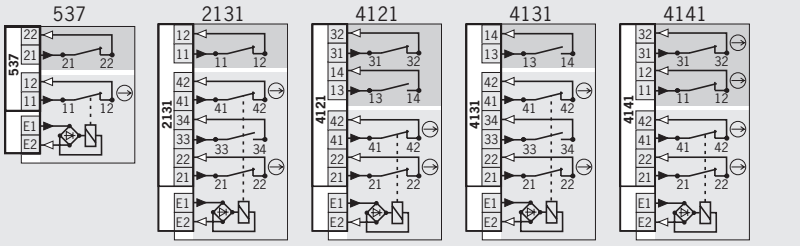
Cable entry M20 x 1.5

Dimension drawing



For cable glands see page 104

Wiring diagrams Actuator inserted and locked



For switching functions see technical data on page 132

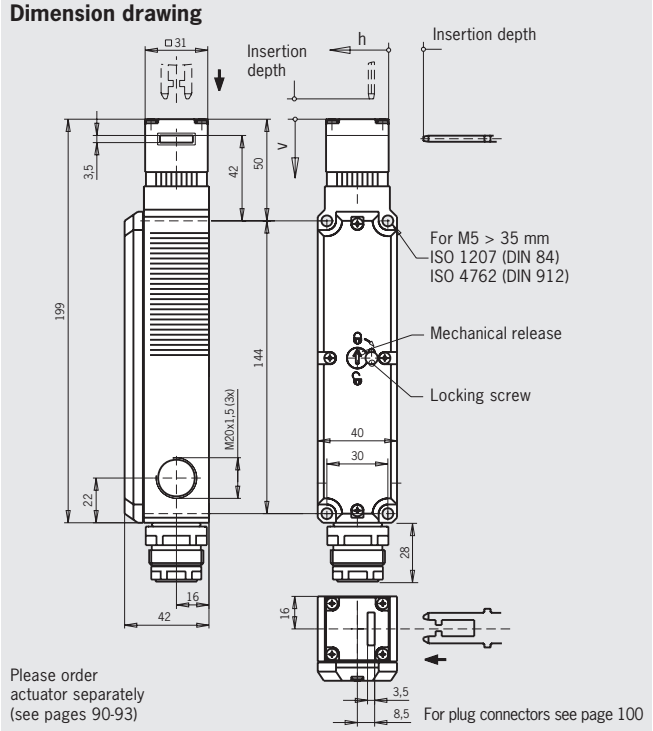
Ordering table

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	ATEX Incl. Cable gland	094152 2) TP3-4121K024M-EX	-	-
			4131 2 NC ⊖ + 1 NO + 1NO		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 + 1NO		084259 TP4-4131K024M	On request	On request
			4141 2 Ö ⊖ + 2 Ö ⊖		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

Plug connector SR6
6-pin + PE

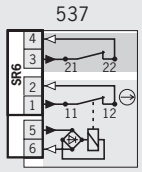
Dimension drawing



Please order actuator separately (see pages 90-93)

For plug connectors see page 100

Wiring diagrams Actuator inserted and locked

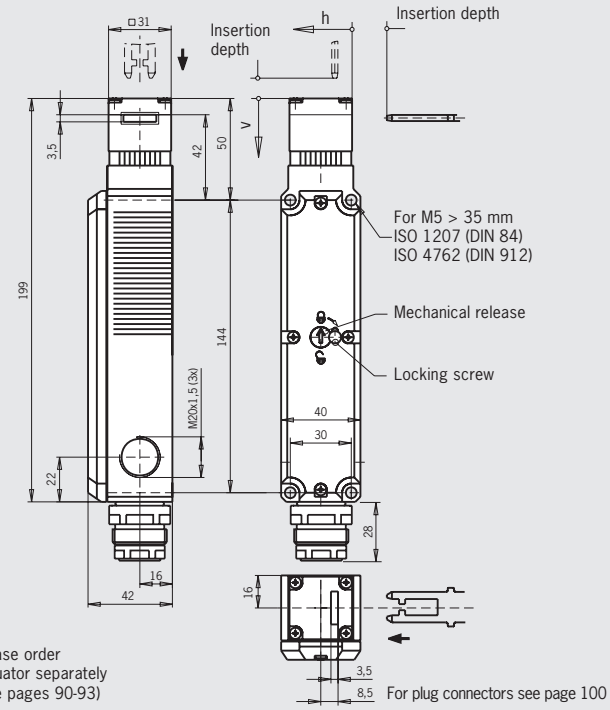


Solenoid monitoring
Door monitoring

For switching functions see technical data on page 132

Plug connector SR11
11-pin + PE

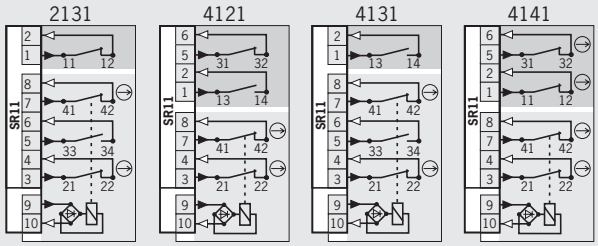
Dimension drawing



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	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 + 1NO	088219 TP3-4131K024SR11
		4 Electrical	2131 2 NC ⊖ + 1 NO + 1 NC	088223 TP4-2131K024SR11
			4121 2 NC ⊖ + 1 NC / 1 NO	088224 TP4-4121K024SR11
			4131 2 NC ⊖ + 1 NO + 1NO	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

1) 2)

- **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%

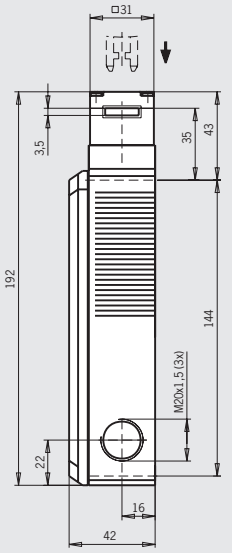
LED function display (optional)
A function display (2 LEDs, red and green) is available for the following voltage ranges:
- AC/DC 24 V +10%, -15%

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

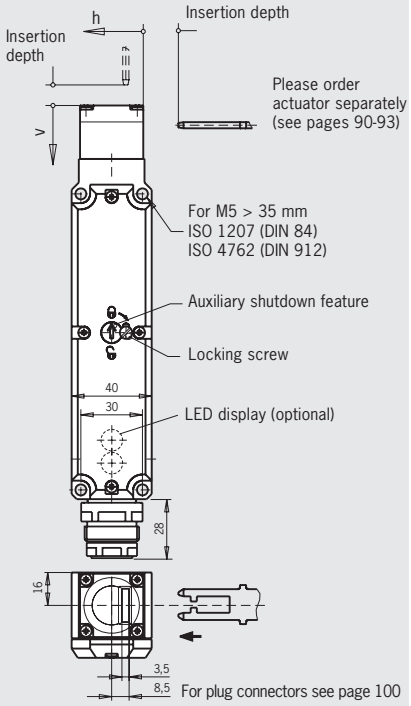
Dimension drawing



Please order actuator separately (see pages 90-93)

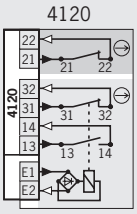
For cable glands see page 104

Plug connector SR11
11-pin + PE



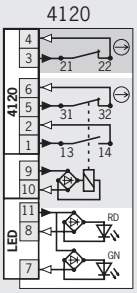
For plug connectors see page 100

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	-	-

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.

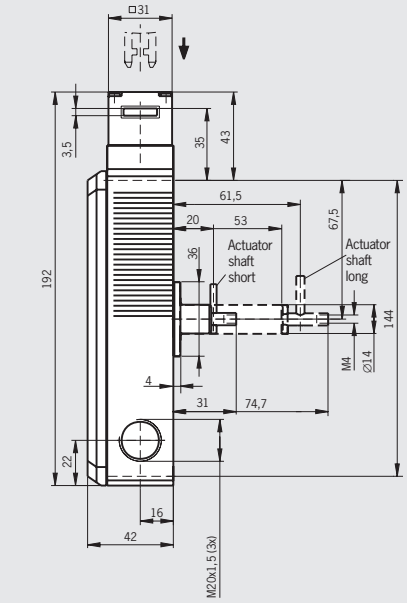
Solenoid operating voltage
- AC/DC 24 V +10%, -15%

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 ⊖ + 2NC ⊖ (door monitoring contacts)

Cable entry M20 x 1.5

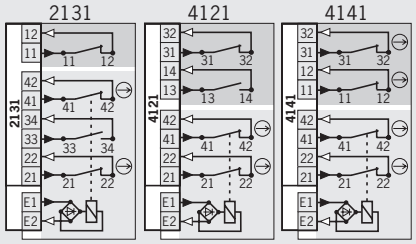
Dimension drawing



Please order actuator separately (see pages 90-93)

For cable glands see page 104

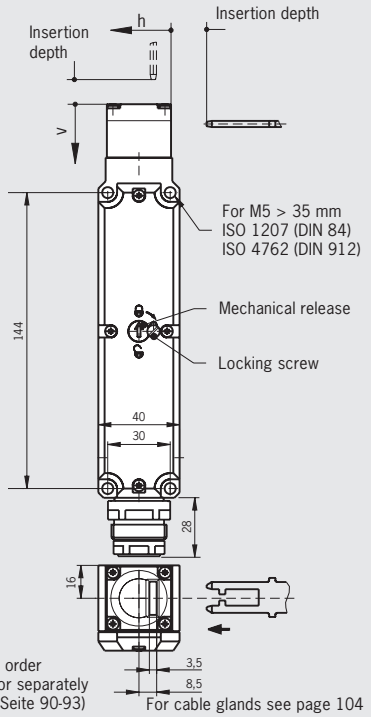
Wiring diagrams Actuator inserted and locked



Solenoid monitoring
Door monitoring

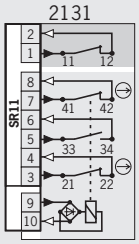
For switching functions see technical data on page 132

Plug connector SR11
11-pin + PE



Please order actuator separately (siehe Seite 90-93)

For cable glands see page 104



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
			4131 2 NC ⊖ + 1 NO + 1 NC	C1993 Long actuator shaft	106155 TP3-4131A024MC1993
			4141 2 NC ⊖ + 2 NC ⊖	C1743 Short actuator shaft	086165 TP3-4141A024MC1743
	SR11 Plug connector	3 Mechanical	2131 2 NC ⊖ + 1 NO + 1 NC	C1993 Long actuator shaft	097897 TP3-2131A024SR11C1743

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**

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%

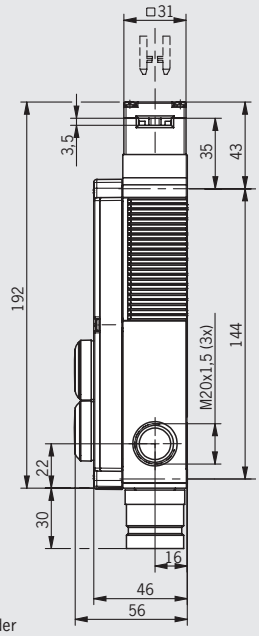
Cover for indicators
A cover for indicators (1 LED, green) is available for following voltage ranges:
- DC 24 V +10%, -15%

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)

Plug connector BHA12
12-pin

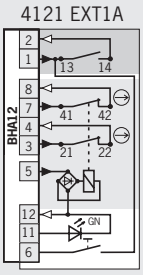
Dimension drawing



Please order actuator separately (see pages 90-93)

For plug connectors see page 103

Wiring diagrams Actuator inserted and locked

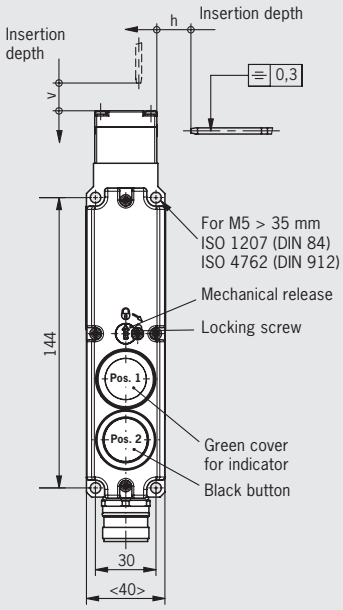


☐ Solenoid monitoring
☐ Door unlock request contact

For switching functions see technical data on page 132

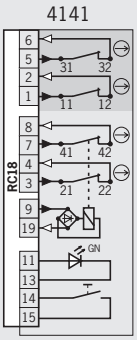
Plug connector RC18
18-pin + PE

Dimension drawing



Please order actuator separately (see pages 90-93)

For plug connectors see page 101/102



☐ 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%

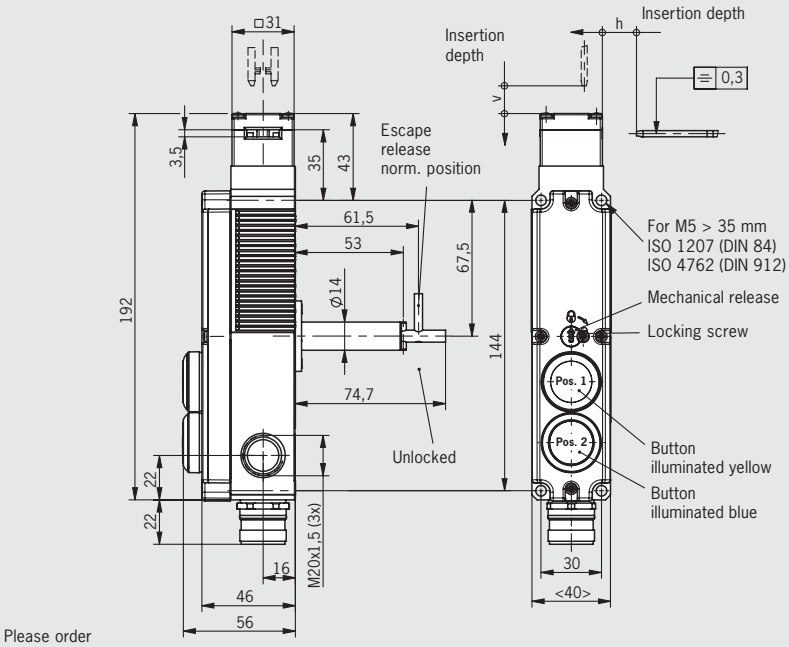
LED button
A cover for indicators (1 LED, green) is available for following voltage ranges:
- DC 24 V +10%, -15%

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

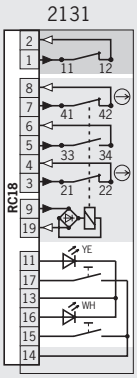
Dimension drawing



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		N
	From top (v)	Side (h)	
	1300 (800 with door unlock request contact)	1300 (800 with door unlock request contact)	
Locking force F_{Zh} in accordance with test principles GS-ET-19	Approach direction		N
	From top (v)	Side (h)	
	1000	1000	
Insertion depth (minimum required travel + permissible overtravel)	Standard actuators	Overtravel actuator	
Approach direction side (h)	28 + 2	28 + 7	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 ⊖ + 1 NO	**537** 1 NC ⊖ + 1NC	**538** 2 NC ⊖ + 1NC		
Switching elements with door unlock request contact	**4120** 2 NC ⊖ + 1 NO				
Switching elements with 4 switching elements	**2131** 2 NC ⊖ + 1 NO + 1 NC	**4121** 2 NC ⊖ + 1 NC + 1 NO	**4131** 2 NC ⊖ + 2 NO	**4141** 4 NC ⊖	
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)

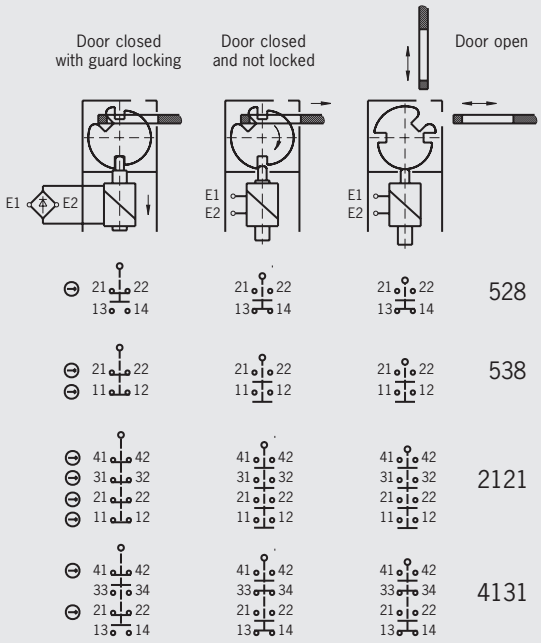
2) Version TP...EXT... with button/cover for indicator IP 54

Connection, plug connector RC18

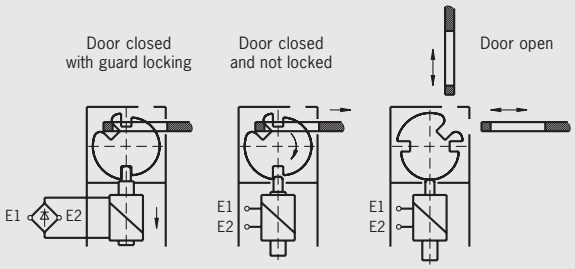
Parameter		19-pin	Unit
Connection		Plug connector	
Version		RC18 (18-pin + PE)	
Degree of protection according to IEC 60529		IP 65 [1]	
Rated insulation voltage U_i		110	V AC/DC
Rated impulse withstand voltage U_{imp}		2.5	kV
Conventional thermal current I_{th}		4	A
Short circuit protection according 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

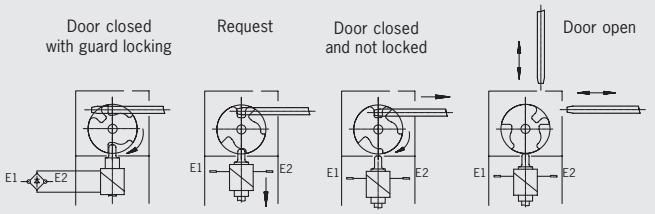


Switching functions TP3/TP4 with door monitoring contact



21 22 11 12	21 22 11 12	21 22 11 12	537
41 42 33 34 21 22 11 12	41 42 33 34 21 22 11 12	41 42 33 34 21 22 11 12	2131
41 42 33 34 21 22 11 12	41 42 33 34 21 22 11 12	41 42 33 34 21 22 11 12	2131 C1787
41 42 31 32 21 22 13 14	41 42 31 32 21 22 13 14	41 42 31 32 21 22 13 14	4121
41 42 31 32 21 22 13 14	41 42 31 32 21 22 13 14	41 42 31 32 21 22 13 14	4121 C1787
41 42 33 34 21 22 13 14	41 42 33 34 21 22 13 14	41 42 33 34 21 22 13 14	4131
41 42 31 32 21 22 11 12	41 42 31 32 21 22 11 12	41 42 31 32 21 22 11 12	4141

Switching functions TP5/TP6 with door unlock request contact



31 32 21 22 13 14	31 32 21 22 13 14	31 32 21 22 13 14	31 32 21 22 13 14	4120