



Transponder-coded
safety switch **CTP**
with guard locking

EUCHNER

More than safety.

The safety switch **CTP**

The safety switch CTP combines the proven principle of operation of electromechanical safety switches with guard locking with modern transponder coded safety engineering. Thanks to the transponder technology, even a single CTP achieves category 4 / PL e according to EN ISO 13849-1 without additional fault exclusion and meets all the requirements of EN ISO 14119. It is ideally suited to applications in which a high Performance Level and a locking force of up to 3900 N are required.

■ Versatile in use

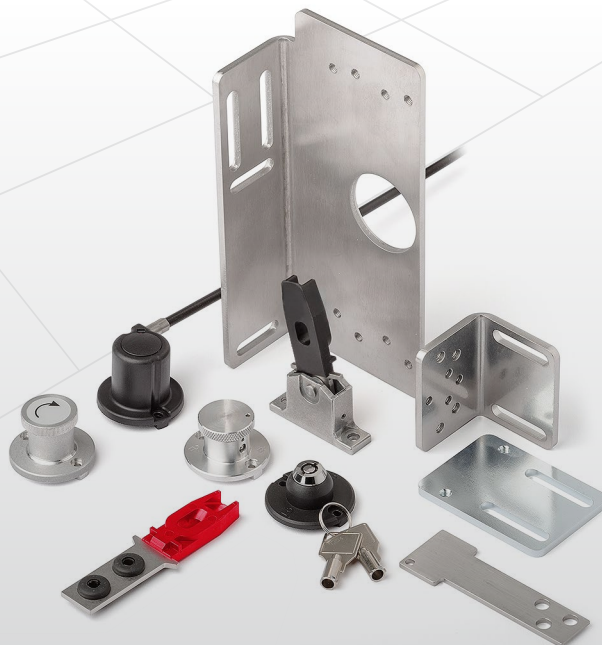
The CTP reliably protects safety doors and flaps on machines and mechanical equipment. Thanks to the integrated guard locking and guard lock monitoring it can be used for the protection of both processes and persons. The very compact design permits space-saving mounting on the safety guard. With a locking force of 3900 N the CTP effectively prevents the opening of safeguards. The very robust plastic housing with metal head as well as the high degree of protection IP67 / IP69 / IP69K make the CTP the all-rounder for almost every industrial usage. The CTP is suitable even for harsh, dirty environments.

■ Mounting and principle of operation

The CTP comprises two components, a safety switch and an actuator. During mounting the safety switch is attached to the fixed part of the safety guard, the actuator to the moving part.

The CTP can be approached from four directions. For the better insertion of the actuator the head is equipped with an integrated funnel. This feature is particularly advantageous on unstable door structures as well as the door is misaligned.

On closing the safety guard the actuator enters the head on the safety switch. When the transponder chip integrated into the actuator is detected and the guard locking activated, the safety outputs are switched on. Thanks to the integrated failsafe locking mechanism unintentional activation of the safety outputs is prevented if the actuator is not completely inserted in the head.



CTP in detail

▶ **Robust metal head**

locking force 3900 N

▶ **Dirt resistance**

▶ **Degree of protection
IP67 / IP69 / IP69K**

can be used universally in industrial sectors

▶ **Integrated funnel**

for easy insertion of the actuator in the safety switch

▶ **4 approach directions**

▶ **Auxiliary release**

for unlocking the guard locking with the aid of a tool

▶ **Immediate diagnostic functions**

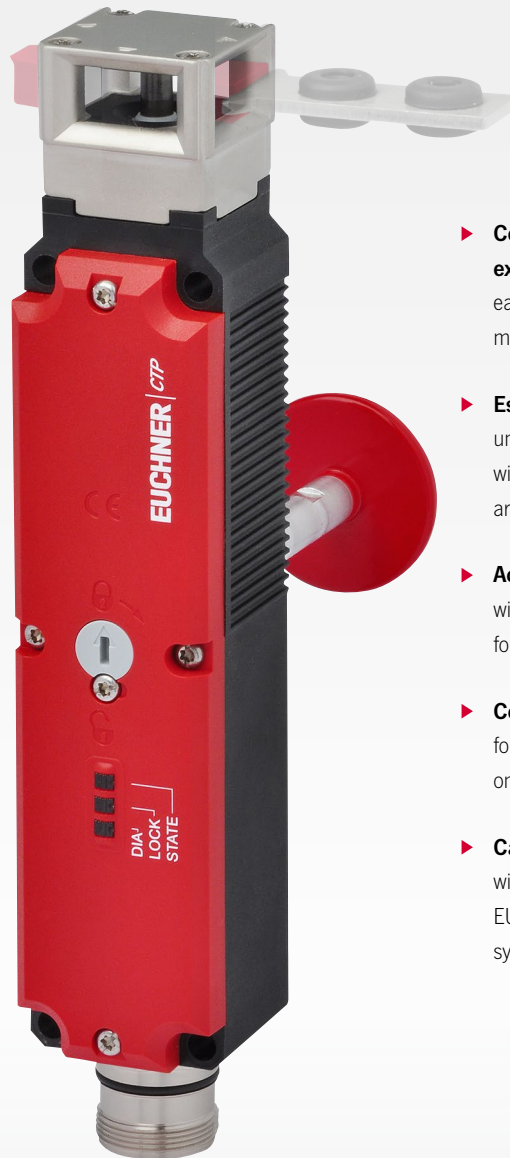
permit quick determination of the device status using LEDs

▶ **Robust fiber glass reinforced plastic housing**

for usage under hardest conditions

▶ **Different plug connectors (M12, M23)**

reduce the wiring work



▶ **Compatible mounting with existing safety switches**

easy to change to CTP without mechanical construction

▶ **Escape release (optional)**

unlocking of the guard locking without tools to leave the danger area

▶ **Actuator made of stainless steel**

with integrated transponder for unambiguous detection

▶ **Compact design**

for space-saving mounting on the safety guard

▶ **Can be connected in series**

with up to 20 CTP or other EUCHNER devices in the system family AR

M23 or M12



■ Comprehensive, detailed diagnostics

For detailed diagnostics the CTP is equipped with 3 LEDs on the front. These are clearly visible over a wide angle and provide all the important information on the status of the safety switch at a glance. It is also possible to connect monitoring outputs and a diagnostics output to a control system.

■ Different guard locking types

Two different types of guard lockings are available on the CTP:

Mechanical guard locking

Guard locking by spring force. Release by applying voltage to the guard locking solenoid (closed-circuit current principle). For applications in which the protection of persons is required.

Electrical guard locking

Guard locking by solenoid force. Activation of the guard locking by applying voltage to the guard locking solenoid (open-circuit current principle). Particularly suitable for applications in which only process protection is required.



■ Comprehensive accessories

Whether different mechanical releases, pre-assembled cables or different bolt systems, actuators or mounting plates: the comprehensive range of accessories offers maximum flexibility during integration and mounting.



Bolt systems



Mechanical key release



Emergency unlocking



Lockout bar (for up to 3 locks)



Wire front release

■ System family AP

In the version AP the CTP is suitable for usage as a single device for connection to all common safety evaluation units and safety control systems.

■ System family AR

In the version AR up to 20 safety switches CTP or other EUCHNER products that belong to the AR system family can be connected in series. Two different wiring concepts are available:

1. Series connection in the control cabinet

Wiring takes place in the control cabinet. All information about the status of individual CTPs can be forwarded directly to the control system.

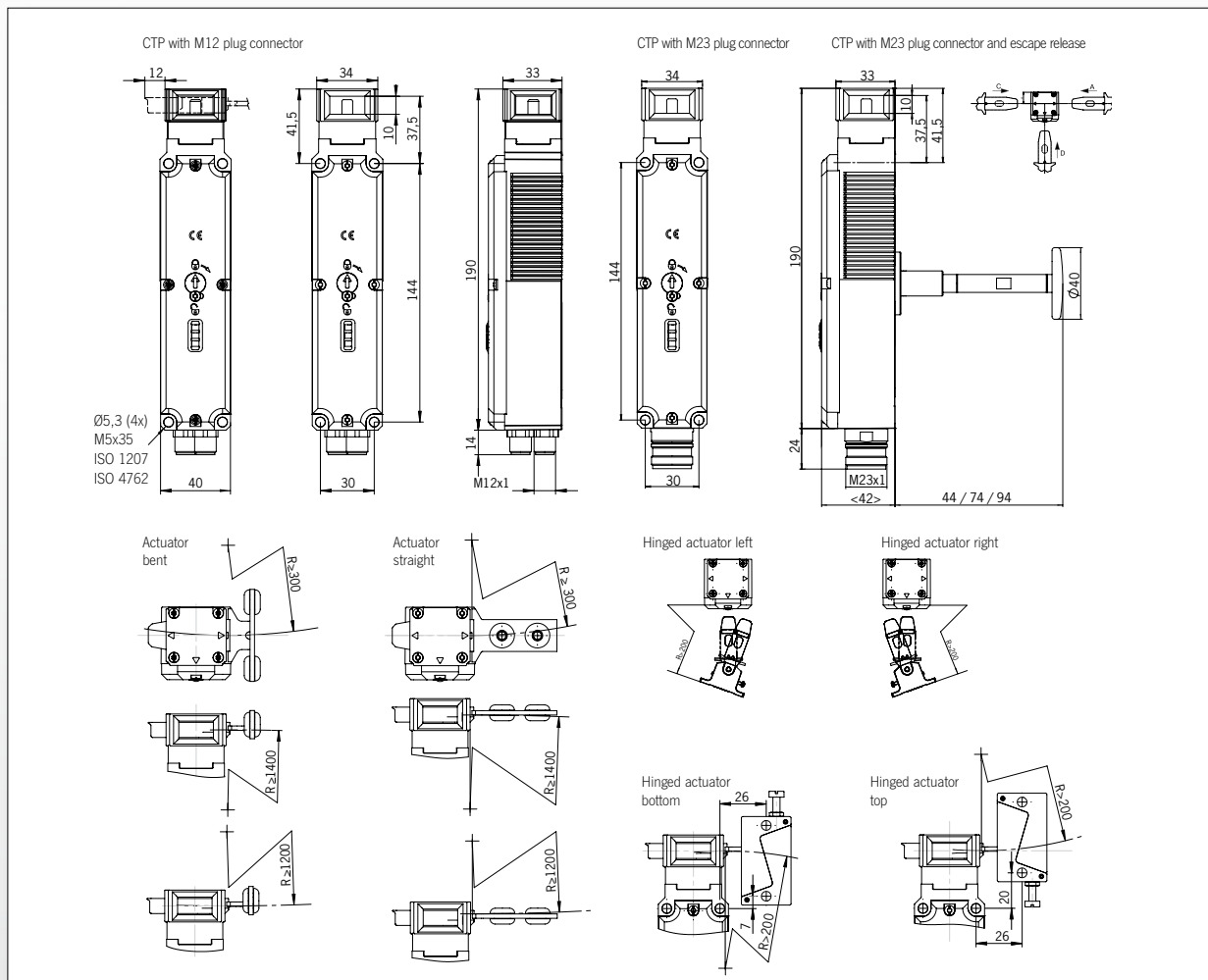
2. Series connection in the field

For field wiring EUCHNER offers the option of using M12 plugs and Y-pieces to connect together several CTPs. Instead of the Y-plug connectors it is also possible to use a passive distribution module. On this device all safety and status signals are collected together in the field and forwarded to the control system using one cable.

■ System family AS

Version with integrated AS-Interface. The safety switch is connected directly to the flat cable via an AS-i coupling module. The wiring work is therefore reduced to a minimum, as all information on the safety switch is made available to the control system via the AS-Interface.

Dimension drawing



Technical data



CTP

Parameter	min.	Value typ.	max.	Unit
Housing material/Switch head	Reinforced thermoplast/die-cast zinc			
Degree of protection according to EN IEC 60529	IP67/ IP69/ IP69K (screwed tight with the related mating connector)			
Degree of contamination	2			
Installation position	any			
Mechanical life	1 x 10 ⁶ operating cycles			
Ambient temperature at U _B = 24 V DC	-20 ... +55			°C
Approach speed, max.	20			m/min
Locking force F, max.	3900			N
Locking force F _{Zh} according to EN ISO 14119	3000			N
Weight	0.42			kg
Overtravel	5			mm
Retention force	20			N
Utilization category according to EN 60947-5-2	DC-13 24 V 150 mA Outputs must be protected with a free-wheeling diode in case of inductive loads			
Operating voltage U _B (reverse polarity protected, regulated, residual ripple < 5%)	DC 24 V ±15%			
Current consumption U _B	40			mA
Solenoid				
Current consumption I _{IMP}	400			mA
Solenoid operating voltage U _{IMP, IMM} (reverse polarity protected, regulated, residual ripple < 5%)	DC 24 V +10%/-15%			
Duty cycle ED	100			%
Medium Power consumption	6			W
Switching frequency	0.5			Hz
Safety outputs OA/OB Semiconductor outputs, p-switching, short circuit-protected				
Output voltage U _{OA} /U _{OB} HIGH U _{OK} /U _{OB} LOW U _{OK} /U _{OB}	U _B - 1.5 0	- -	U _B 1	V DC
Switching current per safety output	1	-	150	mA
Discrepancy time of both safety outputs	10			ms
Switch-on time max.	400			ms
Residual current I _r max.	0.25			mA
Monitoring outputs OL/OD/OI p-switching, short circuit-protected				
Output voltage	0.8 x U _B		U _B	V DC
Switching current	1		50	mA
Safety characteristics				
Utilization time	20			years
Category	4			
Performance Level (PL)	e			
PFH ₃	4,1 x 10 ⁻⁹			

Actuator

Parameter	min.	Value typ.	max.	Unit
Encapsulation material	Reinforced plastic			
Mounting part material	Stainless steel			
Nozzle material	NBR			
Installation position	any			
Degree of protection according to EN IEC 60529	IP67/ IP69/ IP69K			
Weight	0.03			kg
Mechanical life	1 x 10 ⁶ operating cycles			
Overtravel	5			mm
Ambient temperature	-20 °C		+55 °C	
Locking force F, max.	3900			N

■ Compatible with existing safety switches

The CTP is based on the compact housing of the familiar electromechanical safety switches. Thanks to the compatible fixing dimensions the conversion to CTP can be undertaken quickly if necessary.

■ Straightforward compliance with the standards

The transponder coding ensures the highest safety. With only one CTP the requirements in all relevant standards can be met. Independent of whether category 4 / PL e according to EN ISO 13849-1 needs to be achieved or the requirements of EN ISO 14119 must be met - with the CTP you are always on the safe side.

■ Different coding levels

Unicode coding

Each CTP actuator has a unique code and significantly surpasses the requirement in EN ISO 14119 for a type 4 switch with high coding level. The uniquely coded actuator is specifically assigned to the safety switch via a teach-in operation. As such bypassing the safety guard using another actuator of the same type is effectively prevented. In this way the requirement in the standard for effective protection against tampering is met. If a fault occurs, a new actuator can be taught-in at any time. On teaching-in the new actuator the previous actuator automatically ceases to be valid.

Multicode coding

For applications in which an actuator with a high coding level is not necessary, it is of course possible to use a multicode safety switch. The actuator is not specifically assigned to the safety switch here. It is only checked whether or not the actuator is a valid actuator.



The advantages of the CTP at a glance

- Category 4 / PL e according to EN ISO 13849-1
- Degree of protection IP67 / IP69 / IP69K
- Compact design
- Compatible mounting with existing safety switches
- High locking force of 3900 N
- Secure against defeating
- Less wiring work
- Up to 20 CTP can be connected in series
- Fault exclusion not necessary
- Comprehensive and detailed diagnostics

Ordering table CTP

Series	Guard locking	System family	Coding	Connection	Optional release	Order no./item	
CTP	L1 Closed-circuit current principle	AR	Unicode	M12, 5-pin / M12, 8-pin	Auxiliary release	122812 / CTP-L1-AR-U-HA-AZ-SAB-122812	
				M12, 5-pin / M12, 8-pin	Auxiliary and escape release	122813 / CTP-L1-AR-U-HA-AE-SAB-122813	
			M23, 19-pin	Auxiliary release	123362 / CTP-L1-AR-U-HA-AZ-SH-123362		
				Auxiliary and escape release	123373 / CTP-L1-AR-U-HA-AE-SH-123373		
			Multicode	M12, 5-pin / M12, 8-pin	Auxiliary release	123307 / CTP-L1-AR-M-HA-AZ-SAB-123307	
				M12, 5-pin / M12, 8-pin	Auxiliary and escape release	123308 / CTP-L1-AR-M-HA-AE-SAB-123308	
		M23, 19-pin	Auxiliary release	123363 / CTP-L1-AR-M-HA-AZ-SH-123363			
			Auxiliary and escape release	123374 / CTP-L1-AR-M-HA-AE-SH-123374			
		AP	Unicode	M12, 5-pin / M12, 5-pin	Auxiliary release	124468 / CTP-L1-AP-U-HA-AZ-SII-124468	
				M12, 5-pin / M12, 5-pin	Auxiliary and escape release	127640 / CTP-L1-AP-U-HA-AE-SII-127640	
				M12, 8-pin	Auxiliary release	124225 / CTP-L1-AP-U-HA-AZ-SA-124225	
			M23, 19-pin	M12, 8-pin	Auxiliary and escape release	126912 / CTP-L1-AP-U-HA-AE-SA-126912	
	Auxiliary release			123364 / CTP-L1-AP-U-HA-AZ-SH-123364			
	Auxiliary and escape release			123375 / CTP-L1-AP-U-HA-AE-SH-123375			
	Multicode	M12, 8-pin	Auxiliary release	124727 / CTP-L1-AP-M-HA-AZ-SA-124727			
		M23, 19-pin	Auxiliary release	123365 / CTP-L1-AP-M-HA-AZ-SH-123365			
	L2 Open-circuit current principle	AR	Unicode	M12, 5-pin / M12, 8-pin	Auxiliary release	122814 / CTP-L2-AR-U-HA-AZ-SAB-122814	
				M23, 19-pin	Auxiliary release	123366 / CTP-L2-AR-U-HA-AZ-SH-123366	
			Multicode	M12, 5-pin / M12, 8-pin	Auxiliary release	123361 / CTP-L2-AR-M-HA-AZ-SAB-123361	
				M23, 19-pin	Auxiliary release	123369 / CTP-L2-AR-M-HA-AZ-SH-123369	
			AP	Unicode	M12, 8-pin	Auxiliary release	124728 / CTP-L2-AP-U-HA-AZ-SA-124728
					M12, 8-pin	Auxiliary and escape release	136841 / CTP-L2-AP-U-HA-AE-SA-136841
		M23, 19-pin	Auxiliary release	123370 / CTP-L2-AP-U-HA-AZ-SH-123370			
			M12, 8-pin	Auxiliary release	124729 / CTP-L2-AP-M-HA-AZ-SA-124729		
Multicode		M23, 19-pin	Auxiliary release	123371 / CTP-L2-AP-M-HA-AZ-SH-123371			
		M12, 4-pin	Auxiliary release	124987 / CTP-L1-AS1B-U-HA-AZ-SJ-124987			
L1		ASi	Unicode	M12, 4-pin	Auxiliary and escape release	126644 / CTP-L1-AS1B-U-HA-AE-SJ-126644	
				M12, 4-pin	Auxiliary release	124988 / CTP-L2-AS1B-U-HA-AZ-SJ-124988	

Ordering table actuators

Series	Version	Mounting	Order no./item
Actuator CTP	straight	rubber bush	126015 / A-C-H-G-SST-126015
	bent top	rubber bush	122667 / A-C-H-W-SST-122667
	bent bottom	rubber bush	122668 / A-C-H-W-SST-122668
	Hinged actuator top long		122675 / A-C-H-RO-LS-122675
	Hinged actuator bottom long		122676 / A-C-H-RU-LS-122676
	Hinged actuator left long		122671 / A-C-H-RL-LS-122671
	Hinged actuator right long		122672 / A-C-H-RR-LS-122672

Ordering table accessories

Designation	Order no./item
Bolt for safety guards for safety switch CTP	123653 / Bolt CTP-AC-123653
Bolt for safety guards for safety switch CTP with escape release	123655 / Bolt CTP-ACF-123655
Bolt for safety guards for safety switch CTP, die-cast aluminum	123659 / BTC-CTP-S-TH-00-X
Bolt for safety guards for safety switch CTP with escape release, die-cast aluminum	123660 / BTC-CTP-S-TH-01-F
Bolt for safety guards for safety switch CTP, plastic	123657 / Bolt CTP-6FK-F-123657
Bolt for safety guards for safety switch CTP with escape release, plastic	123658 / Bolt CTP-6FK-F-123658
Mounting plates CTP	126026 / AM-P-126026
Lockout bar	123411 / AE-LC-H-123411

Further accessories like emergency unlocking, mechanical key release, wire front release etc. in catalogue Safety Switches with plastic housing, accessories for TP.

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