

ITEM 137164 CTP-L1-AR-U-HA-AEE-SH-137164

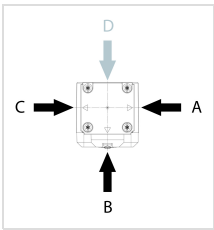
Description	Technical data	Accessories	Downloads
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Features

- › Safety switch with guard locking and integrated evaluation electronics
- › Up to 20 switches in series
- › Short circuit monitoring
- › 2 safety outputs (semiconductor outputs)
- › Up to category 4/PL e according to EN ISO 13849-1
- › Emergency stop
- › 2 pushbuttons (illuminated)
- › With plug connector M23
- › Unicode
- › Door monitoring output
- › With escape release
- › Approach direction A, B and C (default setting on delivery)

Approach direction



► Figure

Horizontal

Can be adjusted in 90° steps

Unicode evaluation

Each actuator is unique. The switch detects only taught-in actuators. Additional actuators can be taught in. Only the last actuator taught in is detected.

Guard locking type

CTP-L1 Guard locking actuated by spring force applied and power-ON released (closed-circuit current principle)

Escape release

This is used for manual release of guard locking from the danger zone without tools.

Lens set

The color of the pushbutton can be selected using the lens set included (five colors). Item no.: 120344 (see Accessories)

Connector assignment

Plug connector (view of connection side)	Pin	Designation	Function	Conductor coloring of connecting cable
	1	IMP	Operating voltage of guard locking solenoid 24 V DC	VT
	2	FI1A	Enable input for channel 1	RD
	3	FI1B	Enable input for channel 2	GY
	4	FO1A	Safety output, channel 1 	RD/BU
	5	FO1B	Safety output, channel 2 	GN
	6	UB	Operating voltage of AR electronics, controls and indicators 24 V DC	BU
	7	RST	Reset input	GY/PK

Plug connector (view of connection side)	Pin	Designation	Function	Conductor coloring of connecting cable
	8	OD	Door monitoring output	GN/WH
	9	OI	Diagnostic output	YE/WH
	10	S1.A1	Emergency stop (channel A)	GY/WH
	11	S1.A2	Emergency stop (channel A)	BK
	12	FE	Function earth (must be connected to meet the EMC requirements)	GN/YE
	13	S1.B1	Emergency stop (channel B)	PK
	14	S1.B2	Emergency stop (channel B)	BN/GY
	15	S2	Pushbutton 2 (illuminated)	BN/YE
	16	H2	LED 2	BN/GN
	17	S3	Pushbutton 3 (illuminated)	WH
	18	H3	LED 3	YE
	19	0 V	Operating voltage of AR electronics, controls and indicators 0 V/guard locking solenoid 0 V	BN

Approvals



Mechanical values and environment

Housing material	
Switch head cover	Die-cast zinc
Safety switch housing	Fiber glass reinforced thermoplastic
Weight	
	Net 0,57 kg
Ambient temperature	
At $U_B = 24V DC$	-20 ... +55 °C
Degree of protection	IP65 ^[1]
Resilience to vibration	In acc. with EN IEC 60947-5-3

Mechanical life	1 x 10 ⁶
Installation position	Any
Ready delay	8 s
Switching frequency	max.0,5 Hz
Connection	1 plug connector M23, 19-pin, RC18
Approach speed	20 m/min
Guard locking principle	Closed-circuit current principle
Locking force F _{max}	3900 N
Locking force F _{Zh}	3000 N [2]
Retention force	20 N
Extraction force	20 N
Actuating force	10 N
Overtravel	5 mm

Electrical connection ratings

Test-pulse interval	min.140 ms
Test pulses	max.1,0 ms [3]
Operating voltage DC	U _{UB} 24 V DC -15% ... 15% Reverse polarity protected, regulated, residual ripple < 5%, PELV
Current consumption	I _{UB} 40 mA I _{IMP} 400 mA
Utilization category according to EN 60947-5-2	DC-13 24V 150mA [4]
Solenoid operating voltage DC	U _{IMP} 24 V DC -15% ... +10% Reverse polarity protected, regulated, residual ripple < 5%, PELV
Fusing	External (operating voltage U _B) 0,25 ... 2 A External (solenoid operating voltage U _{IMP}) 0,5 ... 8 A
Rated insulation voltage U _i	max.50 V
Rated impulse withstand voltage U _{imp}	max.0,5 kV
Power consumption	6 W
EMC protection requirements	In acc. with EN IEC 60947-5-3
Solenoid duty cycle	100 %
Degree of contamination (external, according to EN 60947-1)	3
Safety class	EN IEC 61140 III
Risk time according to EN 60947-5-3	Delay per device 5 ms Single device max.260 ms
Switching load	

	According to UL	24V DC, class 2 [5]
Safety outputs FO1A / FO1B		
Type of output		2 semiconductor outputs, p-switching, short circuit-proof
Switching current		
Per safety output FO1A / FO1B		1 ... 150 mA
Output voltage		
High U(FO1A) / U(FO1B)		UB-1,5 ... UB V DC
Low U(FO1A) / U(FO1B)		0 ... 1 V DC
Off-state current I _r		max.0,25 mA
Switch-on time		max.400 ms
Discrepancy time		
Both safety outputs		In acc. with EN IEC 60947-5-3max.10 ms
Monitoring output OD		
Type of output		p-switching, short circuit-proof
Switching current		1 ... 50 mA
Output voltage		0,8xUB ... UB V DC
Monitoring output OI		
Type of output		p-switching, short circuit-proof
Switching current		1 ... 50 mA
Output voltage		0,8xUB ... UB V DC
Controls and indicators		
Operating voltage		UB V
Operating current		1 ... 50 mA
Power supply		
	LED	24 V
Current consumption		
	LED	10 mA
Emergency stop		
Operating voltage		5 ... 24 V
Operating current		1 ... 100 mA

Operating distance

Repeat accuracy R		
According to EN 60947-5-2		10 %

Controls and indicators

Control/indicator		
Position 1		
Version		Emergency stop
Switching element		1 pos. driven NC
Control/indicator		
Position 2		
Version		Illuminated push buttons

Switching element	1NO
Control/indicator	
	Position 3
Version	Illuminated push buttons
Switching element	1NO

Miscellaneous

Additional feature	
	Incl. cover set ID. No. 120344
	Escape release actuated by pushing
For the approval according to UL the following applies	Operation only with UL class 2 power supply, or equivalent measures see operating instructions

Reliability values acc. to EN ISO 13849-1

	Emergency stop
B10 _D	0,065 x 10 ⁶

Performance Level	PL e
Category	4
PFH _D	4.1 x 10 ⁻⁹
Mission time	20 y

[1] Screwed tight plug connector/mating component

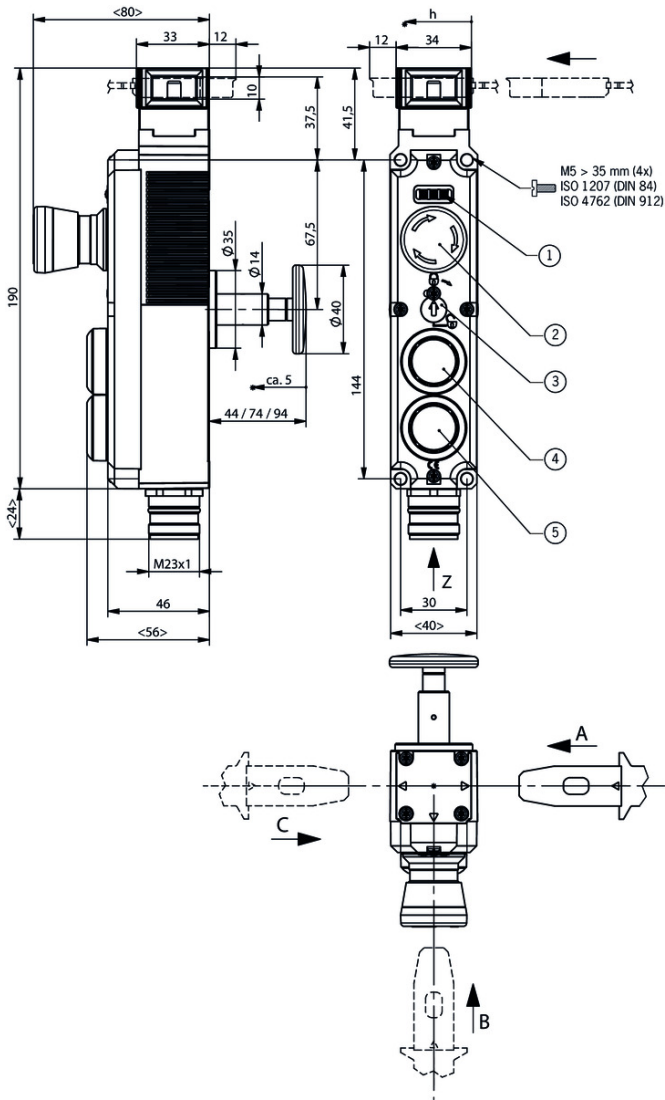
[2] $F_{zh} = F_{max}/1.3$ Depending on the actuator used

[3] Applies for a load with $C \leq 30nF$ and $R \leq 20k\Omega$

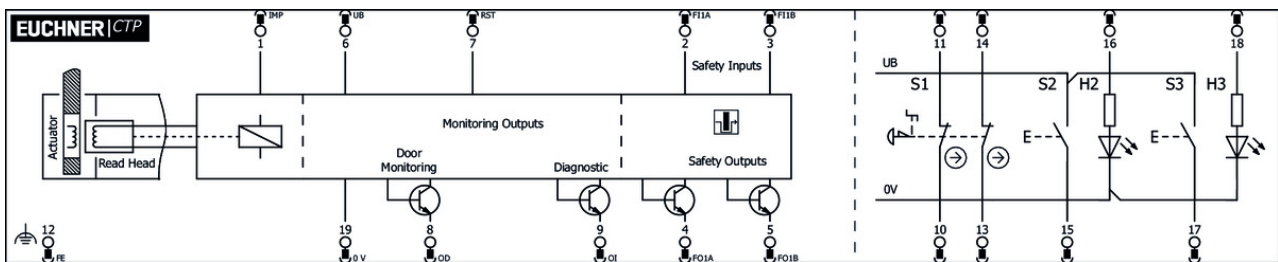
[4] Caution: outputs must be protected with a free-wheeling diode in case of inductive loads

[5] Alternatively see operating instructions

Dimension drawing



Wiring diagram



Actuator

✓ Bent actuator for safety switches CTP



122667 A-C-H-W-SST-122667

✓ Features

- › Actuator bent at top
- › Two safety screws included



122668 A-C-H-W-SST-122668

✓ Features

- › Actuator bent at bottom
 - › Two safety screws included
-

✓ Hinged actuator for safety switch CTP



122675 A-C-H-RO-LS-122675

✓ Features

- › Hinged actuator for doors hinged at the top
 - › Two safety screws included
-



122672 A-C-H-RR-LS-122672

✓ Features

- › Hinged actuator for doors hinged on the right
 - › Two safety screws included
-



122676 A-C-H-RU-LS-122676

✓ Features

- › Hinged actuator for doors hinged at the bottom
 - › Two safety screws included
-



122671 A-C-H-RL-LS-122671

✓ Features

- › Hinged actuator for doors hinged on the left
 - › Two safety screws included
-

✓ Straight actuator for safety switch CTP



126015 A-C-H-G-SST-126015

✓ Features

- › Straight actuator
 - › Two safety screws included
-

Function expansion

✓ Lockout mechanism CTP



123411 AE-L-C-H-123411

✓ Features

- › Prevents unintentional closing of the door
 - › Can be secured with padlocks
-

Mounting accessories

✓ Mounting plates EMP-SB for safety switches CTP, TP...A, STA, STP and TX



093456 EMP-SB

▼ Features

- › For vertical and horizontal mounting of safety switches TP...A, STA, STP and TX

-
- ▼ Mounting plates EMP-B2 for actuators for safety switches CTP, TP...A, STA, STP, TX and TZ



093458 EMP-B2

-
- ▼ Mounting plates EMP-B1 for actuators for safety switches CTP, TP...A, STA, STP, TX and TZ



093457 EMP-B1

-
- ▼ Mounting plates AM-P for safety switches CTP



126026 AM-P-126026

▼ Features

- › For vertical and horizontal mounting of safety switch CTP

Connection material

-
- ▼ Connection cable with plug connector M23 with option C1825, 10m, angled



092902 C-M23F19-19XDIFPU10,0-MA-092902

▼ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit A (right)
- › PUR cable
- › Cable length 10 m
- › With flying lead
- › Cores color-coded



092901 C-M23F19-19XDIFPU10,0-MA-092901

▼ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit C (left)
- › PUR cable
- › Cable length 10 m
- › With flying lead
- › Cores color-coded

-
- ▼ Connection cable with plug connector M23 with option C1825, 8m, angled



077019 C-M23F19-19XDIFPU08,0-MA-077019

▼ Features

- › RC18 plug connector, 18-pin + PE

- › Angled plug connector
- › Cable exit C (left)
- › PUR cable
- › Cable length 8 m
- › With flying lead
- › Cores color-coded



085195 C-M23F19-19XDIFPU08,0-MA-085195

▣ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit A (right)
- › PUR cable
- › Cable length 8 m
- › With flying lead
- › Cores color-coded

▣ Female plug RC18 angled



074617 RC18WF

▣ Features

- › Plug connector M23, angled
- › Number of pins: 19-pin with screen bonding clamp

▣ Connection cable with plug connector M23 with option C1825, 6m, angled



085194 C-M23F19-19XDIFPU06,0-MA-085194

▣ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit A (right)
- › PUR cable
- › Cable length 6 m
- › With flying lead
- › Cores color-coded



077018 C-M23F19-19XDIFPU06,0-MA-077018

▣ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit C (left)
- › PUR cable
- › Cable length 6 m
- › With flying lead
- › Cores color-coded

▣ Connection cable with plug connector M23 with option C1825, 1.5m, straight



092761 C-M23F19-19XDIFPU01,5-MA-092761

▣ Features

- › M23 plug connector, 18-pin + PE
- › Straight plug connector
- › PUR cable

- › Cable length 1.5 m
 - › With flying lead
 - › Cores color-coded
-

▼ Female plug RC18 straight



074616 RC18EF

▼ Features

- › Plug connector M23, straight
 - › Number of pins: 19-pin with screen bonding clamp
-

▼ Connection cable with plug connector M23 with option C1825, 3m, straight



092816 C-M23F19-19XDIFPU03,0-MA-092816

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Straight plug connector
 - › PUR cable
 - › Cable length 3 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 25m, straight



092727 C-M23F19-19XDIFPU25,0-MA-092727

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Straight plug connector
 - › PUR cable
 - › Cable length 25 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 15m, straight



077016 C-M23F19-19XDIFPU15,0-MA-077016

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Straight plug connector
 - › PUR cable
 - › Cable length 15 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 20m, angled



092911 C-M23F19-19XDIFPU20,0-MA-092911

▼ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit A (right)
- › PUR cable

- › Cable length 20 m
- › With flying lead
- › Cores color-coded



092910 C-M23F19-19XDIFPU20,0-MA-092910

▣ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit C (left)
- › PUR cable
- › Cable length 20 m
- › With flying lead
- › Cores color-coded

▣ Connection cable with plug connector M23 with option C1825, 30m, straight



095993 C-M23F19-19XDIFPU30,0-MA-095993

▣ Features

- › M23 plug connector, 18-pin + PE
- › Straight plug connector
- › PUR cable
- › Cable length 30 m
- › With flying lead
- › Cores color-coded

▣ Connection cable with plug connector M23 with option C1825, 6m, straight



077014 C-M23F19-19XDIFPU06,0-MA-077014

▣ Features

- › M23 plug connector, 18-pin + PE
- › Straight plug connector
- › PUR cable
- › Cable length 6 m
- › With flying lead
- › Cores color-coded

▣ Connection cable with plug connector M23 with option C1825, 15m, angled



085196 C-M23F19-19XDIFPU15,0-MA-085196

▣ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit A (right)
- › PUR cable
- › Cable length 15 m
- › With flying lead
- › Cores color-coded



077020 C-M23F19-19XDIFPU15,0-MA-077020

▣ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit C (left)

- › PUR cable
 - › Cable length 15 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 10m, straight



092898 C-M23F19-19XDIFPU10,0-MA-092898

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Straight plug connector
 - › PUR cable
 - › Cable length 10 m
 - › With flying lead
 - › Cores color-coded
-

▼ Female connector RC18 angled with option C1825



077026 RC18WF-C1825

▼ Features

- › Plug connector M23, angled
 - › Number of pins: 19-pin with screen bonding clamp
-

▼ Connection cable with plug connector M23 with option C1825, 3m, angled



092909 C-M23F19-19XDIFPU03,0-MA-092909

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Angled plug connector
 - › Cable exit A (right)
 - › PUR cable
 - › Cable length 3 m
 - › With flying lead
 - › Cores color-coded
-



092908 C-M23F19-19XDIFPU03,0-MA-092908

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Angled plug connector
 - › Cable exit C (left)
 - › PUR cable
 - › Cable length 3 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 8m, straight



077015 C-M23F19-19XDIFPU08,0-MA-077015

▼ Features

- › M23 plug connector, 18-pin + PE
- › Straight plug connector
- › PUR cable

- › Cable length 8 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 20m, straight



092726 C-M23F19-19XDIFPU20,0-MA-092726

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Straight plug connector
 - › PUR cable
 - › Cable length 20 m
 - › With flying lead
 - › Cores color-coded
-

▼ Replacement crimp contacts for female connector RC18

094309 CRIMPKONTAKT BUCHSE RCF

▼ Features

- › 19 crimp sockets
 - › Conductor cross-section 19 x 0.75 - 1 mm²
 - › For plug connector RC18
-

▼ Connection cable with plug connector M23 with option C1825, 1.5m, angled



092907 C-M23F19-19XDIFPU01,5-MA-092907

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Angled plug connector
 - › Cable exit A (right)
 - › PUR cable
 - › Cable length 1.5 m
 - › With flying lead
 - › Cores color-coded
-



092906 C-M23F19-19XDIFPU01,5-MA-092906

▼ Features

- › M23 plug connector, 18-pin + PE
 - › Angled plug connector
 - › Cable exit C (left)
 - › PUR cable
 - › Cable length 1.5 m
 - › With flying lead
 - › Cores color-coded
-

▼ Connection cable with plug connector M23 with option C1825, 25m, angled



092913 C-M23F19-19XDIFPU25,0-MA-092913

▼ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit A (right)

- › PUR cable
- › Cable length 25 m
- › With flying lead
- › Cores color-coded



092912 C-M23F19-19XDIFPU25,0-MA-092912

▼ Features

- › M23 plug connector, 18-pin + PE
- › Angled plug connector
- › Cable exit C (left)
- › PUR cable
- › Cable length 25 m
- › With flying lead
- › Cores color-coded

▼ Connection cable with plug connector M23 with option C1825, 40m, straight



102490 C-M23F19-19XDIFPU40,0-MA-102490

▼ Features

- › M23 plug connector, 18-pin + PE
- › Straight plug connector
- › PUR cable
- › Cable length 40 m
- › With flying lead
- › Cores color-coded

▼ Replacement crimp contacts for female connector RC18 with option C1825

094310 CRIMPKONTAKT BUCHSE RCF-C1825

▼ Features

- › 19 crimp sockets
- › Conductor cross-section 16 x 0.25 - 0.5 mm² and 3 x 0.75 - 1 mm²
- › For plug connector RC18..C1825

▼ Female plug RC18 straight with option C1825



077025 RC18EF-C1825

▼ Features

- › Plug connector M23, straight
- › Number of pins: 19-pin with screen bonding clamp

Bolt

▼ Bolt CTP-GFK-F with escape release for safety switch CTP



123658 RIEGEL CTP-GFK-F

▼ Features

- › Fiber glass reinforced plastic bolt
- › For doors hinged on the left or right
- › Lever for escape release from the danger area
- › Detent knob in open position

- › Can be locked in open position with padlocks
- › Actuator included

▼ Bolt BTC-CTP with escape release for safety switch CTP



123660 BTC-CTP-S-TH-01-F

▼ Features

- › Aluminum bolt
- › For doors hinged on the left or right
- › Lever for escape release from the danger area
- › Pushbutton in open position
- › Can be locked in open position with padlocks
- › Actuator included

▼ Bolts with escape release for safety switch CTP



123655 RIEGEL CTP-ACF-123655

▼ Features

- › Steel bolt
- › Lever for escape release from the danger area
- › For doors hinged on right and left
- › Detent knob in open position
- › Can be locked in open position with padlocks
- › Actuator included

Miscellaneous accessories

▼ Lens set 5 colors



120344 AY-SET-LNS-0001-120344

▼ Lens set labeled



120377 AY-SET-LNS-SY01-120377



125359 AY-SET-LNS-SY02-125359



126158 AY-SET-LNS-SY03-126158

▼ Lens set 6 colors



120378 AY-SET-LNS-0002-120378

Instructions

Bezpečnostní informace CTP (-AR/-AP)

	Doc. no.	Version	Language	Download
Sicherheitsinformation CTP (-AR/-AP)	2138087	02-11/17		0.7 MB
Información de seguridad CTP (-AR/-AP)				
Information de sécurité CTP (-AR/-AP)				
Informazioni sulla sicurezza CTP (-AR/-AP)				
Safety Information CTP (-AR/-AP)				
Bezpečnostní informace CTP (-AR/-AP)	2138087	02-11/17		0.2 MB
安全情報 CTP (-AR/-AP)	2138087	02-11/17		0.3 MB
Informação de segurança CTP (-AR/-AP)	2138087	02-11/17		0.2 MB
Информация о безопасности CTP (-AR/-AP)	2138087	02-11/17		0.3 MB
Güvenlik bilgisi CTP (-AR/-AP)	2138087	02-11/17		0.3 MB
安全信息 CTP (-AR/-AP)	2138087	02-11/17		0.3 MB

操作指示書トランスポンダー型コード化安全スイッチ ガードロック内蔵CTP-AR ユニコード/マルチコード




	Doc. no.	Version	Language	Download
Betriebsanleitung Transpondercodierter Sicherheitsschalter mit Zuhaltung CTP-AR Uni-/Multicode	2123041	06-05/18		4.5 MB
Mode d'emploi Interrupteur de sécurité à codage par transpondeur avec interverrouillage CTP-AR uni-/multicode	2123041	06-05/18		4.5 MB
Manual de instrucciones Interruptor de seguridad con codificación por transponder con bloqueo CTP-AR Unicode/Multicode	2123041	06-05/18		4.5 MB
操作指示書トランスポンダー型コード化安全スイッチ ガードロック内蔵CTP-AR ユニコード/マルチコード	2123041	06-05/18		4.8 MB
Návod k použití Bezpečnostní spínač s kódovaným transpondérem CTP-AR Unicode/Multicode	2123041	06-05/18		4.7 MB
Operating instructions Transponder-Coded Safety Switch With Guard Locking CTP-AR Unicode/Multicode	2123041	06-05/18		4.5 MB
Istruzioni di impiego Finecorsa di sicurezza con codifica a transponder con meccanismo di ritenuta CTP-AR Uni-/Multicode	2123041	06-05/18		4.5 MB

Catalogs







Bedienelemente integriert - der neue Sicherheitsschalter CTP-Extended

	Doc. no.	Version	Language	Download
Bedienelemente integriert - der neue Sicherheitsschalter CTP-Extended Integrated controls - the new safety switch CTP-Extended	137356	01-11/16	 	0.5 MB

▼ Elementos de mando integrados: el nuevo interruptor de seguridad CTP-Extended







	Doc. no.	Version	Language	Download
Elementos de mando integrados: el nuevo interruptor de seguridad CTP-Extended Éléments de commande intégrés - le nouvel interrupteur de sécurité CTP-Extended	137535	01-11/16	 	 0.5 MB

▼ Transpondercodierte Sicherheitsschalter - Verriegelungseinrichtungen und Zuhaltungen
Transponder-coded safety switches - Interlocking devices and guard locking devices
Interruptores de seguridad con codificación por transponder - Dispositivos de enclavamiento y bloqueos
Interrupteurs de sécurité à codage par transpondeur - Dispositifs de verrouillage et interverrouillages

	Doc. no.	Version	Language	Download
Transpondercodierte Sicherheitsschalter - Verriegelungseinrichtungen und Zuhaltungen	127594	02-01/18		 5.2 MB
Interrupteurs de sécurité à codage par transpondeur - Dispositifs de verrouillage et interverrouillages	137558	02-01/18		 5.2 MB
Interruptores de seguridad con codificación por transponder - Dispositivos de enclavamiento y bloqueos	137560	02-01/18		 5.2 MB
Transponder-coded safety switches - Interlocking devices and guard locking devices	127595	02-01/18		 5.1 MB

Declaration of conformity

▼ EU-Konformitätserklärung

	Doc. no.	Version	Language	Download
EU-Konformitätserklärung EU declaration of conformity Declaración UE de conformidad Déclaration UE de conformité Dichiarazione di conformità	2123042	06-08/18	    	 0.4 MB