

# EUCHNER

## Operating Instructions

Transponder-Coded Safety Switch With Guard Locking  
**CTP-AR Unicode/Multicode**

EN

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## 1. About this document







### 1.1. Scope

These operating instructions are valid for all CTP-L-AR... from version V1.0.0. These operating instructions, the document "Safety information and maintenance" and any enclosed data sheet form the complete user information for your device.

### 1.2. Target group





Design engineers and installation planners for safety devices on machines, as well as setup and servicing staff possessing special expertise in handling safety components.

### 1.3. Key to symbols

Symbol/depiction	Meaning
	Printed document
	Document is available for download at <a href="http://www.euchner.com">www.euchner.com</a>
	Document on CD
	This section is applicable only if the memory card is used
 <b>DANGER</b> <b>WARNING</b> <b>CAUTION</b>	Safety precautions <b>Danger</b> of death or severe injuries <b>Warning</b> about possible injuries <b>Caution</b> slight injuries possible
 <b>NOTICE</b> <b>Important!</b>	<b>Notice</b> about possible device damage <b>Important</b> information
<b>Tip</b>	Useful information

### 1.4. Supplementary documents

The overall documentation for this device consists of the following documents:

Document title (document number)	Contents	
Safety Information and Maintenance CTP (2138087)	Basic information for safe setup and service	
Operating Instructions (2123041)	(this document)	
Possibly enclosed data sheet	Item-specific information about deviations or additions	
	<b>Important!</b> Always read all documents to gain a complete overview of safe installation, setup and use of the device. The documents can be downloaded from <a href="http://www.euchner.com">www.euchner.com</a> . For this purpose enter the doc. no. in the search box.	

### 2. Correct use

Safety switches series CTP-L-... are interlocking devices with guard locking (type 4). Devices with unicode evaluation possess a high coding level, devices with multicode evaluation possess a low coding level.

In combination with a movable guard and the machine control, this safety component prevents the guard from being opened while a dangerous machine function is being performed.

This means:

- Starting commands that cause a dangerous machine function must become active only when the guard is closed and locked.
- The guard locking device must not be unlocked until the dangerous machine function has ended.
- Closing and locking a guard must not cause automatic starting of a dangerous machine function. A separate start command must be issued. For exceptions, refer to EN ISO 12100 or relevant C-standards.

Devices from this series are also suitable for process protection.

Before the device is used, a risk assessment must be performed on the machine, e.g. in accordance with the following standards:

- EN ISO 13849-1, Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
- EN ISO 12100, Safety of machinery – General principles for design – Risk assessment and risk reduction
- IEC 62061, Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems

Correct use includes observing the relevant requirements for installation and operation, particularly based on the following standards:

- EN ISO 13849-1, Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
- EN ISO 14119, Safety of machinery – Interlocking devices associated with guards – Principles for design and selection
- EN 60204-1, Safety of machinery – Electrical equipment of machines – Part 1: General requirements

The safety switch is allowed to be operated only in conjunction with the intended EUCHNER actuator and the related connection components from EUCHNER. On the use of different actuators or other connection components, EUCHNER provides no warranty for safe function.

Connection of several devices in an AR switch chain is permitted only using devices intended for series connection in an AR switch chain. Check this in the instructions of the device in question.

A maximum of 20 safety switches are allowed to be operated in a switch chain.



**Important!**

- The user is responsible for the proper integration of the device into a safe overall system. For this purpose, the overall system must be validated, e.g. in accordance with EN ISO 13849-2.
- It is only allowed to use components that are permissible in accordance with the table below.

Table 1: Possible combinations for CTP components

Safety switch	Actuator	
	A-C-H...	
CTP-... Unicode/Multicode	●	
<b>Key to symbols</b>	●	Combination possible



**NOTICE**

For information about combination with an AR evaluation unit, please refer to chapter 10.10. *Connection of several CTP-AR in a switch chain on page 24.*

### 3. Description of the safety function

Devices from this series feature the following safety functions:

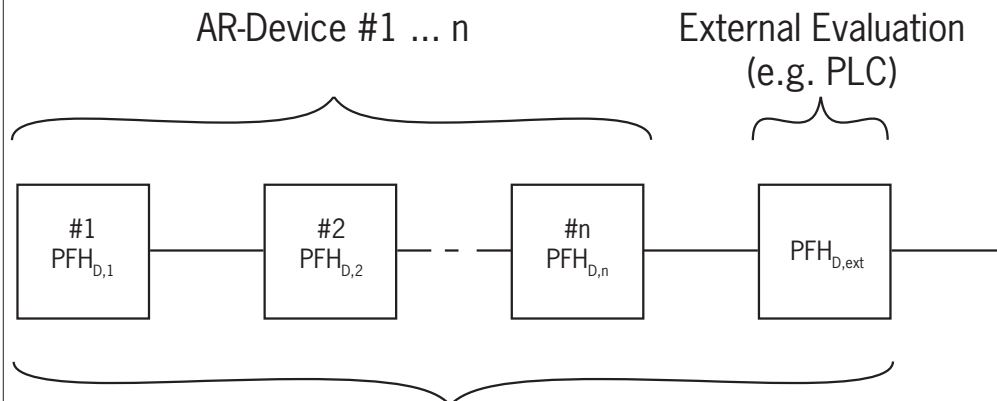
**Monitoring of guard locking and the position of the guard (interlocking device with guard locking according to EN ISO 14119)**

- Safety function (see chapter 6.8. *Switching states on page 10*):
  - The safety outputs are switched off when guard locking is released (monitoring of the locking element).
  - The safety outputs are switched off when the guard is open (monitoring of the door position).
  - Guard locking can be activated only when the actuator is located in the switch head (failsafe locking mechanism).
  - The following additionally applies in an AR series connection: the safety outputs are switched only when the device receives a corresponding signal from its predecessor in the chain.
- Safety characteristics: category, Performance Level, PFH<sub>D</sub> (see chapter 13. *Technical data on page 33*).



**NOTICE**

You can regard the complete AR device chain as one subsystem during calculation. The following calculation method applies to the PFH<sub>D</sub> value:



$$PFH_D ges = \sum_{k=1}^n PFH_{D,k} + PFH_{D,ext}$$

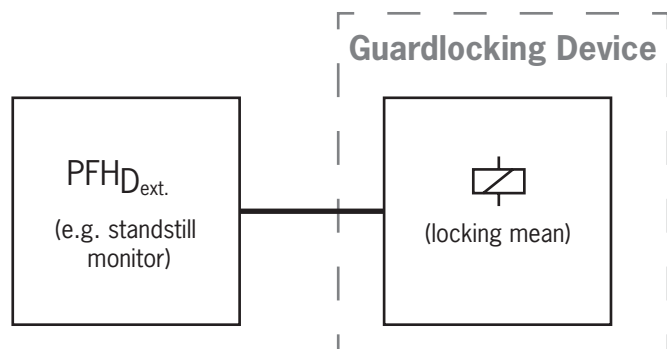
Alternatively, the simplified method according to section 6.3 of EN 13849-1:2015 can be used for calculation.

### Activation of guard locking

If the device is used as guard locking for personnel protection, the control of the guard locking must be regarded as a safety function.

The device does not feature a safety characteristic for the control of the guard locking, because the guard locking solenoid is completely disconnected from outside the device (no control function within the device). It therefore does not contribute to the failure probability.

The safety level for the control of the guard locking is defined only by the external control (e.g.  $PFH_{D, ext.}$  for the standstill monitor).



## 4. Exclusion of liability and warranty

In case of failure to comply with the conditions for correct use stated above, or if the safety instructions are not followed, or if any servicing is not performed as required, liability will be excluded and the warranty void.

## 5. General safety precautions

Safety switches fulfill personnel protection functions. Incorrect installation or tampering can lead to fatal injuries to personnel.

Check the safe function of the guard particularly

- › after any setup work
- › after the replacement of a system component
- › after an extended period without use
- › after every fault

Independent of these checks, the safe function of the guard should be checked at suitable intervals as part of the maintenance schedule.



### **WARNING**

Danger to life due to improper installation or due to bypassing (tampering). Safety components perform a personnel protection function.

- › Safety components must not be bypassed, turned away, removed or otherwise rendered ineffective. On this topic pay attention in particular to the measures for reducing the possibility of bypassing according to EN ISO 14119:2013, section 7.
- › The switching operation must be triggered only by actuators designated for this purpose.
- › Prevent bypassing by means of replacement actuators (only for multicode evaluation). For this purpose, restrict access to actuators and to keys for releases, for example.
- › Mounting, electrical connection and setup only by authorized personnel possessing the following knowledge:
  - specialist knowledge in handling safety components
  - knowledge about the applicable EMC regulations
  - knowledge about the applicable regulations on occupational safety and accident prevention.



### **Important!**

Prior to use, read the operating instructions and keep these in a safe place. Ensure the operating instructions are always available during mounting, setup and servicing. EUCHNER cannot provide any warranty in relation to the readability of the CD for the storage period required. For this reason you should archive a printed copy of the operating instructions. You can download the operating instructions from [www.euchner.com](http://www.euchner.com).



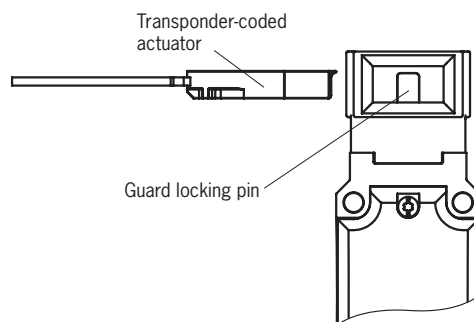
### 6. Function

The device permits the locking of movable guards.

The system consists of the following components: coded actuator (transponder) and switch.


Whether the device learns the complete actuator code (unicode) or not (multicode) depends on the respective version.

- ▶ **Devices with unicode evaluation:** The actuator must be assigned to the safety switch by a teach-in operation so that it is detected by the system. This unambiguous assignment ensures a particularly high level of protection against tampering. The system thus possesses a high coding level.
- ▶ **Devices with multicode evaluation:** Unlike systems with unique code detection, on multicode devices a specific code is not requested but instead it is only checked whether the actuator is of a type that can be detected by the system (multicode detection). There is no exact comparison of the actuator code with the taught-in code in the safety switch (unique code detection). The system possesses a low coding level.




When the guard is closed, the actuator is moved into the safety switch. When the switch-on distance is reached, power is supplied to the actuator by the switch and data are transferred.

If a permissible code is detected, the safety outputs  are switched on.

The safety outputs  and the monitoring output (OL) are switched off when the guard is unlocked.

In the event of a fault in the safety switch, the safety outputs  are switched off and the DIA LED illuminates red. The occurrence of faults is detected at the latest on the next demand to close the safety outputs (e.g. on starting).

#### 6.1. Guard locking monitoring

All versions feature two safe outputs for monitoring guard locking. The safety outputs  (F01A and F01B) are switched off when guard locking is released.

#### 6.2. Door monitoring output (OD)

The door monitoring output is switched on as soon as the actuator is inserted in the switch head (state: guard closed and not locked). The door monitoring output also remains switched on when guard locking is active.

#### 6.3. Diagnostics output (OI)

The diagnostics output is switched on in the event of a fault (switch-on condition as for DIA LED).

#### 6.4. Guard locking monitoring output (OL)

The guard locking monitoring output is switched on when guard locking is active.

#### 6.5. Version CTP Extended

Devices in the Extended version contain additional controls/indicators in the housing cover. Please refer to the enclosed data sheet for further information.

#### 6.6. Guard locking on version CTP-L1

(Guard locking actuated by spring force and released by power-ON)

**Activating guard locking:** close guard; no voltage at the solenoid.

**Releasing guard locking:** apply voltage to the solenoid.

The spring-operated guard locking functions in accordance with the closed-circuit current principle. If the voltage is interrupted at the solenoid, the guard locking remains active and the guard cannot be opened directly.



#### Important!

If the guard is open when the power supply is interrupted and is then closed, guard locking is activated. This can lead to persons being locked in unintentionally.

The actuator cannot be pulled out of the switch and the guard is locked as long as the guard locking pin is extended.  
 If a voltage is applied to the guard locking solenoid, the guard locking pin is retracted and the actuator is released. The guard can be opened.

**6.7. Guard locking on version CTP-L2**

(Guard locking actuated by power-ON and released by spring force)



**Important!**

Use as guard locking for personnel protection is possible only in special cases, after strict assessment of the accident risk (see EN ISO 14119:2013, section 5.7.1)!

**Activating guard locking:** apply voltage to the solenoid.

**Releasing guard locking:** disconnect voltage from the solenoid.

The magnetically actuated guard locking operates in accordance with the open-circuit current principle. If the voltage is interrupted at the solenoid, the guard locking is released and the guard can be opened directly!

The guard can be opened as long as no voltage is applied to the guard locking solenoid.

If a voltage is applied to the guard locking solenoid, the guard locking pin is held in the extended position and the guard is locked.

**6.8. Switching states**

The detailed switching states for your switch can be found in the system status table. All safety outputs, monitoring outputs and display LEDs are described there.

	Guard closed and locked	Guard closed and not locked	Guard open
Voltage on guard locking solenoid CTP-L1	off	on	(irrelevant)
Voltage on guard locking solenoid CTP-L2	on	off	(irrelevant)
Safety outputs F01A and F01B	on	off	off
Guard locking monitoring output OL	on	off	off
Door monitoring output OD	on	on	off

### 7. Manual release



#### Important!

No further release functions can be retrofitted on Extended variants with controls in position 1 (S1) and position 2 (S2).

Some situations require the guard locking to be released manually (e.g. malfunctions or an emergency). A function test should be performed after release.

More information on this topic can be found in the standard EN ISO 14119:2013, section 5.7.5.1. The device can feature the following release functions:


#### 7.1. Auxiliary release and auxiliary key release

In the event of malfunctions, the guard locking can be released with the auxiliary release irrespective of the state of the solenoid.

The safety outputs  are switched off when the auxiliary release is actuated. Use the safety outputs  to generate a stop command.

The monitoring output OL is switched off; OD can assume an undefined state. Open the guard and close it again after re-setting the auxiliary release. The device will then operate normally again.

##### 7.1.1. Actuating auxiliary release

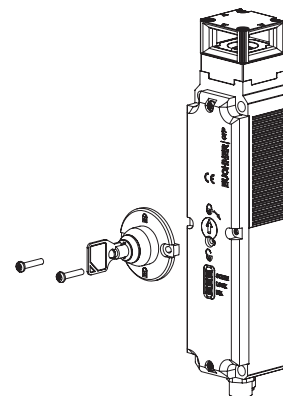
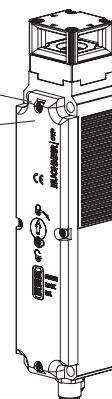
1. Unscrew locking screw.
  2. Using a screwdriver, turn the auxiliary release to  in the direction of the arrow.
- ➔ Guard locking is released.



#### Important!

- › The actuator must not be under tensile stress during manual release.
- › After use, reset the auxiliary release and screw in and seal the locking screw (e.g. with sealing lacquer).
- › The auxiliary key release must not be used to lock the switch during servicing to prevent activation of guard locking, for example.
- › Loss of the release function due to mounting errors or damage during mounting.
- › Check the release function every time after mounting.
- › Please observe the notes on any enclosed data sheets.

Auxiliary release  
Locking screw



##### 7.1.2. Actuating auxiliary key release

On devices with auxiliary key release (can be retrofitted), simply turn the key to release. Function as for auxiliary release. For mounting, see the auxiliary key release supplement.

## 7.2. Emergency unlocking

Permits opening of a locked guard from outside the danger zone without tools. For mounting, see the mounting supplement.



### Important!

- › It must be possible to operate the emergency unlocking manually from outside the protected area without tools.
- › The emergency unlocking must possess a marking indicating that it may be used only in an emergency.
- › The actuator must not be under tensile stress during manual release.
- › The emergency unlocking must be sealed or the misuse of the release function must be prevented in the control system.
- › The unlocking function meets all other requirements from EN ISO 14119.
- › The emergency unlocking meets the requirements of Category B according to EN ISO 13849-1:2015.
- › Loss of the release function due to mounting errors or damage during mounting.
- › Check the release function every time after mounting.
- › Please observe the notes on any enclosed data sheets.

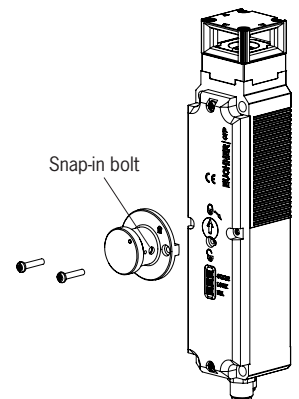
### 7.2.1. Actuating emergency unlocking

- › Turn emergency unlocking clockwise until it clicks into place.
- ➔ Guard locking is released.

To reset, press the snap-in bolt inward using a small screwdriver or similar tool and turn the emergency unlocking back.

The safety outputs are switched off when the emergency unlocking is actuated. Use the safety outputs to generate a stop command.

The monitoring output OL is switched off; OD can assume an undefined state. Open the guard and close it again after resetting the emergency unlocking. The device will then operate normally again.



## 7.3. Escape release (optional)

Permits opening of a locked guard from the danger zone without tools (see chapter 13.3. *Dimension drawing for safety switch CTP... on page 36*).



### Important!

- › It must be possible to actuate the escape release manually from inside the protected area without tools.
- › It must not be possible to reach the escape release from the outside.
- › The actuator must not be under tensile stress during manual release.
- › The escape release meets the requirements of Category B according to EN ISO 13849-1:2015.

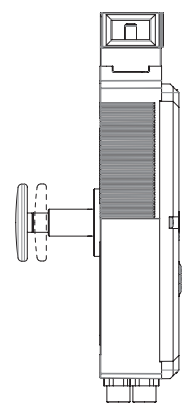
### 7.3.1. Actuating escape release

- › Press the red release knob to the end stop
- ➔ Guard locking is released.

Pull the knob out again to reset.

The safety outputs are switched off when the escape release is actuated. Use the safety outputs to generate a stop command.

The monitoring output OL is switched off; OD can assume an undefined state. Open the guard and close it again after re-setting the escape release. The device will then operate normally again.



### 7.4. Wire front release

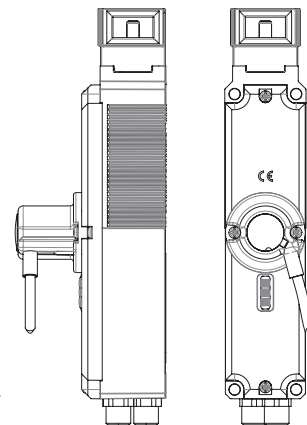
Release via a pull wire. Depending on the type of attachment, the wire front release can be used as emergency unlocking or escape release.

The following applies to non-latching wire front releases.

If the release is to be used as emergency unlocking, one of the following measures must be taken (see EN ISO 14119:2013, section 5.7.5.3):

- › Install the release so that it can be reset only with the aid of a tool.
- › Alternatively, the reset can be undertaken at the control system level. E.g. by means of a plausibility check (status of the safety outputs does not match the guard locking activation signal).

The emergency-unlocking specifications in chapter 7.2 on Page 12 apply irrespective of this information.



#### Important!

- › The wire front release meets the requirements of Category B according to EN ISO 13849-1:2015.
- › The correct function depends on the laying of the pull wire and on the attachment of the pull handle, and this is the responsibility of the plant manufacturer.
- › The actuator must not be under tensile stress during manual release.

#### 7.4.1. Laying wire front release



#### Important!

- › Loss of the release function due to mounting errors, damage or wear.
- › Check the release function every time after mounting.
- › When routing the wire front release, ensure that it operates smoothly.
- › Observe the min. bending radius (100 mm) and minimize the number of bends.
- › The switch is not allowed to be opened.
- › Observe the notes on the enclosed data sheets.

## 8. Changing the approach direction

The approach direction needs to be changed only if the switch is to be approached from the rear.

Proceed as follows:

1. Remove the screws from the safety switch
2. Set the required direction
3. Tighten the screws with a torque of 1.2 Nm

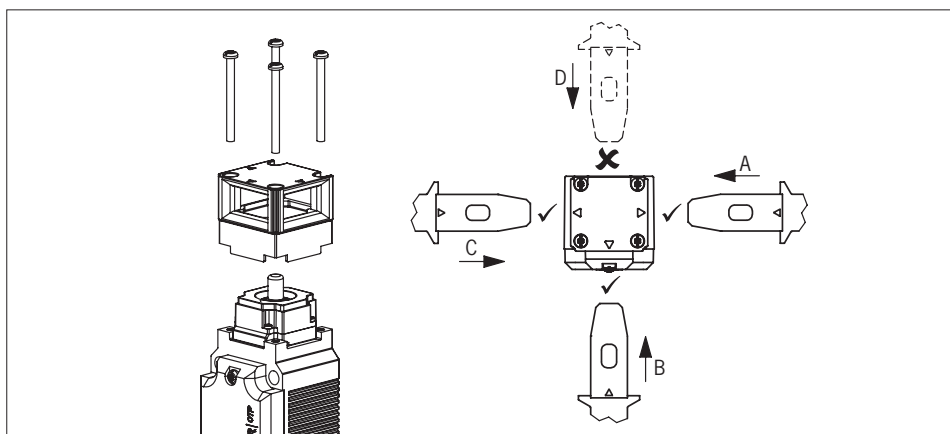


Figure 1: Changing the approach direction

### 9. Installation



#### CAUTION

Safety switches must not be bypassed (bridging of contacts), turned away, removed or otherwise rendered ineffective.

- › Observe EN ISO 14119:2013, section 7, for information about reducing the possibilities for bypassing an interlocking device.



#### NOTICE

Risk of damage to equipment and malfunctions as a result of incorrect installation.

- › Safety switches and actuators must not be used as an end stop.
- › Observe EN ISO 14119:2013, sections 5.2 and 5.3, for information about fastening the safety switch and the actuator.
- › Protect the switch head against damage, as well as penetrating foreign objects such as swarf, sand and blasting shot, etc.
- › Observe the min. door radii (see chapter 13.4.1. *Dimension drawing for actuator CTP-... on page 38*).
- › Observe the tightening torque for fastening the switch (max.1.4 Nm).

A clearance of 12 mm must be maintained around the actuator head (see *Figure 2*).

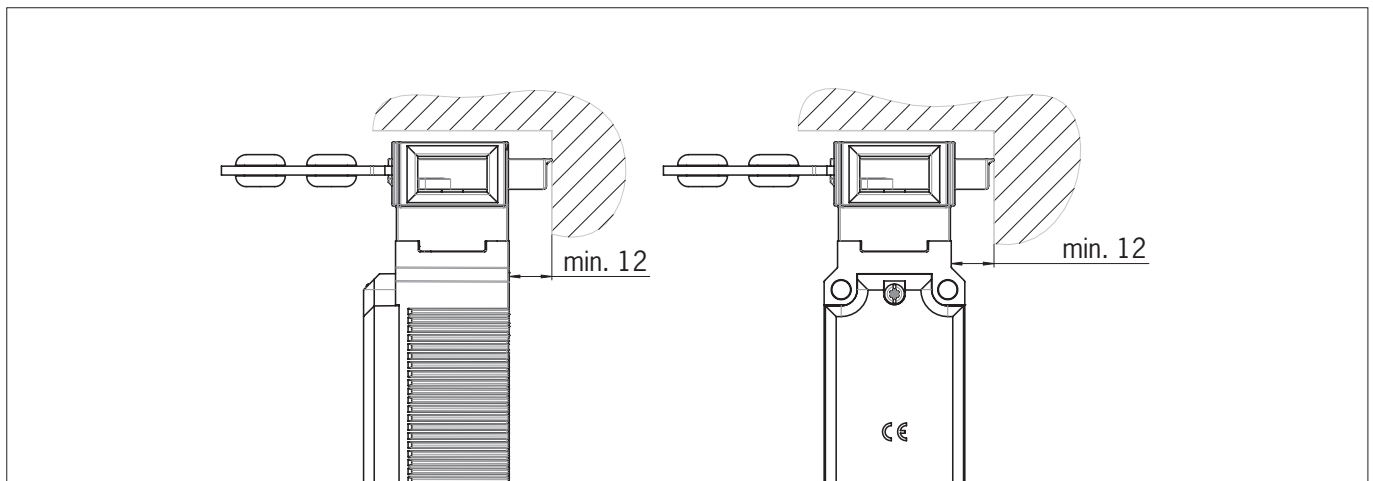


Figure 2: Actuator head clearance

## 10. Electrical connection


The following connection options are available:

- › Separate operation
- › Series connection with Y-distributors from EUCHNER (only with M12 plug connector)
- › Series connection, e.g. with wiring in the control cabinet
- › Operation on an AR evaluation unit (only for CTP Extended).



### WARNING

If there is a mistake, loss of the safety function due to incorrect connection.

- › To ensure safety, both safety outputs  (FO1A and FO1B) must always be evaluated.
- › Monitoring outputs must not be used as safety outputs.
- › Lay the connection cables with protection to prevent the risk of short circuits.



### CAUTION

Risk of damage to equipment or malfunctions as a result of incorrect connection.

- › The power supply for the evaluation electronics is electrically isolated from the power supply for the guard locking solenoid.
- › Do not use a control system with pulsing or switch off the pulsing function in your control system. The device generates its own test pulses on the output lines FO1A/FO1B. A downstream control system must tolerate these test pulses, which may be up to 1 ms long on AR devices. The test pulses on AR devices are also output when the safety outputs are switched off. Depending on the inertia of the downstream device (control system, relay, etc.), this can lead to short switching processes.
- › The inputs on an evaluation unit connected must be positive-switching, as the two outputs on the safety switch deliver a level of +24 V in the switched-on state.
- › All the electrical connections must either be isolated from the mains supply by a safety transformer according to IEC 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures (PELV).
- › All electrical outputs must have an adequate protective circuit for inductive loads. The outputs must be protected with a free-wheeling diode for this purpose. RC interference suppression units must not be used.
- › Power devices which are a powerful source of interference must be installed in a separate location away from the input and output circuits for signal processing. The cable routing for safety circuits should be as far away as possible from the cables of the power circuits.
- › To avoid EMC interference, the physical environmental and operating conditions at the installation site of the device must comply with the requirements according to the standard EN 60204-1:2006, section 4.4.2 (EMC).



### CAUTION

Please pay attention to any interference fields from devices such as frequency converters or induction heating systems. Observe the EMC instructions in the manuals from the respective manufacturer.



### Important!



If the device does not appear to function when operating voltage is applied (e.g. green STATE LED does not flash), the safety switch must be returned unopened to the manufacturer.



### 10.1. Notes about



#### Important!

- › For use and operation as per the  requirements <sup>1)</sup>, a power supply with the feature “for use in class 2 circuits” must be used.  
Alternative solutions must comply with the following requirements:  
Electrically isolated power supply unit in combination with fuse as per UL248. This fuse should be designed for max. 3.3 A and should be integrated into the 30 V DC voltage section.
- › For use and applications as per the  requirements <sup>1)</sup>, a connection cable listed under UL category code CYJV/7, min. 24 AWG, min 80 °C, must be used.

1) Note on the scope of the UL approval: the devices have been tested as per the requirements of UL508 and CSA/ C22.2 no. 14 (protection against electric shock and fire).

### 10.2. Safety in case of faults

- › The operating voltage  $U_B$  and the solenoid voltage  $IMP$  are reverse polarity protected.
- › The safety outputs  $F01A/F01B$  are short circuit-proof.
- › A short circuit between  $F01A$  and  $F01B$  is detected by the switch.
- › A short circuit in the cable can be excluded by laying the cable with protection.

### 10.3. Fuse protection for power supply

The power supply must be provided with fuse protection depending on the number of switches and current required for the outputs. The following rules apply:

#### Max. current consumption of an individual switch $I_{max}$

$$I_{max} = I_{UB} + I_{F01A+F01B} + I_{OL} + I_{OD}$$

$$I_{UB} = \text{Switch operating current (40 mA)}$$

$$I_{OL}/I_{OD} = \text{Load current of monitoring outputs (max. 50 mA per monitoring output)}$$

$$I_{F01A+F01B} = \text{Load current of safety outputs } F01A + F01B \text{ (2 x max. 150 mA)}$$

#### Max. current consumption of a switch chain $\Sigma I_{max}$

$$\Sigma I_{max} = I_{F01A+F01B} + n \times (I_{UB} + I_{OL} + I_{OD})$$

$$n = \text{Number of connected switches}$$

## 10.4. Requirements for connection cables



### CAUTION

Risk of damage to equipment or malfunctions as a result of incorrect connection cables.

- › Use connection components and connection cables from EUCHNER
- › On the usage of other connection components, the requirements in the following table apply. EUCHNER provides no warranty for safe function in case of failure to comply with these requirements.

Observe the following requirements with respect to the connection cables:

### For safety switches CTP-...-AR-...-SAB-... with plug connectors 2 x M12

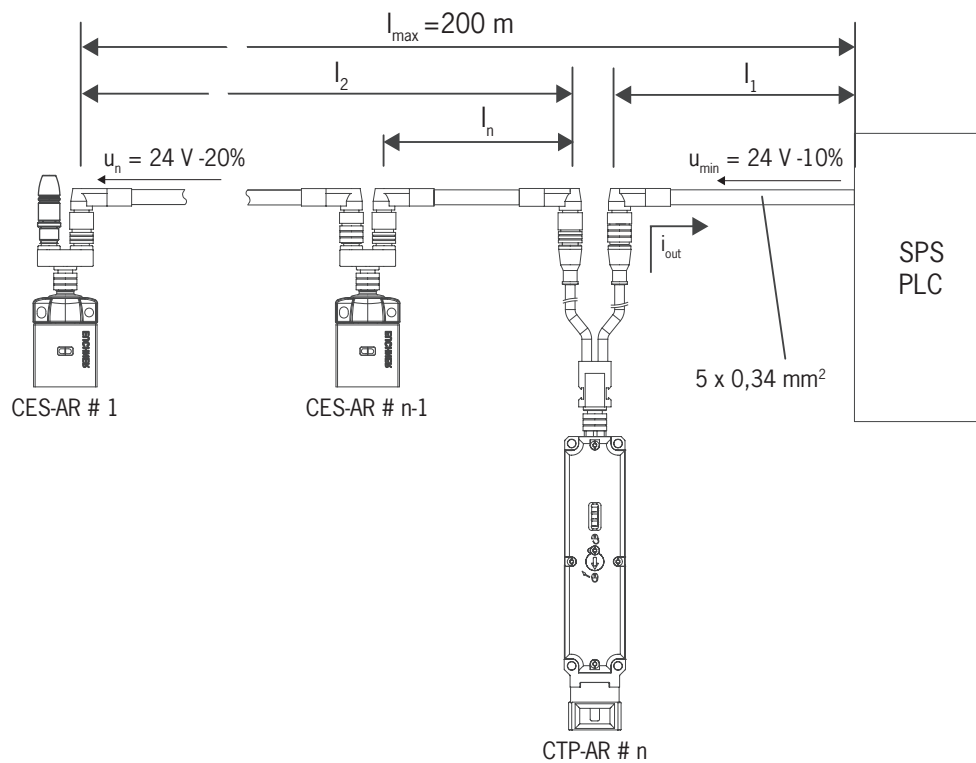
Parameter	Value	Unit
Conductor cross-section, min.	0.25	mm <sup>2</sup>
R max.	60	Ω/km
C max.	120	nF/km
L max.	0.65	mH/km
Recommended cable type	LIYY 8 x 0.25 mm <sup>2</sup> or 5 x 0.34 mm <sup>2</sup>	

### For safety switches CTP-...-AR-...-SH-... with plug connector M23 (RC18)

Parameter	Value	Unit
Conductor cross-section, min.	0.25	mm <sup>2</sup>
R max.	60	Ω/km
C max.	120	nF/km
L max.	0.65	mH/km
Recommended cable type	LIFY11Y min. 19-core	

### 10.5. Maximum cable lengths

Switch chains are permitted up to a maximum overall cable length of 200 m taking into account the voltage drop as a result of the cable resistance (see table below with example data and case example).



n	$I_{FO1A/FO1B} \text{ (mA)}$	$l_1 \text{ (m)}$
Max. number of switches	Possible output current per channel FO1A/FO1B	Max. cable length from the last switch to the control system
5	10	150
	25	100
	50	80
	100	50
	150	25
6	10	120
	25	90
	50	70
	100	50
	150	25
10	10	70
	25	60
	50	50
	100	40
	150	25

### 10.5.1. Determining cable lengths using the example table

Example: six switches are to be used in series. Cabling with a length of 40 m is routed from a safety relay in the control cabinet to the last switch (#6). Cables with a length of 20 m each are connected between the individual CES-AR/CTP-L1-... safety switches.

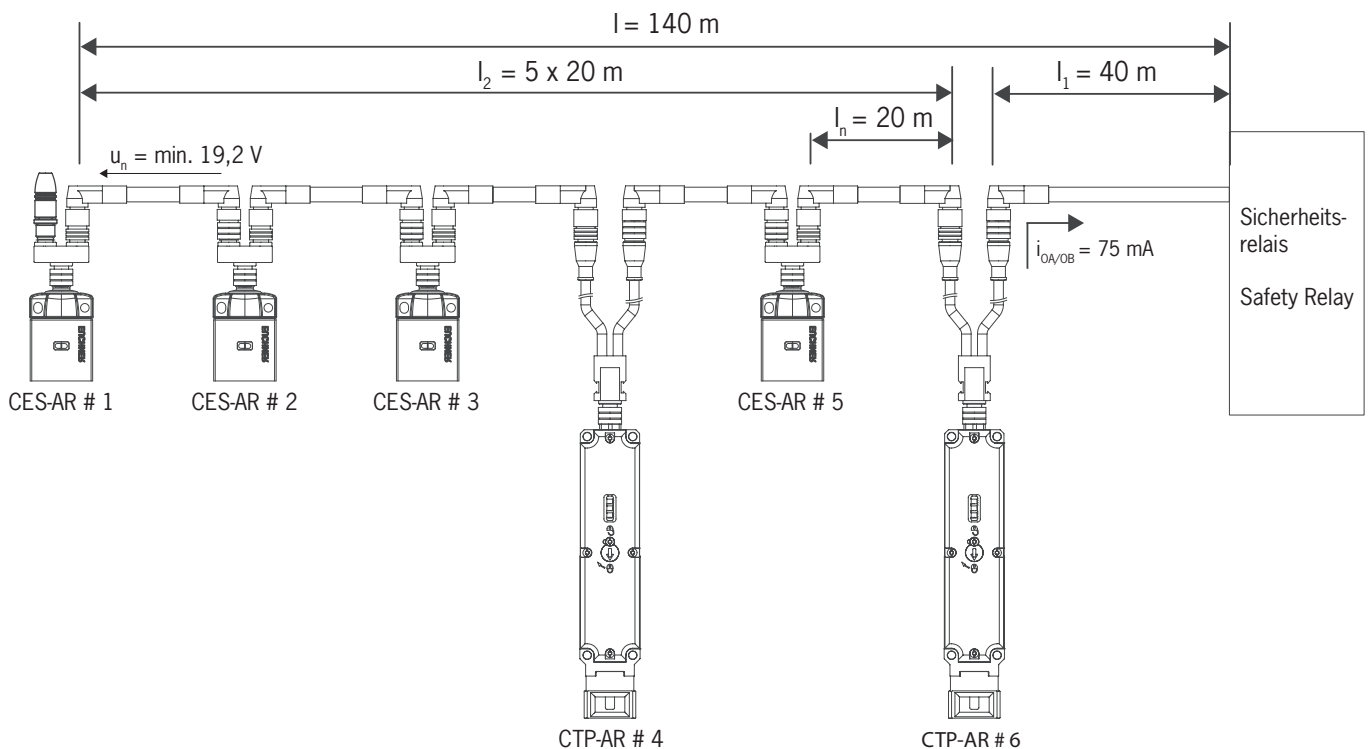


Figure 3: Circuit example with six CES-AR/CTP-L1-...

A safety relay is connected downstream which consumes 75 mA at each of the two safety inputs. This operates over the whole temperature range with a voltage of 19.2 V (corresponds to 24 V - 20%).

All the relevant values can now be determined using the example table:

1. Select the corresponding section in the column n (max. number of switches). Here: six switches.
  2. In column  $I_{F01A/F01B}$  (possible output current per channel F01A/F01B), find a current greater than or equal to 75 mA. Here: 100 mA.
- ➔ It is then possible to determine the maximum cable length from the last switch (#6) to the control system from column  $l_1$ . Here: a length of 50 m is permitted.

Result: The desired cable length  $l_1$  of 40 m is below the permitted value from the table. The overall length of the switch chain  $l_{\text{max}}$  of 140 m is less than the maximum value of 200 m.

- ➔ The planned application is therefore functional in this form.

### 10.6. Pin assignment safety switch CTP-...-AR-...-SAB-... with plug connectors 2 x M12

Wiring diagram A

Plug connectors (view of connection side)	Pin	Designation	Function	Wire color of connection cable 1)
<p>2 x M12</p>	X 1.1	F11B	Enable input, channel 2	WH
	X 1.2	UB	Operating voltage of AR electronics, 24 V DC	BN
	X 1.3	F01A	Safety output, channel 1	GN
	X 1.4	F01B	Safety output, channel 2	YE
	X 1.5	OL	Guard locking monitoring output	GY
	X 1.6	F11A	Enable input, channel 1	PK
	X 1.7	0 V UB	Operating voltage of AR electronics, 0 V	BU
	X 1.8	RST	Reset input	RD
	X 2.1	IMM	Operating voltage of guard locking solenoid, 0 V	BN
	X 2.2	OD	Door monitoring output	WH
	X 2.3	OI	Diagnostic output	BU
	X 2.4	IMP	Operating voltage of guard locking solenoid, 24 V DC	BK
	X 2.5	-	Not used	GY

1) Only for standard EUCHNER connection cable

### 10.7. Pin assignment safety switch CTP-...-AR-...-SH-... with plug connector M23 (RC18)

Wiring diagram B

Plug connector (view of connection side)	Pin	Designation	Function	Wire color of connection cable 1)
<p>M23 (RC18) with screen bonding clamp</p>	1	IMP	Operating voltage of guard locking solenoid, 24 V DC	VT
	2	F11A	Enable input, channel 1	RD
	3	F11B	Enable input, channel 2	GY
	4	F01A	Safety output, channel 1	RD/BU
	5	F01B	Safety output, channel 2	GN
	6	UB	Operating voltage of AR electronics, 24 V DC	BU
	7	RST	Reset input	GY/PK
	8	OD	Door monitoring output	GN/WH
	9	OI	Diagnostic output	YE/WH
	10	OL	Guard locking monitoring output	GY/WH
	11	-	n.c.	BK
	12	FE	Function earth (must be connected to meet the EMC requirements)	GN/YE
	13	-	n.c.	PK
	14	-	n.c.	BN/GY
	15	-	n.c.	BN/YE
	16	-	n.c.	BN/GN
	17	-	n.c.	WH
	18	IMM	Operating voltage of guard locking solenoid, 0 V	YE
	19	0 V UB	Operating voltage of AR electronics, 0 V	BN

1) Only for standard EUCHNER connection cable

## 10.8. Pin assignment for Y-distributor

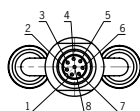
(only for version with plug connectors 2 x M12)

Pin assignment  
safety switch CTP-L1-...  
(plug X1, 8-pin plug)  
and  
Y-distributor (8-pin socket)

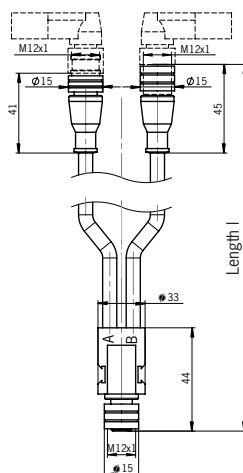
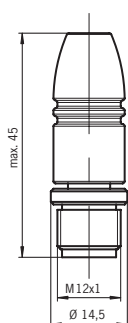
Pin	Function
X1.1	F11B
X1.2	UB
X1.3	F01A
X1.4	F01B
X1.5	OL
X1.6	F11A
X1.7	0 V
X1.8	RST

Y-distributor with connecting  
cable  
111696 or 112395

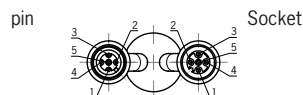
Socket



Strapping plug 097645  
4-pin, plug  
(figure similar)



Order no.	Length l [mm]
111696	200
112395	1000




Pin	Function	Pin	Function
X2.1	UB	X3.1	UB
X2.2	F01A	X3.2	F11A
X2.3	0 V	X3.3	0 V
X2.4	F01B	X3.4	F11B
X2.5	RST	X3.5	RST

### 10.9. Connection of a single CTP-AR

If a single CTP-AR is used, connect the switch as shown in Figure 4. The monitoring outputs can be routed to a control system. The switches can be reset via the RST input. To do this, a voltage of 24 V is applied to the RST input for at least 3 s. The RST input must be connected to 0 V if it is not used.



#### WARNING

If there is a mistake, loss of the safety function due to incorrect connection.  
 ▶ To ensure safety, both safety outputs  (FO1A and FO1B) must always be evaluated.



#### Important!

▶ The example shows only an excerpt that is relevant for connection of the CTP system. The example illustrated here does not show complete system planning. The user is responsible for safe integration into the overall system. Detailed application examples can be found at [www.euchner.com](http://www.euchner.com). Simply enter the order number in the search box. All available connection examples for the device can be found in "Downloads."

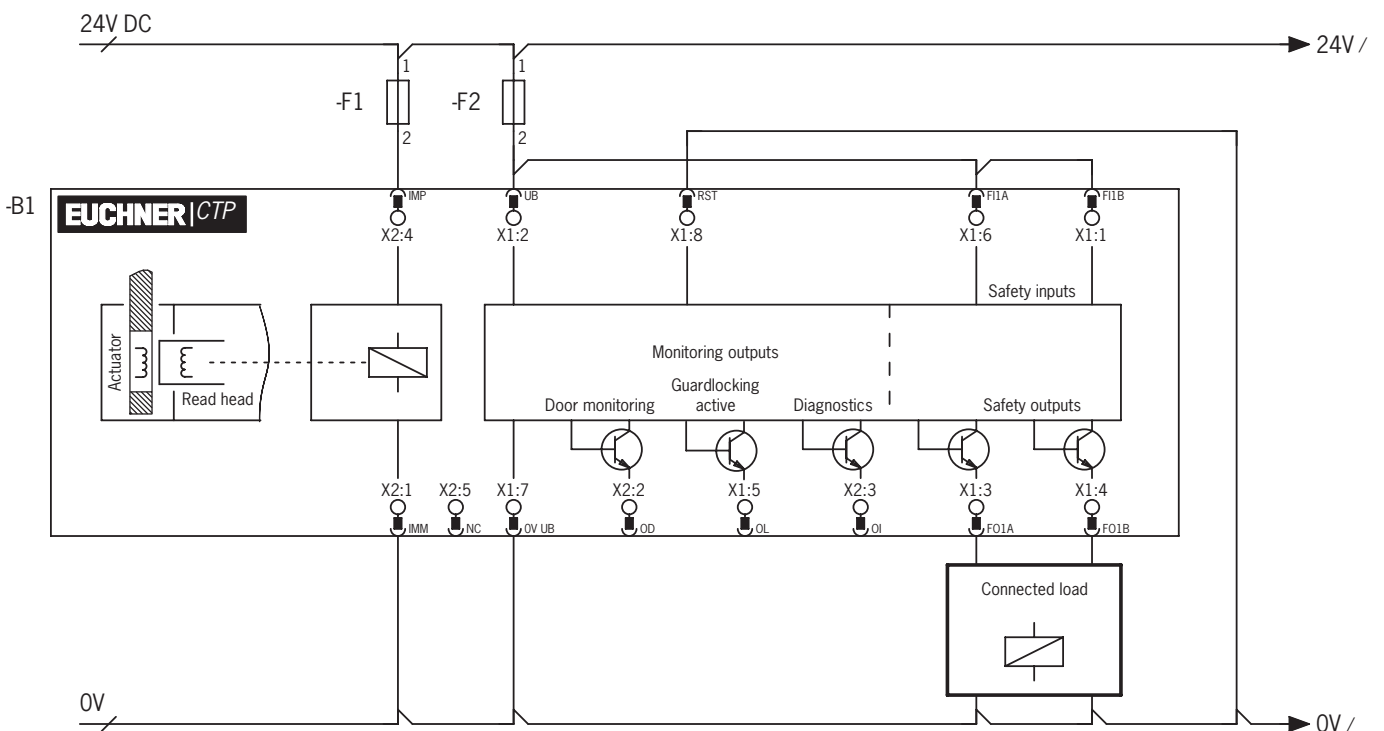


Figure 4: Connection example for separate operation, version with plug connectors 2xM12

## 10.10. Connection of several CTP-AR in a switch chain




### Important!

- › An AR switch chain may contain a maximum of 20 safety switches.
- › The example shows only an excerpt that is relevant for connection of the CTP system. The example illustrated here does not show complete system planning. The user is responsible for safe integration into the overall system. Detailed application examples can be found at [www.euchner.com](http://www.euchner.com). Simply enter the order number in the search box. You will find all available connection examples for the device in Downloads.
- › For information about the safety assessment for AR switch chains, see chapter 3. *Description of the safety function on page 6.*

The series connection is shown here based on the example of the version with plug connectors 2 x M12. The series connection of the version with plug connector RC18 has similar behavior, but is realized using additional terminals in a control cabinet.

The switches in the version with plug connectors 2 x M12 are connected one after the other with the aid of pre-assembled connection cables and Y-distributors. If a guard is opened or if a fault occurs on one of the switches, the system shuts down the machine. A higher level control system cannot, however, detect which guard is open or on which switch a fault has occurred with this connection technology.

The safety outputs  are permanently assigned to the respective safety inputs of the downstream switch. FO1A must be routed to FI1A and FO1B to FI1B. If the connections are interchanged (e.g. FO1A to FI1B), the device will switch to the fault state.

Always use the RST input in series connections. All switches in a chain can be reset at the same time with this reset input. To do this, a voltage of 24 V must be applied to the RST input for at least 3 s. If input RST is not used in your application, it should be connected to 0 V.

Note the following on this aspect:

- › A common signal must be used for all switches in the chain. This can be a changeover switch or the output of a control system. A pushbutton is not suitable, because Reset must always be connected to GND during operation (see switch S11 in *Figure 5 on page 25*).
- › Reset must always be performed simultaneously for all switches of the chain.



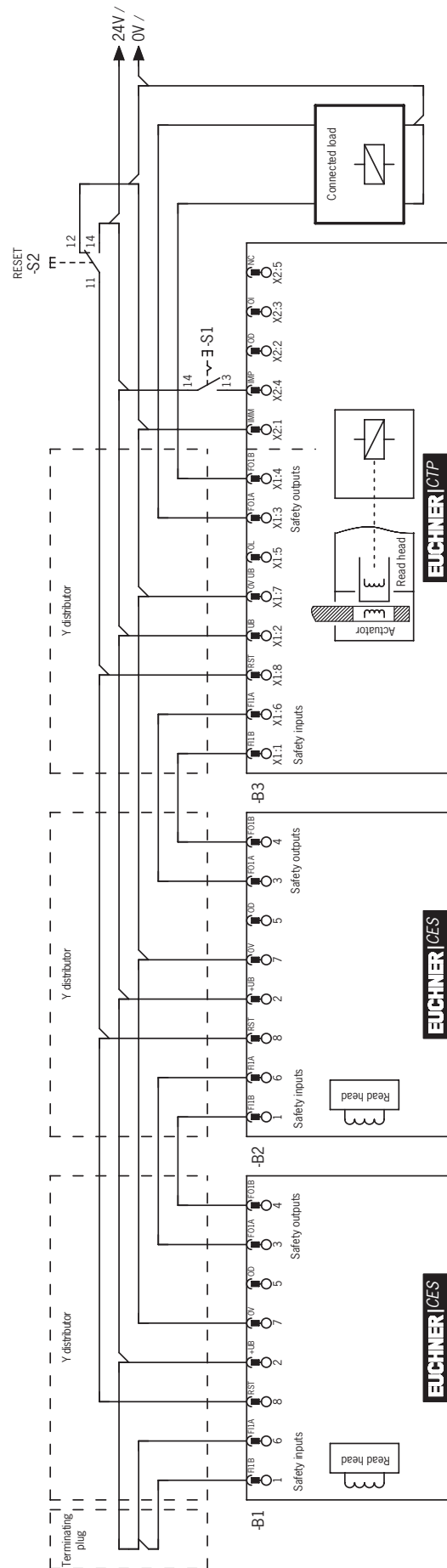


Figure 5: Connection example for operation in a CES-AR switch chain

### 10.11. Information on operation on an AR evaluation unit

The devices can be operated on an AR evaluation unit.

Please refer to the operating instructions for the relevant AR evaluation unit for more information.

Each of the devices occupies two monitoring outputs on the AR evaluation unit. The first monitoring output signals the guard position (HIGH when the guard is closed). The second monitoring output signals the position of guard locking (HIGH when guard locking is active).




#### NOTICE

Devices in the Extended version cannot be used with AR evaluation units.

### 10.12. Notes on operation with safe control systems

Please observe the following requirements for connection to safe control systems:

- › Use a common power supply for the control system and the connected safety switches.
- › A pulsed power supply must not be used for UB. Tap the supply voltage directly from the power supply unit. If the supply voltage is connected to a terminal of a safe control system, this output must provide sufficient electrical current.
- › Always connect inputs FI1A and FI1B directly to a power supply unit or to outputs FO1A and FO1B of another EUCHNER AR device (series connection). Pulsed signals must not be present at inputs FI1A and FI1B.
- › The safety outputs  (FO1A and FO1B) can be connected to the safe inputs of a control system. Prerequisite: the input must be suitable for pulsed safety signals (OSSD signals, e.g. from light grids). The control system must tolerate test pulses on the input signals. This normally can be set up by parameter assignment in the control system. Observe the notes of the control system manufacturer. For the pulse duration of your safety switch, please refer to chapter 13. *Technical data on page 33.*
- › The following applies to single-channel control of guard locking:  
The guard locking (IMM) and the control system must have the same ground.
- › For dual-channel control of the solenoid voltage by safe outputs of a control system, the following points must be observed (see also *Figure 6 on page 27*):
  - If possible, switch off the pulsing of the outputs in the control system.
  - Pulses up to a length of max. 5 ms are tolerated.

A detailed example of connecting and setting the parameters of the control system is available for many devices at [www.euchner.com](http://www.euchner.com) in Downloads » Applications » CTP. The features of the respective device are dealt with there in greater detail.

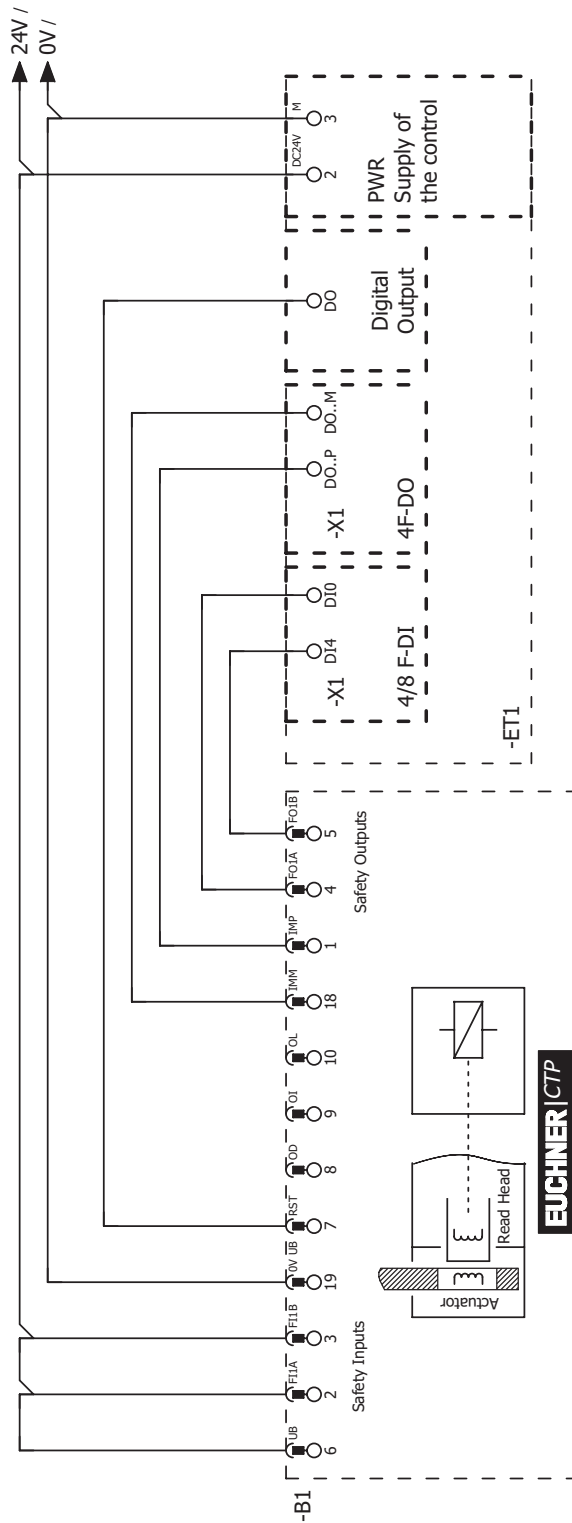


Figure 6: Connection example for the connection to ET200

### 10.13. Connection of guard locking control

#### 10.13.1. Guard locking control for variants with IMM connection

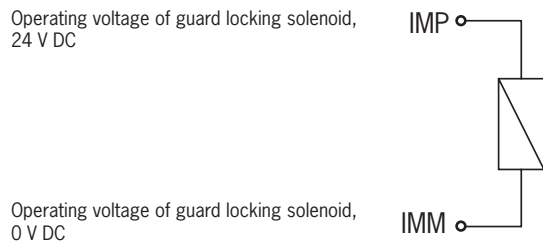


Figure 7: Connection example with IMM connection

#### 10.13.2. Guard locking control for variants without IMM connection

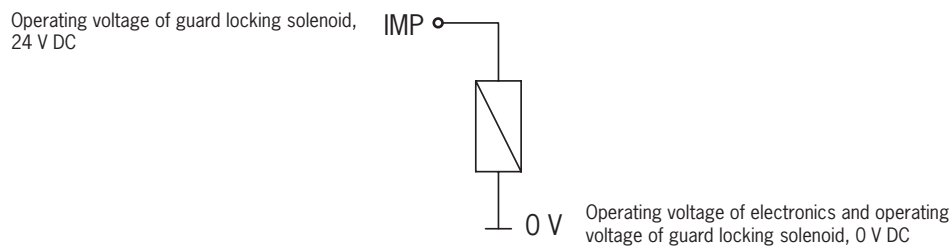


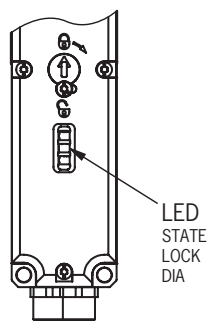
Figure 8: Connection example without IMM connection

## 11. Setup

### 11.1. LED displays

You will find a detailed description of the signal functions in chapter 12. *System status table on page 32.*

LED	Color
STATE	green
LOCK	yellow
DIA	red



### 11.2. Teach-in function for actuator (only for unicode evaluation)

The actuator must be allocated to the safety switch using a teach-in function before the system forms a functional unit.

During a teach-in operation, the safety outputs are switched off, i.e. the system is in the safe state.

The teach-in operation is fully automatic. The number of possible teach-in operations is unlimited.



#### Tip!

Prior to switching on, close the guard on which the actuator to be taught in is installed. The teach-in operation starts immediately after switching on. This feature simplifies above all teach-in with series circuits and on large installations.



#### Important!

- › The teach-in operation may be performed only if the device does not have any internal errors.
- › Devices in the condition as supplied remain in teach-in standby state until you have successfully taught in the first actuator. Once taught in, switches remain in the teach-in standby state for approx. 3 min. after each switch-on.
- › The safety switch disables the code of the previous actuator if teach-in is carried out for a new actuator. Teach-in is not possible again immediately for this actuator if a new teach-in operation is carried out. The disabled code is released again in the safety switch only after a third code has been taught in.
- › The safety switch can be operated only with the last actuator taught in.
- › If the switch detects the actuator that was most recently taught when in the teach-in standby state, this state is ended immediately and the switch changes to normal state.
- › The actuator to be taught in is not activated if it is within the operating distance for less than 30 s.

### **11.2.1. Actuator teach-in**

1. Establish teach-in standby:
  - Devices in the condition as supplied: unlimited teach-in standby after switching on
  - Switch already taught in: teach-in standby is available for approx. 3 min after switching on
- ➔ Teach-in standby indication, STATE LED flashes 3x repeatedly
2. Insert the actuator during teach-in standby.
  - ➔ The automatic teach-in operation starts (duration approx. 30 s).  
During the teach-in operation the STATE LED flashes (approx. 1 Hz).  
Alternate flashing of the STATE and DIA LEDs acknowledges the successful teach-in operation.  
Teach-in errors are indicated by the illumination of the red DIA LED and a flashing code on the green State LED (see chapter 12. *System status table on page 32*).
3. Switch off operating voltage UB (min. 3 s).
  - ➔ The code of the actuator that was just taught in is activated in the safety switch.
4. Switch on operating voltage UB.
  - ➔ The device operates normally.

### **11.2.2. Teach-in function with series connection, replacing and teaching in device**

It is recommended not to teach in the actuators in the series connection but to teach them in one by one instead. Teach-in in a series connection works analogously to separate operation in principle. It is a prerequisite that the steps below are followed. Further steps might have to be observed for mixed switch chains (e.g. for chains with CES and CET). Observe the operating instructions for the other devices in the chain for this purpose.

Work on the wiring (e.g. during device replacement) should generally be performed in a de-energized state. On certain systems, it is nevertheless necessary to perform this work and subsequent teach-in during ongoing operation.

Input RST must be connected as shown in *Figure 5 on page 25* to permit this.

Proceed as follows:

1. Open the guard on which the switch or actuator is to be replaced.
2. Mount the new switch or actuator and prepare it for the teach-in operation (see chapter 11.2.1. *Actuator teach-in on page 30*).
3. Close all guards in the chain and activate guard locking.
4. Actuate the reset for at least 3 s (24 V on RST).
  - ➔ On the safety switch that is positioned at a new actuator, the green LED flashes at approx. 1 Hz and the actuator is taught in. This takes approx. 30 s. Do not switch off during this time and do not actuate reset! The teach-in operation is complete when the STATE and DIA LEDs flash alternately.
5. Actuate the reset for at least 3 s (24 V on RST).
  - ➔ The system restarts and then continues to function in normal operation.

### 11.3. Functional check



#### WARNING

Danger of fatal injury as a result of faults in installation and functional check.

- › Before carrying out the functional check, make sure that there are no persons in the danger zone.
- › Observe the applicable accident prevention regulations.

#### 11.3.1. Mechanical function test

The actuator must slide easily into the actuating head. Close the guard several times to check the function. For devices with mechanical release (emergency unlocking or escape release), the correct function of the release must be checked as well.

#### 11.3.2. Electrical function test

After installation and any fault, the safety function must be fully checked. Proceed as follows:

1. Switch on operating voltage.

➔ The machine must not start automatically.

➔ The safety switch carries out a self-test. The green STATE LED flashes for 10 s at 5 Hz. The green STATE LED then flashes at regular intervals.

2. Close all guards. Guard locking by solenoid force: activate guard locking.

➔ The machine must not start automatically. It must not be possible to open the guard.

➔ The green STATE LED illuminates continuously.

3. Enable operation in the control system.

➔ It must not be possible to deactivate guard locking as long as operation is enabled.













































4. Disable operation in the control system and deactivate guard locking.







➔ The guard must remain locked until there is no longer any risk of injury.

➔ It must not be possible to start the machine as long as the guard locking is deactivated.

Repeat steps 2 - 4 for each guard.

## 12. System status table

Operating mode	Actuator/door position	Safety outputs FO1A and FO1B 	Guard locking monitoring output OL	Door monitoring output OD	LED indicator Output		LOCK (yellow)	State
					STATE (green)	D/A (red) and diagnostics output OI		
<b>Self-test</b>	X	off	off	off	 5 Hz (10 s)			Self-test after power-up
<b>Normal operation</b>	closed	on	on	on				Normal operation, door closed and locked
	closed	off	on	on	 1 x in-verse			Normal operation, door closed and locked, safety outputs not switched because: - Preceding device in the switch chain is signaling "door open" (only with series connection)
	closed	off	off	on	 1 x in-verse			Normal operation, door closed and <b>not</b> locked
	open	off	off	off	 1 x			Normal operation, door open
<b>Teach-in operation</b> (only unicode)	open	off	off	off	 3 x			Device in teach-in standby
	closed	off	X	on	 1 Hz			Teach-in operation
	X	off	X	X	 ↔ 			Positive acknowledgment after completion of teach-in operation
<b>Fault display</b>	X	off	X	X	 1 x			Fault in the teach-in operation (only unicode) Actuator removed from the operating distance prior to the end of the teach-in operation or faulty actuator detected.
	X	off	off	off	 2 x			Input error (e.g. missing test pulses, illogical switch state from previous switch in the switch chain)
	X	off	off	off	 3 x			Read error (e.g. actuator faulty)
	X	off	off	off	 4 x			Output error (e.g. short circuit, loss of switching ability)
	X	off	X	X	 5 x			Disabled actuator detected
	X	off	off	off				Internal error

<b>Key to symbols</b>			LED not illuminated
			LED illuminated
	 10 Hz (8 s)		LED flashes for 8 s at 10 Hz
	 3 x		LED flashes three times, and this is then repeated
	 ↔ 		LEDs flash alternately
	X		Any state

After the cause has been remedied, faults can generally be reset by opening and closing the guard. If the fault is still displayed afterward, use the reset function or briefly interrupt the power supply. Please contact the manufacturer if the fault could not be reset after restarting.



### Important!

If you do not find the displayed device status in the system status table, this indicates an internal device fault. In this case, you should contact the manufacturer.



### 13. Technical data



#### NOTICE

If a data sheet is included with the product, the information on the data sheet applies.

#### 13.1. Technical data for safety switch CTP-AR

Parameter	Value			Unit
	min.	typ.	max.	
<b>General</b>				
Material - Switch head - Switch housing	Die-cast zinc Reinforced thermoplastic			
Installation position	Any			
Degree of protection	IP 67/IP 69/IP 69K			
	IP 67 (screwed tight with the related mating connector)			
Safety class according to EN IEC 61558	III			
Degree of contamination	3			
Mechanical life	1 x 10 <sup>6</sup> operating cycles			
Ambient temperature at UB = 24 V	-20	-	+55	°C
Actuator approach speed, max.	20			m/min
Actuating/extraction/retention force at 20 °C	10/20/20			N
Locking force F <sub>max</sub> <sup>1)</sup>	3,900			N
Locking force F <sub>Zh</sub> <sup>1)</sup> according to EN ISO 14119	F <sub>Zh</sub> = F <sub>max</sub> /1.3 = 3,000			N
Weight	Approx. 0.42			kg
Connection type (depending on version)	2 plug connectors M12, 5- and 8-pin / 1 plug connector RC18, 19-pin			
Operating voltage UB (reverse polarity protected, regulated, residual ripple < 5 %)	24 ± 15% (PELV)			V DC
Current consumption I <sub>UB</sub>	40			mA
For the approval according to UL the following applies	Operation only with UL class 2 power supply, or equivalent measures			
Switching load according to UL	DC 24 V, class 2			
External fuse (operating voltage UB) <sup>2)</sup>	0.25	-	8	A
External fuse (solenoid operating voltage IMP) <sup>2)</sup>	0.5	-	8	A
Rated insulation voltage U <sub>i</sub>	-	-	50	V
Rated impulse withstand voltage U <sub>imp</sub>	-	-	0.5	kV
Rated conditional short-circuit current	100			A
Resilience to vibration	Acc. to EN 60947-5-3			
EMC protection requirements	Acc. to EN 60947-5-3			
Ready delay	-	8	11	s
Risk time for single device	-	-	260	ms
Risk time delay per device	5			ms
Switch-on time	-	-	400	ms
Discrepancy time	-	-	10	ms
Test-pulse duration	1			ms
Frequency band	120 ... 130			kHz
<b>Safety outputs F01A/F01B</b> Semiconductor outputs, p-switching, short circuit-proof				
- Output voltage U <sub>F01A</sub> /U <sub>F01B</sub> <sup>3)</sup>				V DC
HIGH U <sub>F01A</sub> /U <sub>F01B</sub>	UB - 1.5	-	UB	
LOW U <sub>F01A</sub> /U <sub>F01B</sub>	0	-	1	
Switching current per safety output	1	-	150	mA
Utilization category acc. to EN 60947-5-2	DC-13 24 V 150 mA Caution: outputs must be protected with a free-wheeling diode in case of inductive loads			
Switching frequency <sup>4)</sup>	0.5			Hz
<b>Monitoring outputs OL, OI, OD</b> p-switching, short circuit-proof				
Output voltage	0.8 x UB	-	UB	V DC
Max. load	-	-	50	mA
<b>Solenoid</b>				
Solenoid operating voltage IMP (reverse polarity protected, regulated, residual ripple < 5 %)	DC 24 V +10%/-15%			
Solenoid current consumption I <sub>IMP</sub>	400			mA
Power consumption	6			W
Duty cycle	100			%

Parameter	Value			Unit
	min.	typ.	max.	
<b>Reliability values acc. to EN ISO 13849-1</b>				
Mission time		20		years
<b>Monitoring of guard locking and the guard position</b>				
Category		4		
Performance Level (PL)		e		
PFH <sub>D</sub>		4.1 x 10 <sup>-9</sup> /h		
<b>Control of guard locking</b>				
Category		Depends on external control		
Performance Level (PL)				
PFH <sub>D</sub>				

- 1) Dependent on the actuator used.  
 2) Trip characteristic medium slow-blow.  
 3) Values at a switching current of 50 mA without taking into account the cable lengths.  
 4) Corresponds to the actuation frequency.

### 13.1.1. Typical system times

Please refer to the technical data for the exact values.

**Ready delay:** After switching on, the device carries out a self-test. The system is ready for operation only after this time.

**Switch-on time of safety outputs:** The max. reaction time  $t_{on}$  is the time from the moment when the guard is locked to the moment when the safety outputs switch on.

**Simultaneity monitoring, safety inputs F11A/F11B:** If the safety inputs have different switching states for longer than a specific time, the safety outputs  $\square$  (F01A and F01B) will be switched off. The devices switches to fault state.

**Risk time according to EN 60947-5-3:** If an actuator moves outside the operating distance, the safety outputs  $\square$  (F01A and F01B) are switched off after the risk time at the latest.

If several devices are operated in a series connection, the risk time of the overall device chain will increase with each device added. Use the following calculation formula:

$$t_r = t_{r,e} + (n \times t_i)$$

$t_r$  = Total risk time

$t_{r,e}$  = Risk time, single device (see technical data)

$t_i$  = Risk time delay per device

$n$  = Number of additional devices (total number -1)

**Discrepancy time:** The safety outputs  $\square$  (F01A and F01B) switch with a slight time offset. They have the same signal state no later than after the discrepancy time.

**Test pulses at the safety outputs:** The device generates its own test pulses on the safety outputs  $\square$  (F01A and F01B). A downstream control system must tolerate these test pulses.

This can usually be set up in the control systems by parameter assignment. If parameter assignment is not possible for your control system or if shorter test pulses are required, please contact our support organization.

The test pulses are also output when the safety outputs are switched off.

### 13.2. Radio frequency approvals

FCC ID: 2AJ58-05

IC: 22052-05



#### FCC/IC-Requirements

This device complies with part 15 of the FCC Rules and with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- 1) This device may not cause harmful interference, and
- 2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

#### Supplier's Declaration of Conformity

##### 47 CFR § 2.1077 Compliance Information

#### Unique Identifier:

CTP-I-AR SERIES  
CTP-I1-AR SERIES  
CTP-I2-AR SERIES  
CTP-IBI-AR SERIES  
CTP-L1-AR SERIES  
CTP-L2-AR SERIES  
CTP-LBI-AR SERIES  
CTP-I-AP SERIES  
CTP-I1-AP SERIES  
CTP-I2-AP SERIES  
CTP-IBI-AP SERIES  
CTP-L1-AP SERIES  
CTP-L2-AP SERIES  
CTP-LBI-AP SERIES

#### Responsible Party – U.S. Contact Information

##### EUCHNER USA Inc.

6723 Lyons Street  
East Syracuse, NY 13057

+1 315 701-0315

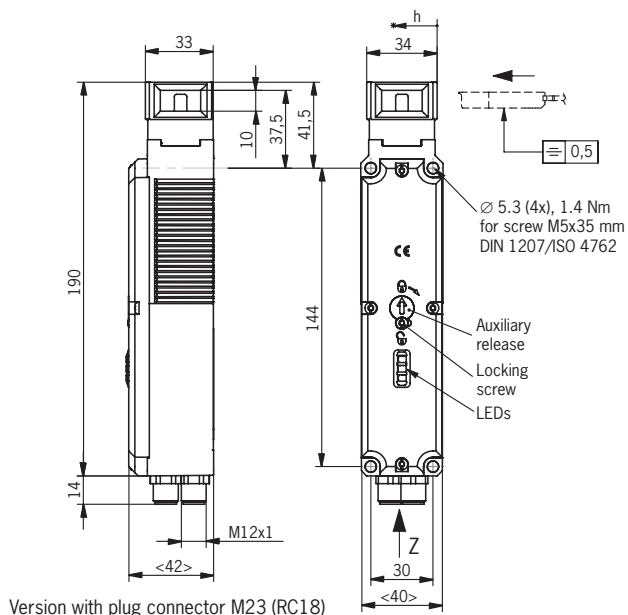
+1 315 701-0319

info(at)euchner-usa.com

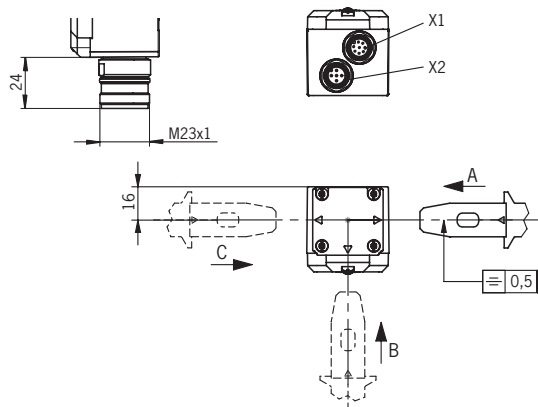
<http://www.euchner-usa.com>

### 13.3. Dimension drawing for safety switch CTP...

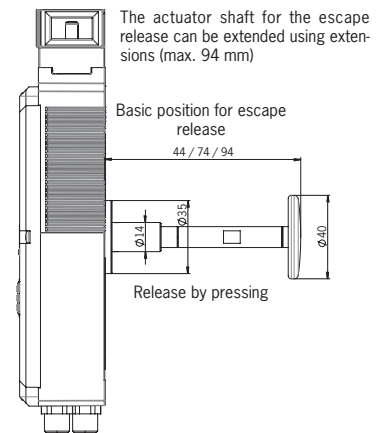
Version with plug connectors 2 x M12



Version with plug connector M23 (RC18)

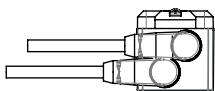


With escape release

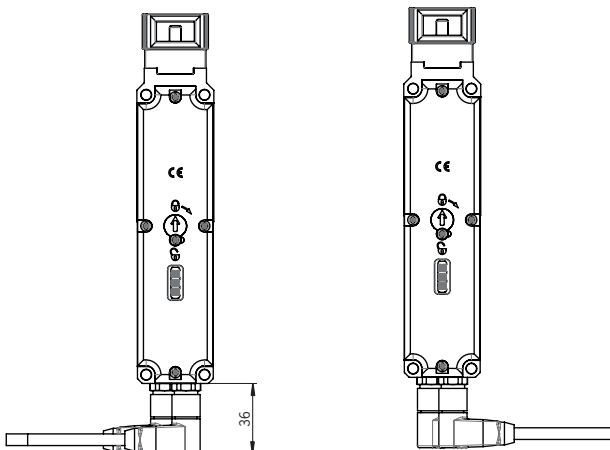
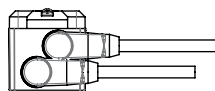


Plug connectors 2 x M12

Cable exit C

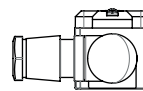


Cable exit A

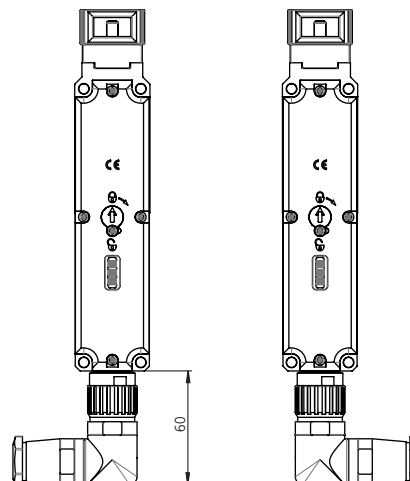
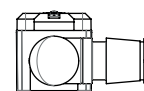


Plug connector M23

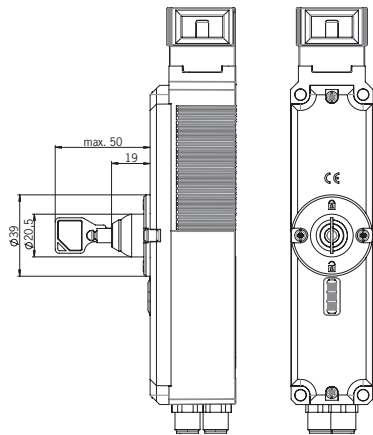
Cable exit C



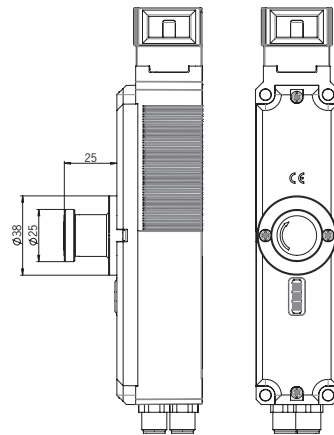
Cable exit A



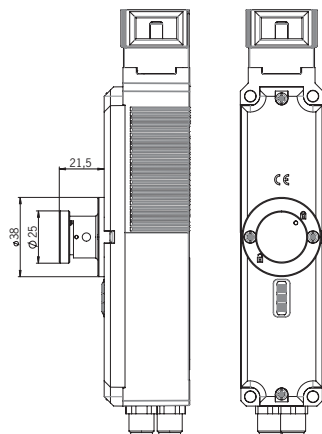
With auxiliary key release



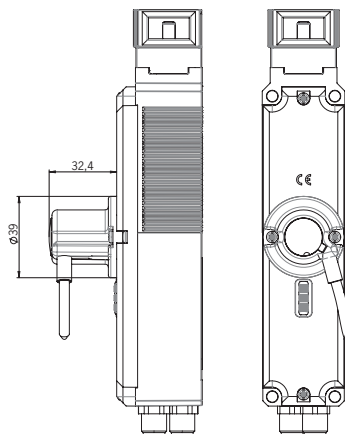
With release, automatic return



With emergency unlocking



With wire front release



### 13.4. Technical data for actuator CTP-...

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Fiber reinforced plastic			
Weight	0.03 ... 0.06 (depending on version)			kg
Ambient temperature	-20	-	+55	°C
Degree of protection	IP 67/IP 69/IP 69K			
Mechanical life	1 x 10 <sup>6</sup>			
Locking force, max. - Straight actuator 126015 (red) 122666 (black) - Hinged actuator - Bent actuator		3,900 2600 2600 1500		N
Installation position	Any			
Power supply	Inductive via read head			

#### 13.4.1. Dimension drawing for actuator CTP-...

	Dimension drawing	Min. door radius [mm]	Order no./item
Straight actuators			<b>122666</b> A-CH-G-SST-122666
			<b>126015</b> A-CH-G-SST-126015

	Dimension drawing	Min. door radius [mm]	Order no./item
Bent actuators	<p>bent, upward</p>		<p><b>122667</b> A-CHW-SST-122667</p>
	<p>bent, downward</p>		<p><b>122668</b> A-CHW-SST-122668</p>

	Dimension drawing	Min. door radius [mm]	Order no./item
Hinged actuators		<p>X = 53 mm (122671, 122672) X = 49 mm (122669, 122670)</p>	<b>122671</b> A-C-HRL-LS-122671
			<b>122672</b> A-C-HRL-LS-122672
Hinged actuators		<p>X = 41 mm (122673, 122674) X = 45 mm (122675, 122676)</p>	<b>122675</b> A-C-HR0-LS-122675
			<b>122676</b> A-C-HR0-LS-122676



**Tip!**

Safety screws are included with the actuator.



## 14. Ordering information and accessories



### Tip!

Suitable accessories, e.g. cables or assembly material, can be found at [www.euchner.com](http://www.euchner.com). To order, enter the order number of your item in the search box and open the item view. Accessories that can be combined with the item are listed in "Accessories."

## 15. Inspection and service



### WARNING

Danger of severe injuries due to the loss of the safety function.

- › If damage or wear is found, the complete switch and actuator assembly must be replaced. Replacement of individual parts or assemblies is not permitted.
- › Check the device for proper function at regular intervals and after every fault. For information about possible time intervals, refer to EN ISO 14119:2013, section 8.2.

Regular inspection of the following is necessary to ensure trouble-free long-term operation:

- › Check the switching function (see chapter 11.3. *Functional check on page 31*)
- › Check all additional functions (e.g. escape release, lockout bar, etc.)
- › Check the secure fastening of the devices and the connections
- › Check for soiling

No servicing is required. Repairs to the device are only allowed to be made by the manufacturer.



### NOTICE

The year of manufacture is given in the laser marking at the bottom right corner. The current version number in the format (V X.X.X) can also be found on the device.

## 16. Service

If service support is required, please contact:

EUCHNER GmbH + Co. KG  
Kohlhammerstraße 16  
70771 Leinfelden-Echterdingen

### Service telephone:

+49 711 7597-500

### E-mail:

[support@euchner.de](mailto:support@euchner.de)

### Internet:

[www.euchner.com](http://www.euchner.com)

## 17. Declaration of conformity



**EUCHNER**

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**EU-Konformitätserklärung**  
**EU declaration of conformity**  
**Déclaration UE de conformité**  
**Dichiarazione di conformità UE**  
**Declaración UE de conformidad**

Original DE  
Translation EN  
Traduction FR  
Traduzione IT  
Traducción ES

2123042-07-03/19

Die nachfolgend aufgeführten Produkte sind konform mit den Anforderungen der folgenden Richtlinien (falls zutreffend):  
*The beneath listed products are in conformity with the requirements of the following directives (if applicable):*  
*Les produits mentionnés ci-dessous sont conformes aux exigences imposées par les directives suivantes (si valable)*  
*I prodotti sotto elencati sono conformi alle direttive sotto riportate (dove applicabili):*  
*Los productos listados a continuación son conforme a los requisitos de las siguientes directivas (si fueran aplicables):*

I:	Maschinenrichtlinie <i>Machinery directive</i> <i>Directive Machines</i> <i>Direttiva Macchine</i> <i>Directiva de máquinas</i>	2006/42/EG 2006/42/EC 2006/42/CE 2006/42/CE 2006/42/CE
II:	Funkanlagen-Richtlinie (RTTE / RED) <i>Radio equipment directive</i> <i>Directive équipement radioélectrique</i> <i>Direttiva apparecchiatura radio</i> <i>Directiva equipo radioeléctrico</i>	2014/53/EU 2014/53/EU 2014/53/UE 2014/53/UE 2014/53/UE
III:	RoHS Richtlinie <i>RoHS directive</i> <i>Directive de RoHS</i> <i>Direttiva RoHS</i> <i>Directiva RoHS</i>	2011/65/EU 2011/65/EU 2011/65/UE 2011/65/UE 2011/65/UE

Die Schutzziele der Niederspannungsrichtlinie 2014/35/EU und EMV Richtlinie 2014/30/EU werden gemäß Artikel 3.1 der Funkanlagen-Richtlinie eingehalten.  
*The safety objectives of the Low-voltage directive 2014/35/EU and EMC Directive 2014/30/EU comply with article 3.1 of the Radio equipment directive.*  
*Les objectifs de sécurité de la Directive basse tension 2014/35/UE et Directive de CEM 2014/30/UE sont conformes à l'article 3.1 de la Directive équipement radioélectrique.*  
*Gli obiettivi di sicurezza della Direttiva bassa tensione 2014/35/UE e Direttiva CEM 2014/30/UE sono conformi a quanto riportato nell'articolo 3.1 della Direttiva apparecchiatura radio.*  
*Los objetivos de seguridad de la Directiva de bajo voltaje 2014/35/UE y Directiva CEM 2014/30/UE cumplen con el artículo 3.1 de la Directiva equipo radioeléctrico.*

Folgende Normen sind angewandt:  
*Following standards are used:*  
*Les normes suivantes sont appliquées:*  
*Vengono applicate le seguenti norme:*  
*Se utilizan los siguientes estándares:*

a:	EN 60947-5-3:2013	f:	EN 50581:2012 (RoHS)
b:	EN ISO 14119:2013	g:	EN 50364:2010
c:	EN ISO 13849-1:2015	h:	EN 300 330 V2.1.1
d:	EN 62026-2:2013 (ASI)		
e:	EN 60947-5-5:1997/A1:2005/A11:2013		

Bezeichnung der Bauteile <i>Description of components</i> <i>Description des composants</i> <i>Descrizione dei componenti</i> <i>Descripción de componentes</i>	Type <i>Type</i> <i>Type</i> <i>Tipo</i> <i>Typo</i>	Richtlinie <i>Directives</i> <i>Directive</i> <i>Direttiva</i> <i>Directivas</i>	Normen <i>Standards</i> <i>Normes</i> <i>Norme</i> <i>Estándares</i>	Zertifikats-Nr. <i>No. of certificate</i> <i>Numéro du certificat</i> <i>Norme</i> <i>Número del certificado</i>
Sicherheitsschalter <i>Safety Switches</i> <i>Interrupteurs de sécurité</i> <i>Finecorsa di sicurezza</i> <i>Interruptores de seguridad</i>	CTP-...	I, II, III	a, b, c, f, g, h	UQS 123565, ET 18080 *
	CTP-..AS...	I, II, III	a, b, c, d, f, g, h	UQS 125542
	CTP-LBI...	I, II, III	a, b, c, f, g, h	UQS 127798
	CEM-I2-...-C40...	I, II, III	a, b, c, f, g, h	UQS 124482
Sicherheitsschalter mit Not-Halt-Einrichtungen <i>Safety Switches with Emergency-Stop facilities</i> <i>Interrupteurs de sécurité avec appareillage arrêt d'urgence</i> <i>Finecorsa di sicurezza con dispositivi di arresto di emergenza</i> <i>Interruptores de seguridad con dispositivos de parada de emergencia</i>	CTP-...	I, II, III	a, b, c, e, f, g, h	UQS 123565
Betätiger <i>Actuator</i> <i>Actionneur</i> <i>Azionatore</i> <i>Actuador</i>	A-C-... A-C40-... A-TI-...	I, II, III } I, II, III	a, b, c, f, g, h	UQS 123565, ET 18080 * UQS 124482



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\* Benannte Stelle  
Notified Body  
Organisme notifié  
Sede indicata  
Entidad citada

0340  
DGUV Test  
Prüf- und Zertifizierungsstelle Elektrotechnik  
Fachbereich ETEM  
Gustav-Heinemann-Ufer 130  
50968 Köln

Genehmigung der umfassenden Qualitätssicherung (UQS) durch die benannte Stelle 0035  
*Approval of the full quality assurance system by the notified body 0035*  
*Approbation du système d'assurance qualité complet par l'organisme notifié 0035*  
*Approvazione del sistema di garanzia di qualità totale da parte dell'organismo notificato 0035*  
*Aprobación del sistema de aseguramiento de calidad total por parte del organismo 0035 notificado*

TÜV Rheinland Industrie Service GmbH  
Alboinstr. 56  
12103 Berlin  
Germany

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller:  
*This declaration of conformity is issued under the sole responsibility of the manufacturer:*  
*La présente déclaration de conformité est établie sous la seule responsabilité du fabricant:*  
*La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante:*  
*La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante:*

EUCHNER GmbH + Co. KG  
Kohlhammerstraße 16  
70771 Leinfelden-Echterdingen  
Germany

Leinfelden, März 2019

EUCHNER GmbH + Co. KG  
Kohlhammerstraße 16  
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