

Interlocking devices and guard locking devices

Interlocking devices and guard locking devices



EUCHNER

More than safety.

EUCHNER

More than safety.



Headquarters in Leinfelden-Echterdingen



Logistics center in Leinfelden-Echterdingen



Production location in Unterböhringen

Internationally successful – the EUCHNER company

EUCHNER GmbH + Co. KG is a world-leading company in the area of industrial safety technology. EUCHNER has been developing and producing high-quality switching systems for mechanical and systems engineering for more than 70 years.

The medium-sized family-operated company based in Leinfelden, Germany, employs around 900 people around the world.

20 subsidiaries and other sales partners in Germany and abroad work for our international success on the market.

Quality and innovation – the EUCHNER products

A look into the past shows EUCHNER to be a company with a great inventive spirit. We take the technological and ecological challenges of the future as an incentive for extraordinary product developments.

EUCHNER safety switches monitor safety doors on machines and installations, help to minimize dangers and risks and thereby reliably protect people and processes. Today, our products range from electromechanical and electronic components to intelligent integrated safety solutions. Safety for people, machines and products is one of our dominant themes.

We define future safety technology with the highest quality standards and reliable technology. Extraordinary solutions ensure the great satisfaction of our customers. The product ranges are subdivided as follows:

- ▶ Transponder-coded Safety Switches
- ▶ Transponder-coded Safety Switches with guard locking
- ▶ Multifunctional Gate Box MGB
- ▶ Access management systems (Electronic-Key-System EKS)
- ▶ Electromechanical Safety Switches
- ▶ Magnetically coded Safety Switches
- ▶ Enabling Switches
- ▶ Safety Relays
- ▶ Emergency Stop Devices
- ▶ Hand-Held Pendant Stations and Handwheels
- ▶ Safety Switches with AS-Interface
- ▶ Joystick Switches
- ▶ Position Switches



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CES technology from the inventor of transponder-coded safety engineering – transponder-coded safety systems from EUCHNER

The transponder-coded safety systems from EUCHNER are modern interlocking devices or guard locking devices of type 4 for the protection of persons, machines and processes. They are based on non-contact transponder technology (RFID) and consist of a coded actuator, a read head and evaluation electronics. In some systems, the read head and evaluation electronics form a self-contained unit. All safety functions are combined in a single component here (internal evaluation). With external evaluation, the actuator is read via a separate read head connected to an evaluation unit in the control cabinet.

Internal evaluation

Transponder signals are evaluated in the field, not in the control cabinet. All devices in this catalog have internal evaluation.

External evaluation

With external evaluation, the evaluation electronics for the transponder signals are accommodated in a separate housing. This separation minimizes the read head's size. This is particularly advantageous if the available space at the location to be protected is very limited.

You will find more information on these devices in the catalog Transponder-Coded Safety Systems with External Evaluation or at www.euchner.com.

The advantages of transponder-coded safety switches

Transponder-coded safety switches from EUCHNER provide the following advantages:

- Maximum protection against tampering due to uniquely coded actuator
- Highest safety category and Performance Level (PL) according to EN ISO 13849-1

- Depending on the application, a device with a suitable actuating range can be selected.
- The large actuating range offers greater door guide tolerance.
- The actuator can be rotated within the read head's actuating range.
- Less sensitive to dirt on the surface.
- Largely insensitive to vibration and shock.
- Can be used in harsh environments.
- Suitable for areas with increased hygiene requirements.

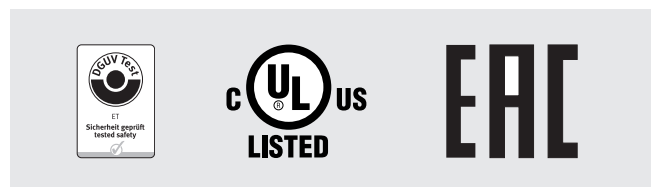
Type examinations and approvals

EUCHNER is allowed to perform CE certification for almost all products without the involvement of a notified body, as EUCHNER is allowed to use the system for full quality assurance according to Annex X of the Machinery Directive. This procedure has been confirmed by TÜV Rheinland and is checked regularly. Nevertheless, additional type examinations are performed by a notified body such that an independent body again confirms that all laws and standards are met.

Many of the devices listed in this catalog have been tested, for instance by the German Social Accident Insurance association (DGUV), formerly the employers' liability insurance association (BG), and are given in the lists from the DGUV.

For countries outside the EU, approvals often are necessary for safety products. Many of the products are listed by Underwriters Laboratories (UL) or are marked according to the EurAsian Conformity (EAC) standard.

The approval symbols on the individual pages of the catalog indicate which tests and approvals are available and which body tested the devices. With the aid of the approval symbols listed below, you can quickly see which approvals are available for the related device:



You will find further information on the topic of directives and standards in the Service area at www.euchner.com.

Selection criteria

System families

System family A

A System family A is characterized by the ability to switch through clock pulses from safe control systems via its semiconductor outputs.

The clock pulses at the control system outputs do not have to be switched off. Up to 3 devices can be connected in series.

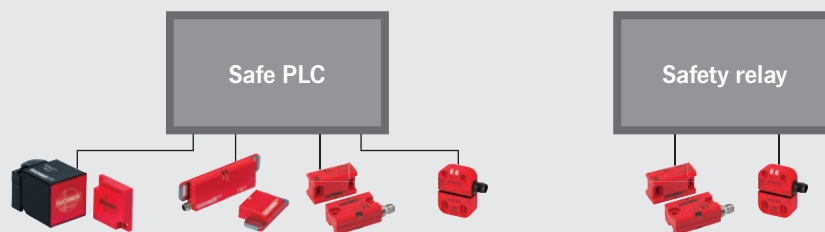
System family AP/BP

AP BP System family AP/BP is intended to be used for separate operation. The devices are particularly suitable for the connection of safety evaluation units and safety control systems that require short test pulses. Some versions have been optimized for connection to decentralized peripheral systems, such as the ET200pro from Siemens. The AP/BP devices generate test pulses at the safety outputs for short circuit

monitoring. Due to the little wiring work required, AP/BP devices represent a low-cost solution.

On suitable devices from system family BP, EUCHNER IO-Link Gateways can be used to read process and device data from the switch and transfer them to an IO-Link master in real time. Devices with communication capability are identified by the INDUSTRY 4.0 READY logo.

Connection examples



System family AY

AY AY devices are intended to be used for separate operation. The AY devices generate test pulses on the safety outputs for short circuit

monitoring. The test pulses are longer than on AP devices.

System family AR

AR In the AR version, up to 20 devices belonging to the AR system family can be connected in series. Category 4/PL e is achieved for series connections with up to 20 devices. The AR devices generate test pulses on the safety outputs for short circuit monitoring.

AR evaluation unit. If the evaluation unit is used, the status signals can be evaluated as well. Instead of the Y-plug connectors, it is also possible to use a passive distribution module.

With this device, safety and status signals are collected together in the field and forwarded to the control system.

2 different connection options are available:

■ Series connection in the field

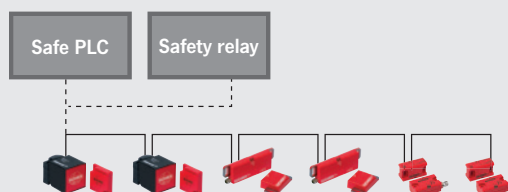
For field wiring, EUCHNER offers the option of using M12 plugs and Y-distributors to connect together several AR devices. The safety outputs of the last switch can be connected either directly to a control system or to the

■ Series connection in the control cabinet

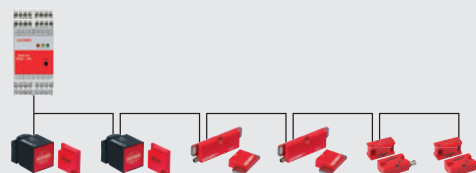
Wiring takes place in the control cabinet. All information about the status of individual AR devices can be forwarded directly to the control system.

Examples of series connection in the field

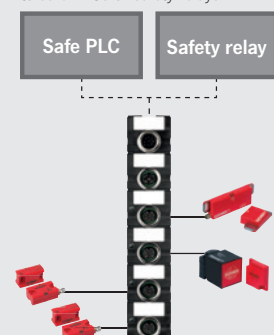
Series connection with Y-distributors and connection to safe PLCs or safety relays



Series connection with Y-distributors and connection to AR evaluation unit



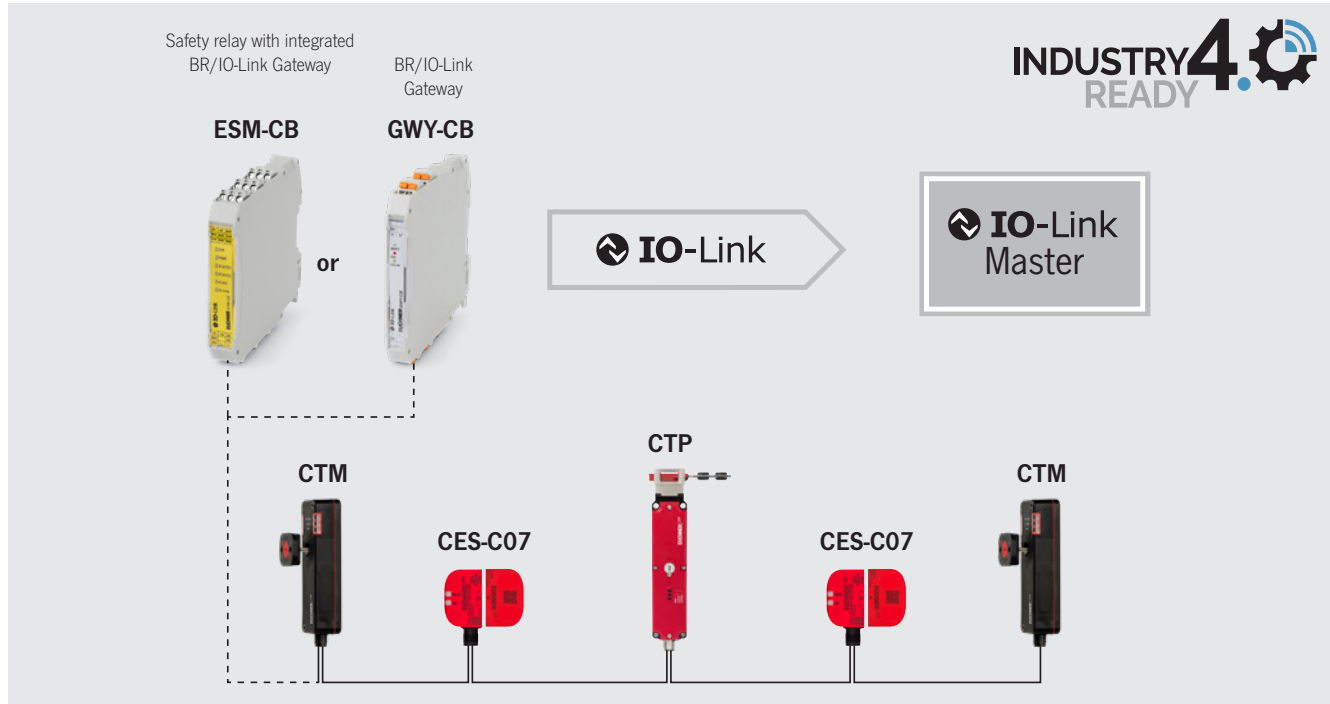
Series connection with passive distribution modules and connection to safe PLCs or safety relays



System family BR

BR In the BR version, up to 20 devices belonging to the BR system family can be connected in series. EUCHNER IO-Link Gateways can be used to read process and device data from the switch and transfer them to an IO-Link master in real time. Devices with communication capability are identified by the INDUSTRY 4.0 READY logo.

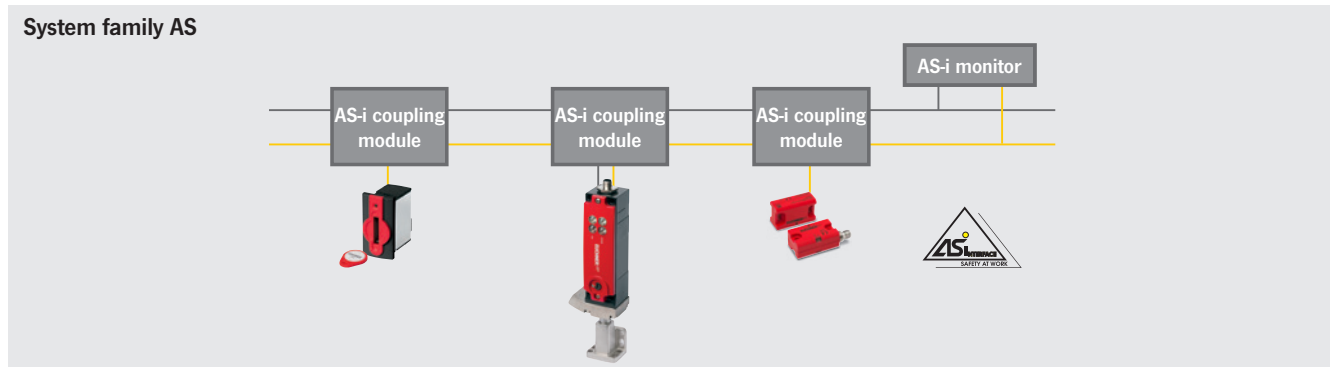
Category 4/PL e is achieved for series connections with up to 20 devices. The BR devices generate brief test pulses of 0.3 ms duration at the safety outputs for short circuit monitoring. A mix of AR and BR devices must not be used in a switch chain.



System family AS (AS-Interface Safety at Work)

AS Version with integrated AS-Interface. The safety switch is connected directly to the ribbon 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 AS-Interface. **You will**

find more information on devices with AS-Interface in the catalog **Safety Switches with AS-Interface** or at www.euchner.com.



Coding

Each transponder actuator features coding that far surpasses the requirements in EN ISO 14119 for a type 4 switch with high coding level. The code in an actuator cannot be reprogrammed.

Unicode evaluation

With the unicode version, the actuators must be taught-in on the safety switch. During the teach-in operation, the actuator code is assigned to the safety switch. This code is saved in the safety switch. Whenever an actuator is read, the safety switch compares the code just read with the code last saved. The actuator is detected and the safety outputs/status signals are switched only if the two bit patterns are identical. The number of possible teach-in operations is dependent of the safety switch used. Only the last actuator taught-in is detected. Unicode evaluation provides a high level of protection against tampering.

Fixcode evaluation

With fixcode version devices, an actuator is permanently assigned to the device. The device can be operated only with this one actuator. No additional actuators can be taught in.

- With AP/AR devices, the teach-in operation is performed at EUCHNER prior to delivery.
- With BP/BR devices, the teach-in operation is performed on-site at the customer's premises. Each actuator approved for the device is assigned to the switch by a one-time teach-in operation. Another teach-in operation is not possible.

Multicode evaluation

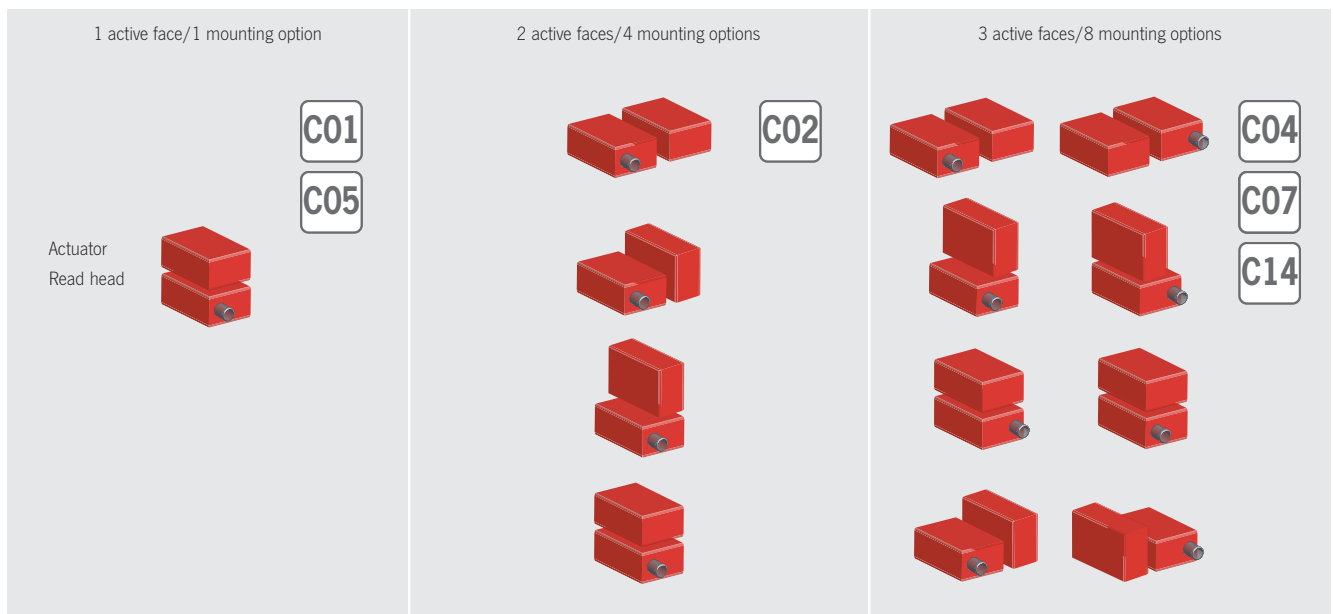
Unlike systems with unique code evaluation, a specific actuator code is not requested with multicode devices, instead it is only checked whether the actuator is of a suitable type that can be detected by the system (multicode detection). There is no exact comparison of the actuator code with a code saved in the evaluation unit. As a result, a teach-in operation for the actuator is not necessary.

Operating distance and active face

The operating distances indicate the distances between the actuator and sensor from which a switching operation is triggered. The active faces on the actuator and switch define these distances. The faces must be parallel with each other on approach.

Approach directions and installation positions

Depending on the housing design, the devices have one or more active faces and therefore one or more possible approach directions and installation positions.



The transponder field

Transponder-coded systems operate using electromagnetic fields. These fields differ depending on the design of the device.

Operating distance, release distance and hysteresis

On moving an actuator toward a switch, a switching signal is triggered on reaching the operating distance. The actuator is detected and the safety outputs are switched on.

If the actuator is removed again from the field, the safety outputs are switched off again on reaching the release distance. As the operating distance and the release distance are different, there is a switching hysteresis. The larger the switching hysteresis, the less sensitive the system is to vibration.

Typical operating distance

Each system has typical and assured operating distances. The assured operating distances are defined in the EN 60947-5-3 standard and are briefly explained in the following.

The information in the catalog corresponds to the typical operating distance.

Assured operating distance s_{ao}

According to EN 60947-5-3, the assured operating distance is the distance from the active sensor face within which the presence of the actuator is correctly detected under all defined environmental conditions and manufacturing tolerances.

Assured release distance s_{ar}

According to EN 60947-5-3, the assured release distance is the distance from the active sensor face outside which the actuator is no longer detected under any environmental conditions, manufacturing tolerances and fault conditions, so that the system switches off.

Limit-range indication

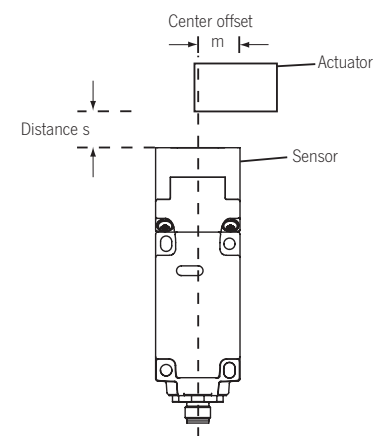
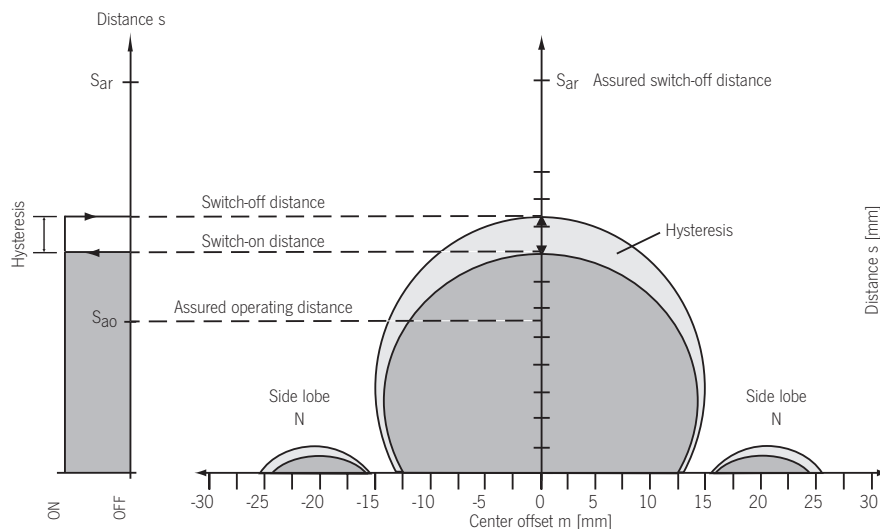
The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Side lobes

Transponder fields in general comprise a main field and secondary fields (so-called side lobes). The secondary fields are significantly smaller than the main field and are to the side of the main field. A transponder is also read if it is in a secondary field. This effect is undesirable and on the very close, side approach of an actuator causes problems because the actuator is read before it has reached the main field (and therefore the intended position).

Surrounding material and installation depth

The operating distance is reduced by flush, recessed installation in the surrounding material. This effect is stronger with a metallic surrounding material than with plastic, for example. Completely encapsulated installation in metal in which the active face on the transponder is covered is generally not possible, as the field is attenuated excessively.



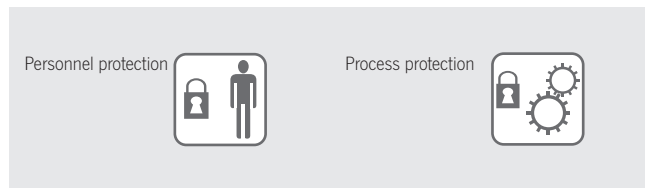
Interlocking devices and guard locking devices

Interlocking devices

Interlocking devices according to EN ISO 14119 are used for safe monitoring of the position of a guard or the position of a machine component. The safety outputs switch off as soon as the guard is opened or the safe position is left.

Guard locking devices for the protection of personnel or processes

As per EN ISO 14119, guard locking for personnel protection requires continuous monitoring of the guard locking function. On opening or failure of the guard locking, the safety outputs must be switched off. Any guard locking for personnel protection can also be used as guard locking for process protection.



Guard locking devices for process protection are not safely monitored guard locking devices. The safety function of these devices is limited to position monitoring for the safety door. Monitoring the guard locking state is not part of the safety function.

Principle of operation of guard locking

EUCHNER offers two guard locking methods:

■ Electromechanical guard locking

Here, a locking element such as a locking pin is moved to prevent the actuator from being pulled out (positive locking).

■ Magnetic guard locking

Here, the actuator is held in place by the magnetic attraction force on the guard locking solenoid (force locking).

Guard locking principle

EUCHNER offers three guard locking principles:

Guard locking principle	Principle of operation	
	Electromechanical guard locking	Magnetic guard locking
Closed-circuit current principle	Guard locking actuated by spring force and released by power-ON	
Open-circuit current principle	Guard locking actuated by power-ON and released by spring force	Guard locking actuated by power-ON and released by power-OFF
Bistable guard locking	Guard locking actuated by power-ON and released by power-ON	

Safety switches without guard locking

C01

- ▶ Compact, square design, standard housing (EN 60947-5-2)
- ▶ 1 active face, can be repositioned in 5 directions
- ▶ Large actuating range
- ▶ Degree of protection IP67

C01

AP AR



C02

- ▶ Narrow, elongated design
- ▶ 2 active faces
- ▶ Direct mounting on aluminum profiles
- ▶ Large temperature range
- ▶ Degree of protection IP67/IP69/IP69K

C02

AP AR



C04

- ▶ Small design
- ▶ 3 active faces
- ▶ Degree of protection IP67/IP69/IP69K
- ▶ ATEX version available

C04

AP AR AS

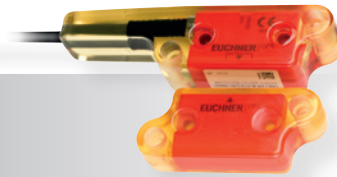


C14

- ▶ Small design
- ▶ 3 active faces
- ▶ Degree of protection IP67/IP69/IP69K
- ▶ Encapsulated with epoxy resin and therefore suitable for aggressive media

C14

AP AR



C05

- ▶ Standard housing (EN 60947-5-2)
- ▶ 1 active face, can be repositioned in 5 directions
- ▶ Very large actuating range
- ▶ Degree of protection IP67
- ▶ ATEX version available

C05

A



C07

- ▶ Small design
- ▶ 3 active faces
- ▶ Degree of protection IP67/IP69/IP69K

C07

BP BR



CTP-I

- ▶ 3 approach directions; head can be rotated in 90° steps
- ▶ Degree of protection IP67/IP69/IP69K
- ▶ Extraction force 20 N
- ▶ With integrated lock (depending on version)
- ▶ Version with emergency stop available

CTP-I

AP



Safety switches with guard locking

CEM-C40

- ▶ Magnetic guard locking for process protection
- ▶ Guard locking solenoid and evaluation electronics in one housing
- ▶ Locking force of 600 N
- ▶ Adjustable adhesive force

CEM
C40

AY



CEM-C60

- ▶ Magnetic guard locking for process protection
- ▶ Variable system
- ▶ Flexibly combinable with safety switches CES-C04 / C07
- ▶ Locking force of 650 N

CEM
C60

AP

AR



CTP

- ▶ Guard locking for personnel protection according to EN 14119
- ▶ Degree of protection IP67/IP69/IP69K
- ▶ Mounting compatible with the EUCHNER safety switches TP, STP and STA
- ▶ 3 approach directions; head can be rotated in 90° steps
- ▶ High locking force of 3,900 N
- ▶ Stainless-steel version available
- ▶ ATEX version available

CTP

AP

AR

AS



CET

- ▶ Guard locking for personnel protection according to EN 14119
- ▶ Very high locking force up to 6,500 N
- ▶ 2 safety outputs (semiconductor outputs)
- ▶ Head can be rotated in 90° steps
- ▶ Degree of protection IP67
- ▶ Metal housing
- ▶ Actuator guide with large freedom of movement
- ▶ 2-channel solenoid control permissible
- ▶ Connection via plug connectors

CET

AP

AR

AS



CTM

- ▶ Guard locking for personnel protection according to EN 14119
- ▶ Compact size
- ▶ Bistable guard locking principle
- ▶ Degree of protection IP67/IP69/IP69K
- ▶ Locking force of 1,300 N
- ▶ Process and device data can be read via IO-Link
- ▶ Hygienic version available

CTM

BP

BR



Function expansion

Due to the large selection of accessories and parts that can be retrofitted, additional or expanded functions are possible. You will find an overview of the accessories available in the section of the catalog on the related device.

Release functions

Some situations require guard locking to be released manually (e.g. malfunctions or an emergency). The following release functions are available for EUCHNER devices:

Auxiliary release and auxiliary key release (1)

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

Emergency release (2)

This permits opening of a locked guard from outside the danger area without tools.

Escape release (3)

This permits opening of a locked guard from the danger area without tools.

Wire front release (4)

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



Lockout bar

The lockout bar can be used to prevent maintenance personnel from being unintentionally locked in the danger area, for example. In locked position, the lockout bar prevents activation of guard locking. The lockout bar can be secured in locked position using padlocks.

Lockout bars are available in two versions:

- ▶ Lockout bar permanently mounted on the device
- ▶ Removable lockout bar for blocking the switch head or the actuator



Versatile accessories

Bolts

Bolts function as follows: the bolt tongue mechanically guides the actuator when it is inserted into the safety switch actuating head. The bolt mounted on the door frame comprises a protruding bolt tongue, the handle and the actuator, mounted offset somewhat to the rear. The switch bracket with the safety switch is fitted to the frame. The bolt absorbs forces that act on the switch and the actuator and that could damage the switch and actuator. There are bolts for many safety switches from EUCHNER. Some as a set with pre-assembled safety switch.

Function expansions that can be retrofitted

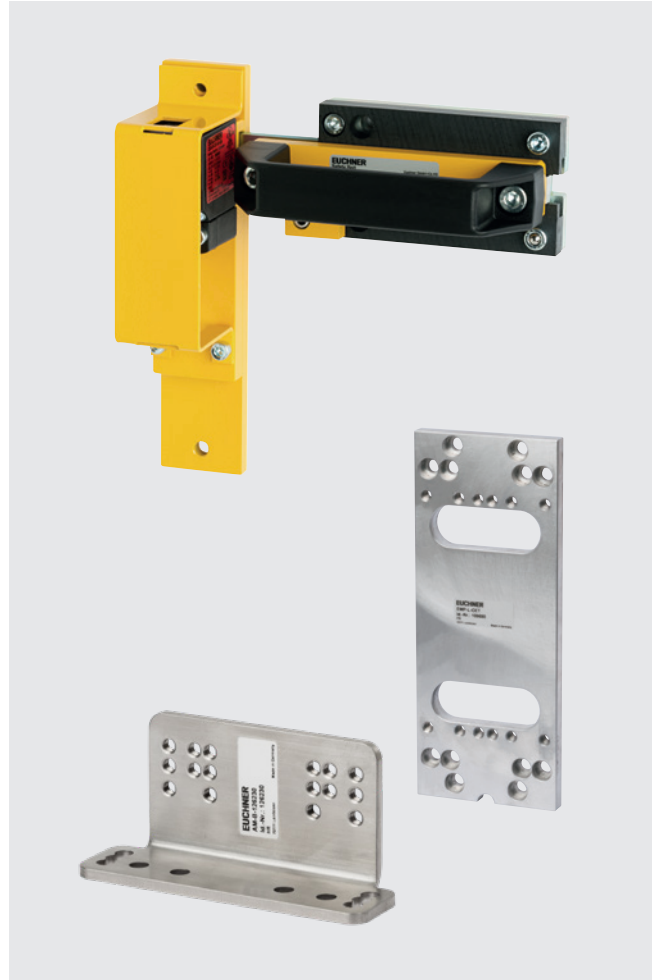
For some devices, there are function expansions that can be retrofitted, e.g. manual releases, cover plates, insertion funnels, lockout bars and much more. You can find suitable accessories for your device very simply at www.euchner.com.

Connection material

EUCHNER offers a large selection of connecting cables, plug connectors and other connection accessories. You can find suitable accessories for your device very simply at www.euchner.com.

Installation material

EUCHNER offers mounting plates and brackets for many devices for a wide variety of mounting situations. You can find suitable accessories for your device very simply at www.euchner.com.





»Communicating safety switches for the requirements of tomorrow – Industry 4.0 ready«

- ▶ Safety switches for separate operation
- ▶ Industry 4.0-compatible communication and expanded diagnostics in combination with IO-Link Gateway GWY-CB or safety relay with integrated IO-Link Gateway ESM-CB
- ▶ Direct connection to IP67 field modules for various decentralized peripheral systems (depending on version)
- ▶ Two safe semiconductor outputs
- ▶ Extremely short risk time
- ▶ Own pulsing for short circuit detection
- ▶ Connection via plug connectors
- ▶ Cable lengths up to 200 m possible
- ▶ PL e/category 4 according to EN ISO 13849-1

System
family

BP

BP



CES

C07



CTM

CTM

Safety switch CES-I-BP-.-C07-...



INDUSTRY
4.0
READY



- ▶ Communicating safety switch
- ▶ Industry 4.0 ready
- ▶ Small design
- ▶ 3 active faces
- ▶ Diagnostics via 2 LEDs
- ▶ Limit-range indication
- ▶ Degree of protection IP65/IP67/IP69/IP69K
- ▶ Mounting distance 22 mm (industrial standard)
- ▶ Simple to convert for guard locking with magnetic guard locking CEM-C60

Details**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Industry 4.0 ready

The switch can communicate in combination with an EUCHNER IO-Link Gateway, and sends process and device data to higher-level control systems. Comprehensive diagnostic messages enable rapid and targeted troubleshooting.

Housing material

The switch is suitable for use in the food industry (ECOLAB material resistance test).

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Connection to IP67 field modules

Devices with M12 plug connector, 5-pin, without monitoring output are optimized for direct connection to field modules, such as ET200pro from Siemens or comparable devices from other manufacturers.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OD/C Door position monitoring output and communication connection to an EUCHNER IO-Link Gateway

Further information

- ▶ For dimension drawings, see p. 17
- ▶ For accessories and spare parts, see p. 17
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table**Safety switch**

Series	Version	Order no./item	
CES-I-BP-U-C07-... Unicode	Without monitoring output 	162815 CES-I-BP-U-C07-SI-162815	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	With monitoring output / communication output	160080 CES-I-BP-U-C07-SB-160080	
CES-I-BP-M-C07-... Multicode	Without monitoring output 	162813 CES-I-BP-M-C07-SI-162813	
	With monitoring output / communication output	160076 CES-I-BP-M-C07-SB-160076	

Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BDN-06	Ø6 x 26	16	158210 CES-A-BDN-06-158210	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BTN-07	40 x 26	13	156230 CES-A-BTN-07-156230	



Function expansion with CEM-C60, see page 58.

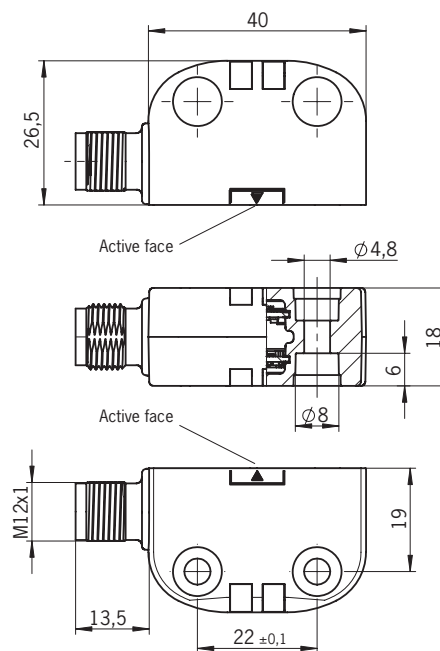
M12 **5 pin**

C07

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 5 pin Page 119
Fixing material	Safety screws	Page 144

Dimension drawing



Terminal assignment

With monitoring output	Without monitoring output (pin 5 not used)	Designation	Function
1	1	UB	Operating voltage, 24 V DC
2	2	FO1A	Safety output, channel A
3	3	0V	Ground 0 V DC
4	4	FO1B	Safety output, channel B
5	–	OD/C	Door position monitoring output/communication

Safety switch CTM-.BI-BP-... with guard locking



INDUSTRY
4.0
READY



- ▶ Communicating safety switch
- ▶ Industry 4.0 ready
- ▶ Safety switch with guard locking
- ▶ Locking force up to 1,300 N
- ▶ Diagnostics via 3 LEDs
- ▶ Hygienic version available

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Industry 4.0 ready

The switch can communicate in combination with an EUCHNER IO-Link Gateway, and sends process and device data to higher-level control systems. Comprehensive diagnostic messages enable rapid and targeted troubleshooting.

Guard locking types

LBI BiState

Control input for guard locking. This guard locking type has a function to prevent the activated guard locking from being deactivated during a power failure.

CBI

BiState

The device can be configured with the aid of the function actuators. Guard lock monitoring is switched on or off depending on the taught-in function actuator.

Auxiliary release (optional)

Some devices have an auxiliary release (see ordering table).

LED indicator

STATE Status
LOCK Guard locking
DIA Diagnostics

Additional connections

OD/C Door position monitoring output and communication connection to an EUCHNER IO-Link Gateway
OI Diagnostic monitoring output
OL Guard lock monitoring output

Further information

- ▶ For dimension drawings, see p. 19
- ▶ For accessories and spare parts, see p. 19
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

CTM-.BI-BP-...-SA-... with plug connectors M12

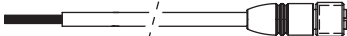
 Order no./item	Coding U = unicode M = multicode	Auxiliary release	Adhesive force [N]	Hygienic version	Guard locking Personnel/process protection	For wiring diagram, see page 31	
CTM-LBI BiState							For detailed information, enter the order number for the product in the search box at www.euchner.com .
166087 CTM-LBI-BP-U-AZ-SA-166087	U	●	25			A	
166088 CTM-LBI-BP-M-AZ-SA-166088	M	●	25			A	
166089 CTM-LBI-BP-U-AZ-SA-166089	U	●	25			B	
166090 CTM-LBI-BP-U-AZ-SA-166090	M	●	25			B	
CTM-CBI BiState							
165897 CTM-CBI-BP-U-AZ-SA-165897	U	●	25			B	

Actuator

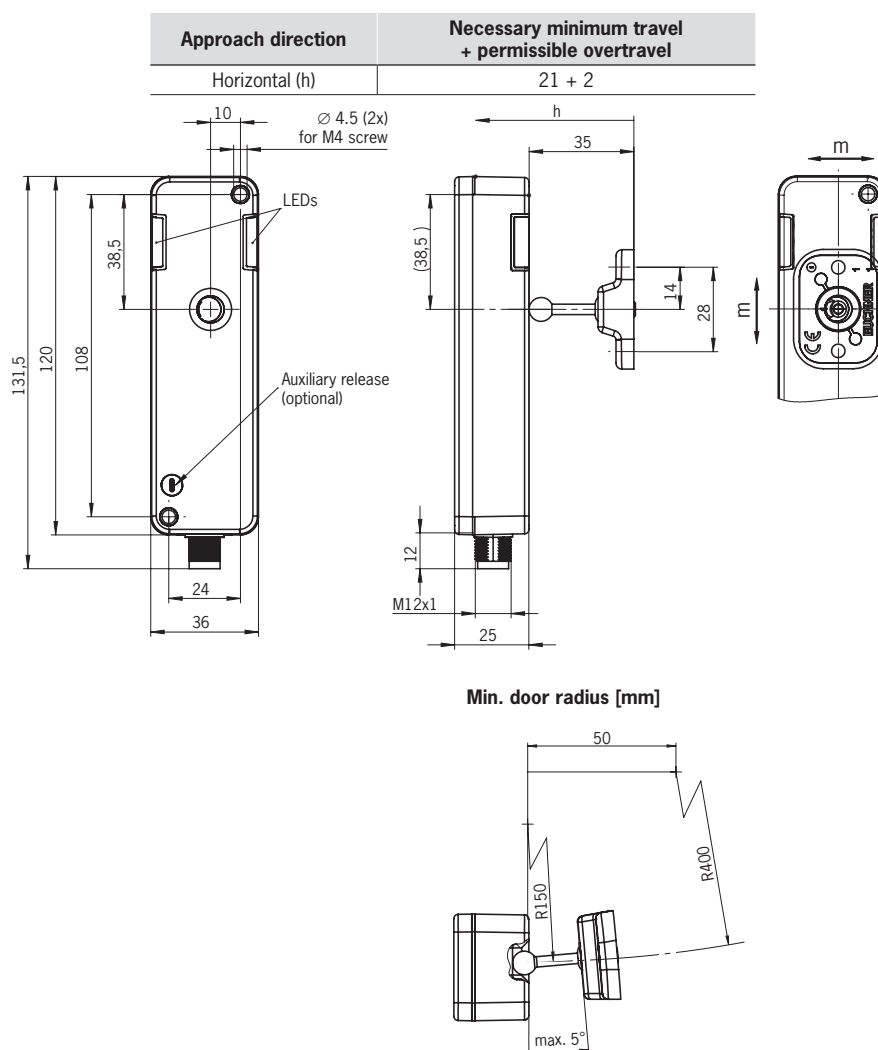
Series	Design	Color	Order no./item	
A-B-A1-A1-...	Standard	BK/RD	161642 A-B-A1-A1-161642	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	P Hygienic version	BK/BU	161643 A-B-A1-A1-P-161643	
A-B-A5-A1-... ¹⁾	L configuration	BK/RD	165895 A-B-A5-A1-165895	
	I configuration		165896 A-B-A5-A1-165896	

1) Only in combination with CTM-CBI-BP-U-AZ-SA-165897

Accessories

Type	Version	
Connection material	Connecting cable with plug connector  M12 8 pin	Page 123
Fixing material	Safety screws	Page 144

Dimension drawing



M12 8 pin

Terminal assignment

A M12 8 pin Wiring diagram A

Pin	Designation	Function
1	IMP	Solenoid control input, 24 V DC
2	UB	Electronics and solenoid operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OD/C	Door position monitoring output/communication
7	OVUB	Electronics and solenoid operating voltage, 0 V DC
8	IMM	Solenoid control input, 0 V DC

B M12 8 pin Wiring diagram B

Pin	Designation	Function
1	IMP	Solenoid control input, 24 V DC
2	UB	Electronics and solenoid operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OD/C	Door position monitoring output/communication
7	OL	Guard lock monitoring output
8	OVUB	Electronics and solenoid operating voltage, 0 V DC



»Communication at industry 4.0 level – always up to date in series connection as well.«

- ▶ Can be connected in series with all BR devices (up to 20 devices)
- ▶ Quick connection via M12 connectors (depending on version)
- ▶ Evaluation via safety control systems
- ▶ Industry 4.0-compatible communication and expanded diagnostics in combination with IO-Link Gateway GWY-CB or safety relay with integrated IO-Link Gateway ESM-CB
- ▶ Two safe semiconductor outputs
- ▶ Extremely short risk time
- ▶ Own pulsing for short circuit detection
- ▶ PL e/category 4 according to EN ISO 13849-1 for up to 20 devices
- ▶ Switch chains with cable lengths up to 200 m possible



CES

C07



CTM

CTM



ESM

ESM



GWY

GWY

Safety switch CES-I-BR-.-C07-...



INDUSTRY
4.0
READY



- ▶ Communicating safety switch
- ▶ Industry 4.0 ready
- ▶ Small design
- ▶ 3 active faces
- ▶ Diagnostics via 2 LEDs
- ▶ Limit-range indication
- ▶ Degree of protection IP65/IP67/IP69/IP69K
- ▶ Mounting distance 22 mm (industrial standard)

Details**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Industry 4.0 ready

The switch can communicate in combination with an EUCHNER IO-Link Gateway, and sends process and device data to higher-level control systems. Comprehensive diagnostic messages enable rapid and targeted troubleshooting.

Housing material

The switch is suitable for use in the food industry (ECOLAB material resistance test).

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OD/C Door position monitoring output and communication connection to an EUCHNER IO-Link Gateway

Further information

- ▶ For dimension drawings, see p. 25
- ▶ For accessories and spare parts, see p. 25
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table**Safety switch**

Series	Version	Order no./item	
CES-I-BR-U-C07-... Unicode	M12 8 pin	157920 CES-I-BR-U-C07-SA-157920	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-I-BR-M-C07-... Multicode	M12 8 pin	156233 CES-I-BR-M-C07-SA-156233	

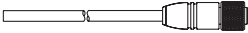
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BDN-06	Ø6 x 26	16	158210 CES-A-BDN-06-158210	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BTN-07	40 x 26	13	156230 CES-A-BTN-C07-156230	

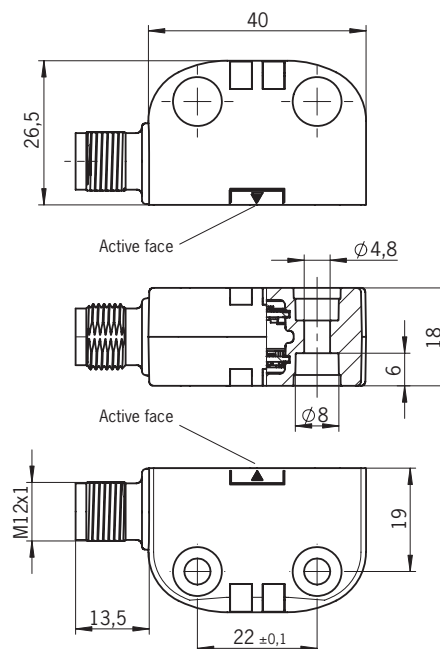


Function expansion with CEM-C60, see page 59.

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 8 pin Page 126
	Strapping plug/Y-distributor 	M12 Page 128
	Passive distribution module 	M12 Page 129
Fixing material	Safety screws 	Page 144

Dimension drawing



Terminal assignment

Pin	Designation	Function
1	FI1B	Enable input, channel B
2	UB	Operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OD/C	Door position monitoring output/communication
6	FI1A	Enable input, channel A
7	0V	Ground 0 V DC
8	–	n.c.

Safety switch CES-I-BR-CC-FLX-C07-...



INDUSTRY
4.0
READY



- ▶ **Communicating safety switch for safe monitoring of several positions**
- ▶ **Suitable for several actuators with the same coding**
- ▶ **Industry 4.0 ready**
- ▶ **Small design**
- ▶ **3 active faces**
- ▶ **Diagnostics via 2 LEDs**
- ▶ **Limit-range indication**
- ▶ **Degree of protection IP65/IP67/IP69/IP69K**
- ▶ **Mounting distance 22 mm (industrial standard)**

Details

The safety switch is used for safe monitoring of several positions. Identically coded actuators are mounted at each of the positions to be monitored. If a permissible code is detected, the safety outputs are switched.

Applications

- ▶ Rotary tables and turntables
- ▶ Safety revolving doors
- ▶ Machine slides with several stopping positions
- ▶ High-speed doors
- ▶ Safeguarding non-fixed covers

Available coding options

- ▶ Unicode evaluation

Industry 4.0 ready

The switch can communicate in combination with an EUCHNER IO-Link Gateway, and sends process and device data to higher-level control systems. Comprehensive diagnostic messages enable rapid and targeted troubleshooting.

Actuator

The actuators intended for the switch are available as packaging units consisting of several identically coded actuators. The switch can be put into operation only using the actuators belonging to the same packaging unit. No additional actuators can be taught-in.

Prior to setup, the code of an actuator from the packaging unit is taught-in by the safety switch in a teach-in operation. The switch thereby accepts all actuators from this package.

Housing material

The switch is suitable for use in the food industry (ECOLAB material resistance test).

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OD/C Door position monitoring output and communication connection to an EUCHNER IO-Link Gateway

Further information

- ▶ For dimension drawings, see p. 27
- ▶ For accessories and spare parts, see p. 27
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table**Safety switch**

Series	Version	Order no./item	
CES-I-BR-CC-FLX-C07-... Unicode	M12 8 pin	165914 CES-I-BR-CC-FLX-C07-SA-165914	For detailed information, enter the order number for the product in the search box at www.euchner.com .

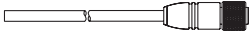
Actuator

Series	Design	Typ. operating distance [mm]	Packaging unit [qty.]	Order no./item	
A-FLX-C07-04-...	40 x 26	13	2	165928 A-FLX-C07-04-V02-165928	For detailed information, enter the order number for the product in the search box at www.euchner.com .
			3	166488 A-FLX-C07-04-V03-166488	

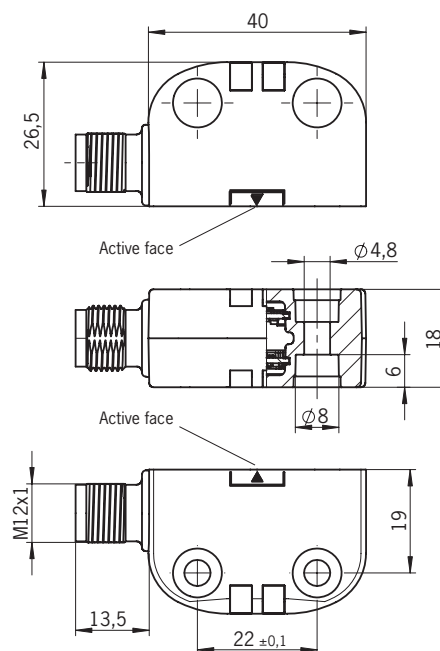


Function expansion with CEM-C60, see page 59.

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 8 pin Page 126
	Strapping plug/Y-distributor 	M12 Page 128
	Passive distribution module 	M12 Page 129
Fixing material	Safety screws 	Page 144

Dimension drawing



Terminal assignment

Pin	Designation	Function
1	FI1B	Enable input, channel B
2	UB	Operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OD/C	Door position monitoring output/communication
6	FI1A	Enable input, channel A
7	0V	Ground 0 V DC
8	–	n.c.

Safety switch CTM-.BI-BR-... with guard locking



INDUSTRY
4.0
READY



- ▶ Communicating safety switch
- ▶ Industry 4.0 ready
- ▶ Safety switch with guard locking
- ▶ Locking force up to 1,300 N
- ▶ Diagnostics via 3 LEDs
- ▶ Hygienic version available

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Industry 4.0 ready

The switch can communicate in combination with an EUCHNER IO-Link Gateway, and sends process and device data to higher-level control systems. Comprehensive diagnostic messages enable rapid and targeted troubleshooting.

Guard locking types

LBI BiState

Control input for guard locking. This guard locking type has a function to prevent the activated guard locking from being deactivated during a power failure.

Auxiliary release (optional)

Some devices have an auxiliary release (see ordering table).

LED indicator

STATE Status
LOCK Guard locking
DIA Diagnostics

Additional connections

OD/C Door position monitoring output and communication connection to an EUCHNER IO-Link Gateway
OI Diagnostic monitoring output
OL Guard lock monitoring output

Further information

- ▶ For dimension drawings, see p. 30
- ▶ For accessories and spare parts, see p. 29
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

CTM-.BI-BR-...-SA-... with plug connectors M12, 8-pin

M12 8 pin Order no./item	Coding U = unicode M = multicode	Auxiliary release	Adhesive force [N]	Hygienic version	Guard locking Personnel/process protection	For wiring diagram, see page 31	i
CTM-LBI BiState							For detailed information, enter the order number for the product in the search box at www.euchner.com.
161638 CTM-LBI-BR-U-AZ-SA-161638	U		50			A	
161639 CTM-LBI-BR-U-AZ-SA-161639	U		25				
161496 CTM-LBI-BR-U-ZZ-SAP-161496	U		50				
161640 CTM-LBI-BR-U-ZZ-SAP-161640	U		25				
165517 CTM-LBI-BR-MAZ-SA-165517	M		25				

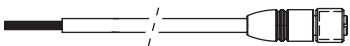
CTM-BI-BR-...-SP-... with plug connectors M12, 12-pin

 Order no./item	Coding U = unicode M = multicode	Auxiliary release	Adhesive force [N]	Hygienic version	Guard locking Personnel/process protection	For wiring diagram, see page 31	
CTM-LBI BiState							For detailed information, enter the order number for the product in the search box at www.euchner.com .
166091 CTM-LBI-BR-U-AZ-SP-166091	U	●	25				
166092 CTM-LBI-BR-M-AZ-SP-166092	M	●	25				

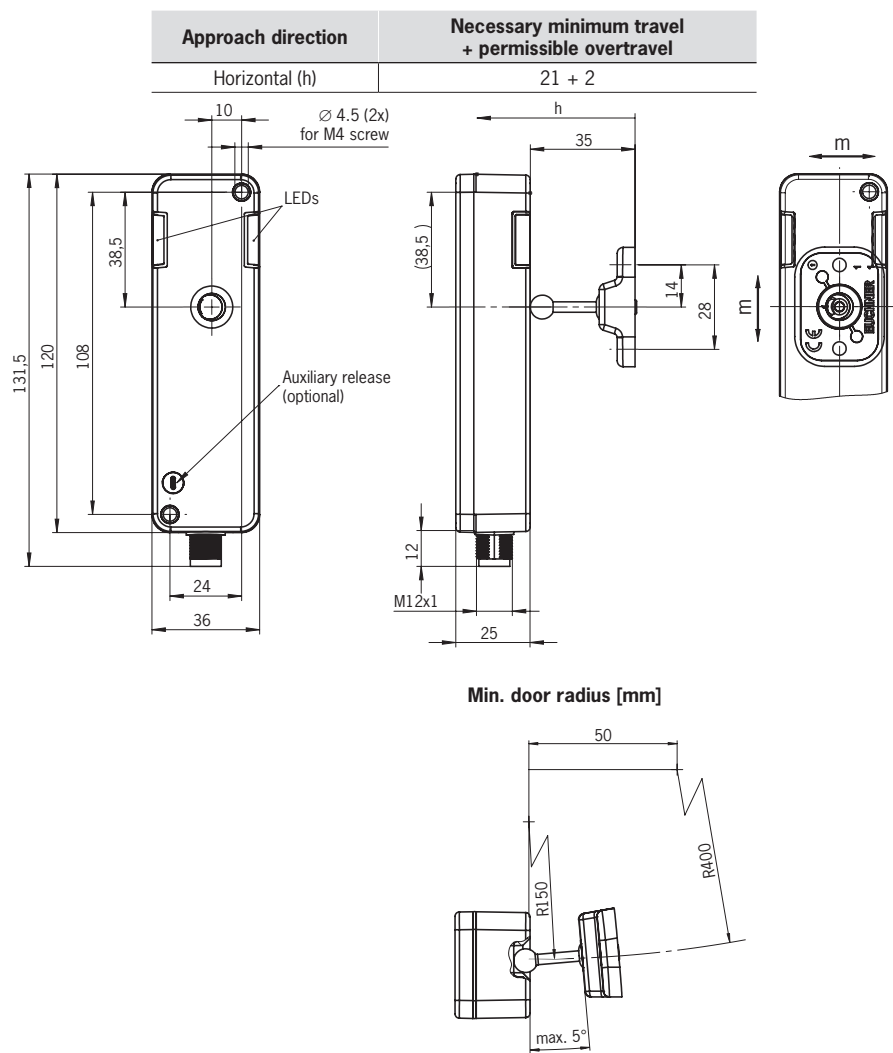
Actuator

Series	Design	Color	Order no./item	
A-B-A1-A1-...	 Standard	BK/RD	161642 A-B-A1-A1-161642	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 P Hygienic version	BK/BU	161643 A-B-A1-A1-P-161643	

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	 Page 123
	Strapping plug/Y-distributor	 Page 128
	Passive distribution module	 Page 129
Fixing material	Safety screws	Page 144

Dimension drawing



M12

8
pin

M12

12
pin

CTM

Terminal assignment

A

M12

8
pin

Wiring diagram A

Pin	Designation	Function
1	FI1B	Enable input, channel B
2	UB	Electronics and solenoid operating voltage, 24 V DC
3	F01A	Safety output, channel A
4	F01B	Safety output, channel B
5	OD/C	Door position monitoring output/communication
6	FI1A	Enable input, channel A
7	OVUB	Electronics and solenoid operating voltage, 0 V DC
8	IMP	Solenoid control input, 24 V DC

B

M12

12
pin

Wiring diagram B

Pin	Designation	Function
1	UB	Electronics and solenoid operating voltage, 24 V DC
2	FI1A	Enable input, channel A
3	OVUB	Electronics and solenoid operating voltage, 0 V DC
4	F01A	Safety output, channel A
5	OD/C	Door position monitoring output/communication
6	FI1B	Enable input, channel B
7	F01B	Safety output, channel B
8	RST	Reset input
9	OL	Guard lock monitoring output
10	IMP	Solenoid control input, 24 V DC
11	OI	Diagnostic monitoring output
12	IMM	Solenoid control input, 0 V DC

BR/IO-Link Gateway GWY-CB



- ▶ **Transfer of process and device data to a higher-level control system via IO-Link**
- ▶ **Compact version measuring only 12.5 mm in width**
- ▶ **Process-data transfer in real time**
- ▶ **Minimal wiring effort**

Details

Data can be read from a BP safety switch or a BR safety switch chain using the IO-Link Gateway. Process data are cyclically sent to the control system via IO-Link. These data include all status signals, such as the position of the door or guard locking, and the indication of whether a switch is out of adjustment. The process data are available in the control system within 200 ms, enabling the data to be used for automation. Moreover, acyclical services can be used to transmit environmental data such as the switch temperature, the applied voltage and other values.

LED indicator

DIA Diagnostic message
BR/FC BR communication/error codes
IO-Link IO-Link communication

Further information

- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of BR devices on page 6.

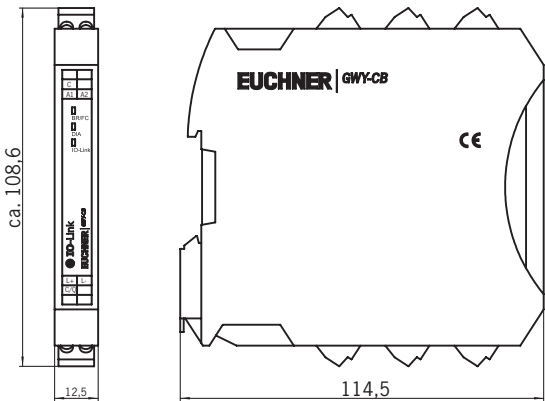
Ordering table

BR/IO-Link Gateway		
Series	Order no./item	
GWY-CB-...	165049 GWY-CB-1-BR-IO-165049	For detailed information, enter the order number for the product in the search box at www.euchner.com .

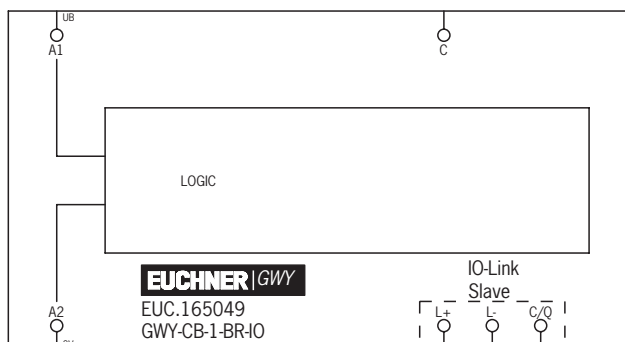
Which safety switches can be connected?

BR/IO-Link Gateway	Safety switch
165049	Series CES-C07
GWY-CB-1-BR-IO-165049	Series CTM

Dimension drawing



Block diagram



Terminal assignment

Connection	Designation	Function
C A1 A2 BR/FC DIA IO-Link IO-Link EUCHNER GWY-CB L+ L- C/Q	A1	Operating voltage, 24 V DC
	A2	Ground 0 V DC
	C	Safety switch communication
	C/Q	IO-Link switching and communication line
	L+/L-	Power supply for IOL master IO-Link

BR/IO-Link Gateway ESM-CB
with relay outputs



- ▶ Evaluation unit, safety relay and IO-Link Gateway in a single device
- ▶ Connection option for two safety circuits
- ▶ 2 safety inputs for up to 20 safety switches with BR communication
- ▶ Compact version measuring only 18 mm in width
- ▶ Transfer of process and device data to a higher-level control system via IO-Link
- ▶ Process-data transfer in real time

Details

Two safety circuits can be connected to the input side. Equipment such as an emergency stop chain and mechanical safety switches can be connected to one safety circuit. EUCHNER safety switches from system family BP or BR can be connected to the second safety circuit.

IO-Link Gateway

Data can be read from safety switches with BR communication using the IO-Link Gateway. Process data are cyclically sent to the control system via IO-Link. These data include all status signals, such as the position of the door or guard locking, and the indication of whether a switch is out of adjustment. The process data are available in the control system within 200 ms, enabling the data to be used for automation.

Moreover, acyclical services can be used to transmit environmental data such as the switch temperature, the applied voltage and other values.

Additional functions

- ▶ Start input for automatic start or a monitored start button
- ▶ Monitoring of downstream relays or contactors (feedback loop)
- ▶ Simultaneity monitoring to monitor safety components over time

- ▶ Short circuit monitoring to detect short circuits between the connecting cables and to shut down the outputs or prevent relay starting if necessary
- ▶ Earth fault/ground fault monitoring to detect short circuits between the connecting cables and earth or ground and to shut down the outputs or prevent relay starting if necessary.

LED indicator

- DIA Diagnostic message
- STATE 1 Status of sensor circuit S1
- STATE 2 Status of sensor circuit S2
- K1/K2 Status of safety circuits K1 and K2
- IO-Link IO-Link communication

Further information

- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of BR devices on page 6.

Ordering table

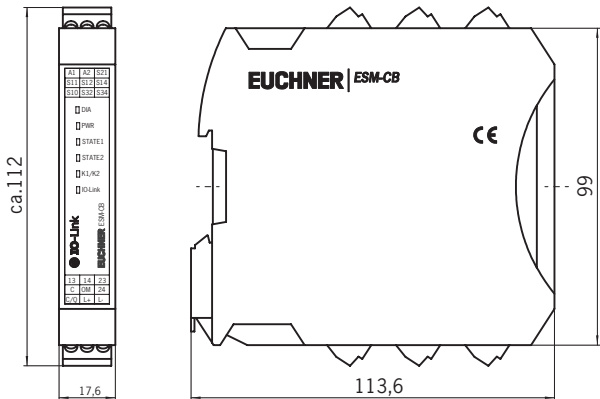
Safety relay with integrated IO-Link Gateway

Series	Order no./item	
ESM-CB-...	158875 ESM-CB-AZ-FI2-BR-IO-158875	For detailed information, enter the order number for the product in the search box at www.euchner.com .

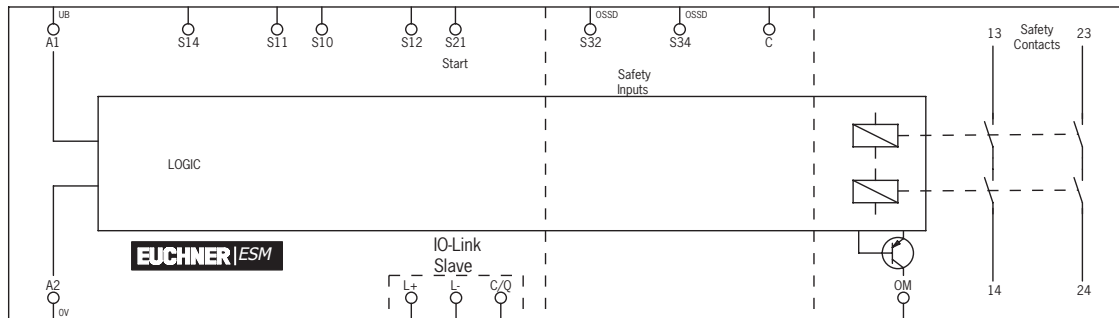
Which safety switches can be connected?

Safety relay	Safety switch
158875 ESM-CB-AZ-FI2-BR-IO-158875	Series CES-C07
	Series CTM

Dimension drawing



Block diagram



Terminal assignment

Connection	Designation	Function
A1	A1	Operating voltage, 24 V DC
A2	A2	Ground 0 V DC
S11	S11	Supply input for S14
S12	S12	Supply output for S12 and S21
S14	S14	Sensor circuit S1 input (channel 1)
S10	S10	Sensor circuit S1 input (channel 2)
S21	S21	Input for start circuit
S32	S32	Sensor circuit S2 OSSD input (channel 1), input for FO1A from BR series connection
S34	S34	Sensor circuit S2 OSSD input (channel 2), input for FO1B from BR series connection
13/14	13/14	Safety contact, non-time-delay
23/24	23/24	Safety contact, non-time-delay
C	C	Safety switch communication
OM	OM	Digital monitoring output
C/Q	C/Q	IO-Link switching and communication line
L+/L-	L+/L-	IO-Link supply

»Connect pulsed signals via the safe semiconductor outputs on up to three safety switches in series.«

- ▶ Suitable for switching pulsed signals
- ▶ Very large actuating range
- ▶ Two safe semiconductor outputs
- ▶ Monitoring output (depending on version)
- ▶ Series connection of up to 3 devices possible
- ▶ Cable lengths up to 300 m possible
- ▶ ATEX version available
- ▶ PL e/category 3 or 4 according to EN ISO 13849-1

System
family

A



CES

C05

A

Safety switch CES-A-.5...



- ▶ Standard housing (EN 60947-5-2)
- ▶ 1 active face, can be repositioned in 5 directions
- ▶ Diagnostics via 2 LEDs
- ▶ Large actuating range
- ▶ PL e/category 3 or 4
- ▶ ATEX version available

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Category according to EN ISO 13849-1

Due to two redundantly designed semiconductor outputs (safety outputs) with internal monitoring suitable for:

- ▶ CES-A-C5E-01, category 3/PL e according to EN ISO 13849-1
- ▶ CES-A-C5H-01/CES-A-W5H-01, category 4/PL e according to EN ISO 13849-1

LED indicator

STATE Status
OUT/ERROR Status of safety outputs/diagnostics (combined)

Additional connections

OUT Monitoring output (semiconductor)

ATEX version

There is a version of this device for use in potentially explosive atmospheres. Take a look at our overview flyer *Safety switches for potentially explosive atmospheres* at www.euchner.com.

Notice

On devices with unicode evaluation, the number of teach-in operations is restricted to eight.

Further information

- ▶ For dimension drawings, see p. 39
- ▶ For accessories and spare parts, see p. 39
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

Safety switch

Series		Order no./item	
CES-A-C5... Unicode		 077750 CES-A-C5E-01	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-C5H-01/CES-A-W5H-01		 091458 CES-A-C5H-01	
CES-A-W5... Multicode		097525 CES-A-W5H-01	

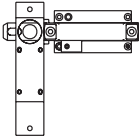
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BPA	40 x 40	22	098775 CES-A-BPA	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BBA	42 x 25	20	071840 CES-A-BBA	
CES-A-BCA	42 x 25 Material: PE-HD	20	088786 CES-A-BCA	

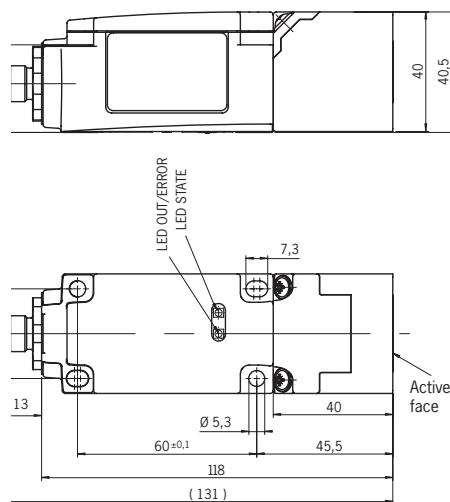
M12 **8 pin**

C05

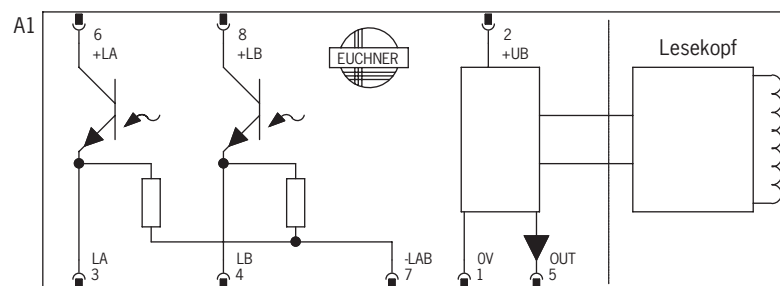
Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 8 pin Page 130
Bolts	Bolts for housing design C05 	Page 136
Fixing material	Safety screws	Page 144

Dimension drawing



Block diagram



Terminal assignment

Pin	Designation	Function
1	OV	Ground 0 V DC
2	+UB	Operating voltage, 24 V DC
3	LA	Safety output, channel A
4	LB	Safety output, channel B
5	OUT	Door position monitoring output
6	+LA	Safety input, channel A
7	-LAB	Common ground for channel A and channel B inputs
8	+LB	Safety input, channel B

»Developed with a focus
on the essentials – a lot of
safety with little effort.«

- ▶ Safety switches for separate operation
- ▶ Direct connection to IP67 field modules for various decentralized peripheral systems (depending on version)
- ▶ Two safe semiconductor outputs
- ▶ Own pulsing for short circuit detection
- ▶ Connection via plug connectors
- ▶ Cable lengths up to 200 m possible
- ▶ PL e/category 4 according to EN ISO 13849-1
- ▶ Large selection of devices

System
family

AP/AY



CES

C01



CES

C02



CES

C04



CES

C14



CEM

**CEM
C40**



CEM

**CEM
C60**



CTP

CTP



CET

CET

AP/AY

Safety switch CES-AP-C01-...



- ▶ 1 active face, can be repositioned in 5 directions
- ▶ Large actuating range
- ▶ Limit-range indication
- ▶ Diagnostics via 2 LEDs
- ▶ Standard housing according to EN 60947-5-2
- ▶ Degree of protection IP67

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Connection to IP67 field modules

Devices with M12 plug connector, 5-pin, without monitoring output are optimized for direct connection to field modules, such as ET200pro from Siemens or comparable devices from other manufacturers.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

DIA Diagnostic monitoring output (semiconductor)
RST Reset input

Further information

- ▶ For dimension drawings, see p. 43
- ▶ For accessories and spare parts, see p. 43
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

Safety switch

Series	Version	Order no./item	
CES-AP-C01-AH-... Unicode	5 pin	111145 CES-AP-C01-AH-SB-111145	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-AP-C01-CH-... Multicode		111708 CES-AP-C01-CH-SB-111708	
CES-AP-C01-CH-SB Multicode		106798 CES-AP-C01-CH-SB-106798	
CES-AP-C01-CH-SA Multicode		100250 ¹⁾ CES-AP-C01-CH-SA-100250	

1) German Social Accident Insurance approval

Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BRN	80 x 40	27	100251 CES-A-BRN-100251	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BPA	40 x 40	22	098775 CES-A-BPA	
CES-A-BBA	42 x 25	18	071840 CES-A-BBA	
CES-A-BCA	42 x 25 Material: PE-HD	18	088786 CES-A-BCA	
CES-A-BDA-18	Ø18	19	156935 CES-A-BDA-18	

M12

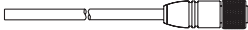
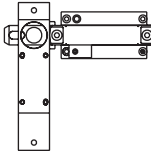
5
pin

M12

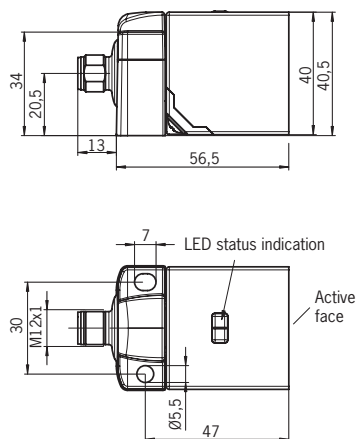
8
pin

C01

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 5 pin Page 123
		M12 8 pin Page 126
Bolts	Bolts for housing design C01 	Page 136
Fixing material	Safety screws	Page 144

Dimension drawing



Terminal assignment

8 pin	5 pin	Designation	Function
With monitoring output	With monitoring output Without monitoring output (pin 5 not used)		
1	–	–	n.c.
2	1	UB	Operating voltage, 24 V DC
3	2	OA	Safety output, channel A
4	4	OB	Safety output, channel B
5	5	DIA	Diagnostic monitoring output
6	–	–	n.c.
7	3	OV	Ground 0 V DC
8	–	RST	Reset input

Safety switch CES-AP-C.2-...



- ▶ Diagnostics via 2 LEDs
- ▶ 2 active faces
- ▶ Limit-range indication
- ▶ Direct mounting on aluminum profiles
- ▶ Large temperature range (depending on version)
- ▶ Reinforcement plates and safety screws included
- ▶ Degree of protection IP67/IP69/IP69K

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Connection to IP67 field modules

Devices with M12 plug connector, 5-pin, without monitoring output are optimized for direct connection to field modules, such as ET200pro from Siemens or comparable devices from other manufacturers.

Large temperature range

Devices with connecting cable and flying lead have a temperature range from -40 °C to +65 °C (with rigid cable laying).

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OUT Monitoring output (semiconductor); not present on all versions.

Further information

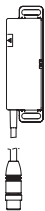
- ▶ For dimension drawings, see p. 46
- ▶ For accessories and spare parts, see p. 46
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

Safety switch

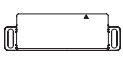
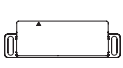
Series	Version	Door hinge ¹⁾	Order no./item	
CES-AP-C.2-AH-... Unicode	click 6 pin	With monitoring output	105295 CES-AP-CR2-AH-SF-105295	For detailed information, enter the order number for the product in the search box at www.euchner.com.
		Without monitoring output	105294 CES-AP-CL2-AH-SF-105294	
	M12 5 pin PUR 0,2m	With monitoring output	106552 CES-AP-CR2-AH-SB-106552	
		Without monitoring output	106553 CES-AP-CL2-AH-SB-106553	
		With monitoring output	111748 CES-AP-CR2-AH-SB-111748	
		Without monitoring output	111747 CES-AP-CL2-AH-SB-111747	
	5m 6 wire PVC	With monitoring output	105601 CES-AP-CR2-AH-L05-105601	
		Without monitoring output	105603 CES-AP-CL2-AH-L05-105603	
		With monitoring output	106191 CES-AP-CR2-AH-L10-106191	
		Without monitoring output	106192 CES-AP-CL2-AH-L10-106192	

1) Applies to the following orientation: connection/cable outlet pointing downward

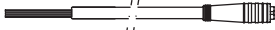
Series	Version	Door hinge ¹⁾	Order no./item	
CES-AP-C.2-CH-... Multicode	 click 6 pin	With monitoring output 	100775 CES-AP-CR2-CH-SF-100775	For detailed information, enter the order number for the product in the search box at www.euchner.com .
			104509 CES-AP-CL2-CH-SF-104509	
	 M12 5 pin PUR 0,2m	With monitoring output 	106550 CES-AP-CR2-CH-SB-106550	
			106551 CES-AP-CL2-CH-SB-106551	
		Without monitoring output 	109168 CES-AP-CR2-CH-SB-109168	
			109167 CES-AP-CL2-CH-SB-109167	
	 PVC 2m	With monitoring output 	123922 CES-AP-CR2-CH-SB-123922	
	 6 wire PVC	5m With monitoring output 	105600 CES-AP-CR2-CH-L05-105600	
			105602 CES-AP-CL2-CH-L05-105602	
			106189 CES-AP-CR2-CH-L10-106189	
		10m With monitoring output 	106190 CES-AP-CL2-CH-L10-106190	

1) Applies to the following orientation: connection/cable outlet pointing downward

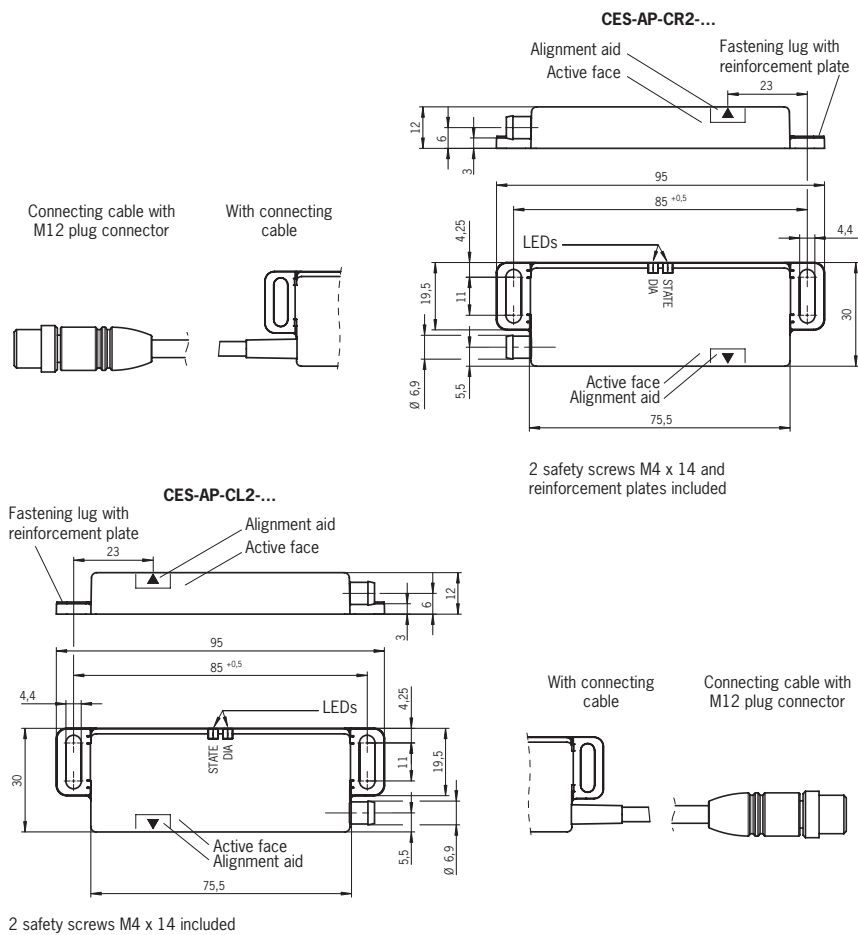
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BDN-06	 Ø6 x 26	19	104730 CES-A-BDN-06-104730	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BLN-...	 95 x 30 	15	100776 CES-A-BLN-R2-100776	
	 95 x 30 	15	104510 CES-A-BLN-L2-104510	
	 55 x 30 Independent of the door hinge	15	103450 CES-A-BLN-U2-103450	

Accessories

Type	Version	
Connection material	Connecting cable with plug connector   	Page 120
	Connecting cable with plug connector   	Page 123
Fixing material	Safety screws	Page 144

Dimension drawing





C02

Terminal assignment

6 pin With monitoring output	6 wire	5 pin With monitoring output	Without monitoring output (pin 5 not used)	Designation	Function	Conductor coloring
1		1	1	UB	Operating voltage, 24 V DC	BN
2		2	2	OA	Safety output, channel A	WH
3		3	3	OV	Ground 0 V DC	BU
4		4	4	OB	Safety output, channel B	BK
5		5	–	OUT	Door position monitoring output	GY
6		–	–	–	n.c.	PK

Safety switch CES-I-AP-.-C04-...



- ▶ Small design
- ▶ 3 active faces
- ▶ Diagnostics via 2 LEDs
- ▶ Limit-range indication
- ▶ Degree of protection IP67
- ▶ Mounting distance 32 mm (EUCHNER standard)
- ▶ Function expansion with magnetic guard locking CEM-C60
- ▶ Version with integrated AS-Interface Safety at Work available, see www.euchner.com
- ▶ ATEX version available

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Connection to IP67 field modules

Devices with M12 plug connector, 5-pin, without monitoring output are optimized for direct connection to field modules, such as ET200pro from Siemens or comparable devices from other manufacturers.

Rubber support

A rubber support is included with each switch and actuator and is intended to prevent the accumulation of soiling in the area of the mounting holes.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OD Monitoring output (semiconductor); not present on all versions

ATEX version

There is a version of this device for use in potentially explosive atmospheres. Take a look at our overview flyer *Safety switches for potentially explosive atmospheres* at www.euchner.com.

Further information

- ▶ For dimension drawings, see p. 50
- ▶ For accessories and spare parts, see p. 50
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

Safety switch

Series	Version	Order no./item	
CES-I-AP-U-C04-... Unicode	M8 4 pin Without monitoring output	115324 CES-I-AP-U-C04-SK-115324	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	M12 5 pin PUR 0,1m Without monitoring output	115150 CES-I-AP-U-C04-USI-115150	
	M12 5 pin PUR 0,22m With monitoring output	116502 CES-I-AP-U-C04-USB-116502	
	M12 5 pin PUR 5m With monitoring output	116503 CES-I-AP-U-C04-U05-116503	
	5 wire PUR 10m With monitoring output	116504 CES-I-AP-U-C04-U10-116504	
	5 wire PUR 20m With monitoring output	116505 CES-I-AP-U-C04-U20-116505	

Series	Version	Order no./item	
CES-I-AP-M-C04-... Multicode	 M8 4 pin Without monitoring output	117325 CES-I-AP-M-C04-SK-117325	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 M12 5 pin PUR 0,1m Without monitoring output	117323 CES-I-AP-M-C04-USI-117323	
	 M12 5 pin PUR 0,22m With monitoring output	117324 CES-I-AP-M-C04-USB-117324	
	 M12 5 pin PUR 1,5m Without monitoring output	160832 CES-I-AP-M-C04-USI-160832	
	 M12 5 pin PUR 2m Without monitoring output	162592 CES-I-AP-M-C04-USI-162592	
	 M12 5 pin PUR 5m With monitoring output	117328 CES-I-AP-M-C04-U05-117328	
	 M12 5 pin PUR 10m With monitoring output	117329 CES-I-AP-M-C04-U10-117329	
	 M12 5 pin PUR 20m With monitoring output	117330 CES-I-AP-M-C04-U20-117330	

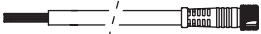
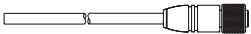
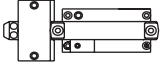
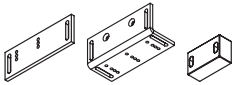
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BDN-06	 Ø6 x 26	19	104730 CES-A-BDN-06-104730	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 Ø6 x 38	26	161742 CES-A-BDN-06-161742	
CES-A-BBN-C04	 42 x 25	15	115271 CES-A-BBN-C04-115271	
CES-A-BBN-161502	 42x25	26	161502 CES-A-BBN-161502	

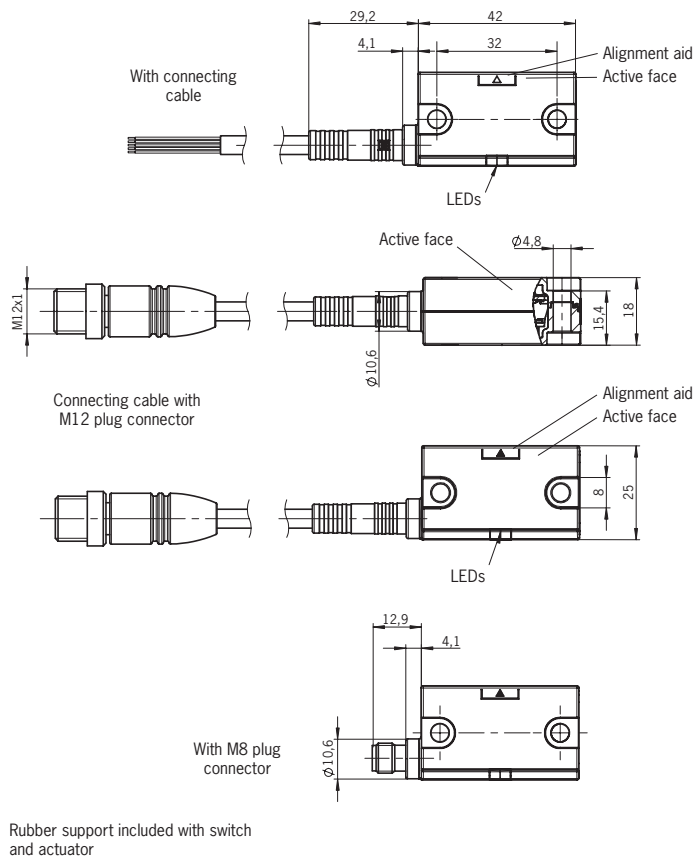


Function expansion with CEM-C60, see page 58.

Accessories

Type	Version	
Connection material	Connecting cable with plug connector  M8 4 pin	Page 121
	Connecting cable with plug connector  M12 5 pin	Page 123
Bolts	Bolts for housing design C04 	Page 138
Fixing material	Mounting sets 	Page 142
	Safety screws 	Page 144

Dimension drawing



M8

4
pin

M12

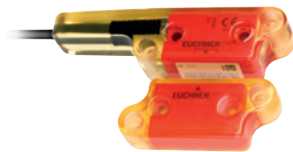
5
pin5
wire

C04

Terminal assignment

5 pin With monitoring output	5 wire	5 pin Without monitoring output (pin 5 not used)	4 pin Without monitoring output	Designation	Function	Conductor coloring
1		1	1	UB	Operating voltage, 24 V DC	BN
2		2	2	F01A	Safety output, channel A	WH
3		3	3	0V	Ground 0 V DC	BU
4		4	4	F01B	Safety output, channel B	BK
5		–	–	OD	Door position monitoring output	GY

Safety switch CES-I-AP-.-C14-...



- ▶ Safety switch CES-C04 encapsulated in epoxy resin
- ▶ Very high resistance to aggressive media
- ▶ 3 active faces
- ▶ Diagnostic LEDs are easily visible through the transparent sleeve
- ▶ Large actuating range in frontal and lateral approach directions
- ▶ Degree of protection IP65/IP67/IP69/IP69K

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Housing material

The epoxy resin housing material is suitable for use in the food industry (ECOLAB material resistance test).

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OD Monitoring output (semiconductor)

Further information

- ▶ For dimension drawings, see p. 53
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

Safety switch

Series	Version	Order no./item	
CES-I-AP-U-C14-... Unicode	    With monitoring output	158632 CES-I-AP-U-C14-U20-158632	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-I-AP-M-C14-... Multicode	    With monitoring output	158631 CES-I-AP-M-C14-U20-158631	

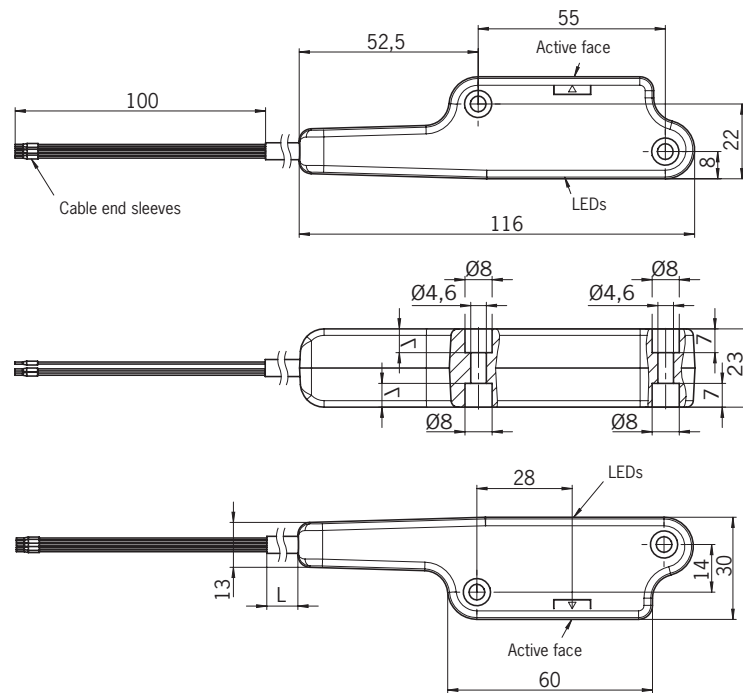
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BBN-C14 encapsulated with epoxy resin	 72 x 30	24	160441 CES-A-BBN-C14-160441	For detailed information, enter the order number for the product in the search box at www.euchner.com .



C14

Dimension drawing



Terminal assignment

Conductor coloring	Designation	Function
BN	UB	Operating voltage, 24 V DC
WH	F01A	Safety output, channel A
BU	0V	Ground 0 V DC
BK	F01B	Safety output, channel B
GY	OD	Door position monitoring output

Safety switch CEM-I2-AY-.-C40-... with Guard Locking for Process Protection



- ▶ Safety switch with guard locking for process protection
- ▶ Locking force 600 N
- ▶ Diagnostics via 4 LEDs
- ▶ Adjustable adhesive force (with guard locking inactive)
- ▶ Limit-range indication for transponder and anchor plate

Notice

The safety switch CEM-I2-AY-.-C40-... is allowed to be operated only in conjunction with the actuator A-C40.

Details

Available coding options

- ▶ Unicode evaluation

Adjustable adhesive force

The adhesive force can be set in steps of 0 N, approx. 30 N and approx. 50 N (delivery state) with the aid of a parametrization key (order no. 125481). The adhesive force is active if guard locking is inactive. The operating voltage U_b must be present for this purpose.

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time. The device also signals if the guard locking force is less than 400 N on switching on.

LED indicator

POWER	Operating voltage
STATE	Status
DIA	Diagnostics
LOCK	Guard locking

Further information

- ▶ For dimension drawings, see p. 55
- ▶ For accessories and spare parts, see p. 54
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

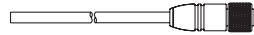
Safety switch

Series	Version	Monitoring outputs	Order no./item	
CEM-I2-AY-... Unicode	 M12 8 pin	PNP	128103 CEM-I2-AY-U-C40-SA-128103	For detailed information, enter the order number for the product in the search box at www.euchner.com .
		NPN	157549 CEM-I2-AY-U-C40-LZ-SA-157549	

Actuator

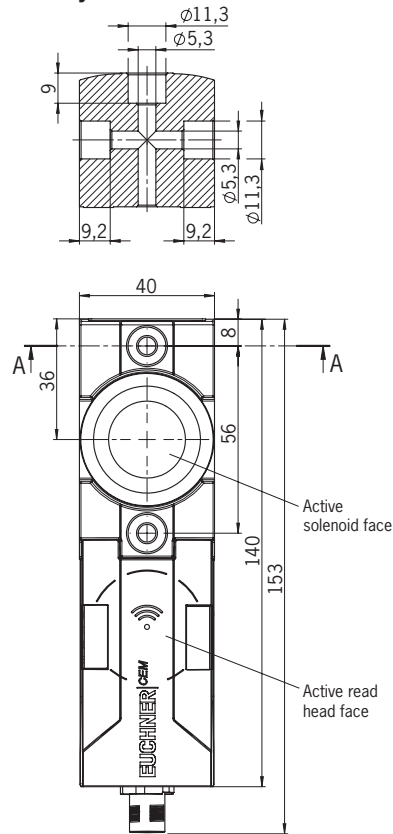
Series	Design	Order no./item	
A-C40	 Adjustable in transverse direction	113869 A-C40-113869	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 Adjustable in longitudinal direction	158436 A-C40-158436	
Parameterization key		125481 A-TI-001-125481	

Accessories

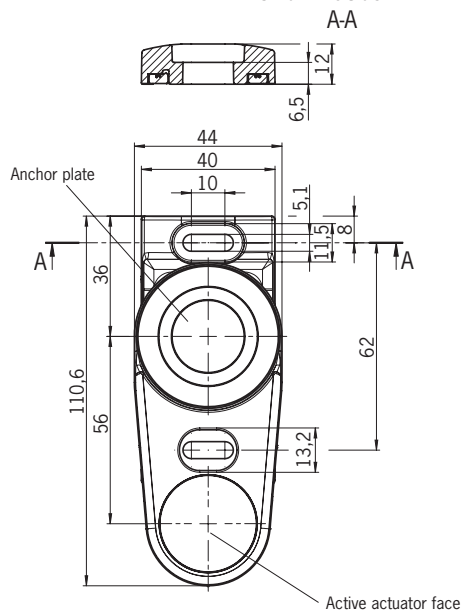
Type	Version	
Connection material	Connecting cable with plug connector  M12 8 pin	Page 126
Fixing material	Mounting bracket 	Page 142
	Safety screws	Page 144
Miscellaneous accessories	Lockout bar 	Page 144

Dimension drawing

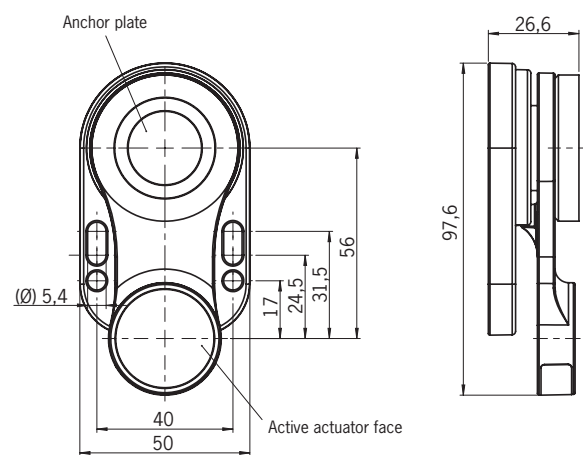
Safety switch



**Actuator
A-C40-113869**



**Actuator
A-C40-158436**





Terminal assignment

Pin	Designation	Function
1	IMP	Solenoid control input, 24 V DC
2	UB	Electronics and solenoid operating voltage, 24 V DC
3	F01A	Safety output, channel A
4	F01B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OT	Door position monitoring output
7	OL	Guard lock monitoring output
8	OVUB	Electronics and solenoid operating voltage, 0 V DC

Variable magnetic guard locking CEM-M2-C60-...



- ▶ Electromagnetic guard locking for process protection
- ▶ Modular system: function expansion for safety switches of series CES-C04 / CES-C07
- ▶ Locking force 650 N
- ▶ Nickel-plated solenoid surface is highly resistant to corrosion
- ▶ Integrated permanent magnet with 30 N adhesive force (optional)
- ▶ Connection via plug connector M12

Notice

The magnetic guard locking CEM-C60 may be operated only in combination with the actuators A-C60-A1 or A-C60-B1.

Details**Function expansion**

The safety switch is mounted on the guard locking solenoid and is used for safe detection of the door position. The modular design enables great flexibility when it comes to selecting the suitable safety switch and the corresponding connection variant.

Integrated permanent magnet (optional)

The guard locking solenoid prevents the safety door from being opened unintentionally. Even when the solenoid is switched off, the integrated permanent magnet keeps the door closed with an adhesive force of 30 N.

LED indicator

Yellow LED Solenoid operating voltage

Further information

- ▶ For dimension drawings, see p. 59
- ▶ For accessories and spare parts, see p. 58
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table**Magnetic guard locking**

Series	Version	Order no./item	
CEM-M2-C60-...	Plug connector on left, with permanent magnet	161320 CEM-M2-C60-PZ-SE-161320	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	Plug connector on left, without permanent magnet	163252 CEM-M2-C60-KZ-SE-163252	
	Plug connector on right, with permanent magnet	165746 CEM-M2-C60-PZ-SE-165746	

Actuator

Series	Design	Use	Order no./item	
A-C60-...		For safety switch CES-...-C04-...	161322 A-C60-A1-161322	For detailed information, enter the order number for the product in the search box at www.euchner.com .
		For safety switch CES-...-C07-...	162581 A-C60-B1-162581	

Accessories

Type	Version	
Connection material	Connecting cable with plug connector M12 5 pin	Page 123
	Y-distributor CEM-M2-C60 to CES-AP/BP M12 5 pin	Page 135
Fixing material	Safety screws	Page 144

M12

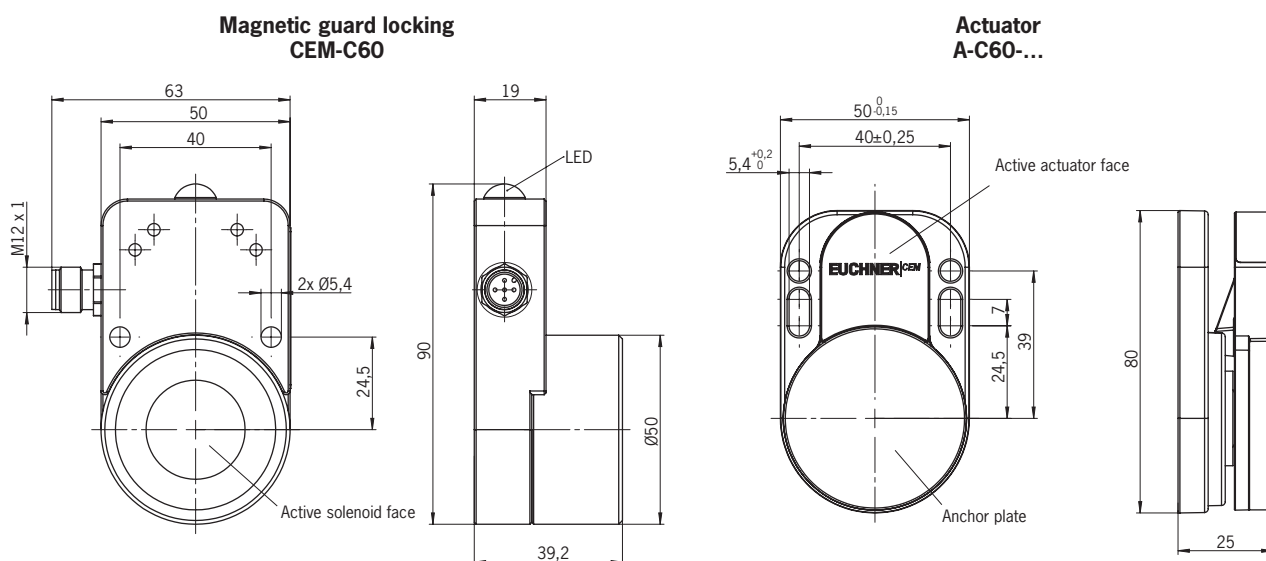
5 pin

M12

8 pin

CEMI

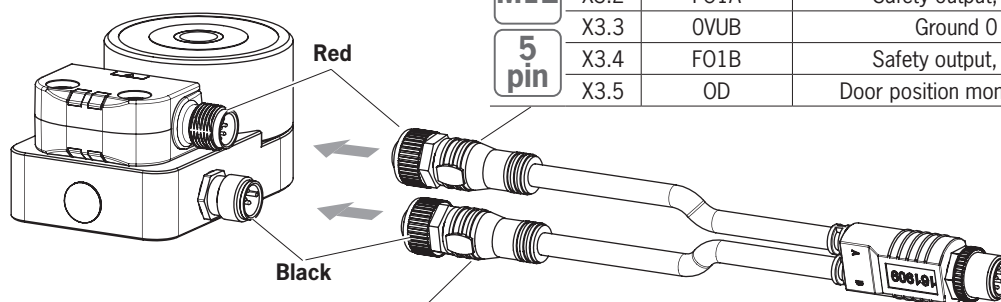
Dimension drawing



Terminal assignment for Y-distributor

Connection of safety switch CES-I-BP (red socket)

Pin	Designation	Function
X3.1	UB	Operating voltage, 24 V DC
X3.2	F01A	Safety output, channel A
X3.3	OVUB	Ground 0 V DC
X3.4	F01B	Safety output, channel B
X3.5	OD	Door position monitoring output



Connection of guard locking solenoid CEM-M2-C60-... (black socket)

Pin	Designation	Function
X2.1	—	n.c.
X2.2	—	n.c.
X2.3	OVUCM	Solenoid operating voltage, 0 V DC
X2.4	UCM	Solenoid operating voltage, 24 V DC
X2.5	—	n.c.

Y-distributor (plug)

Pin	Designation	Function
X1.1	UCM	Solenoid operating voltage, 24 V DC
X1.2	UB	Operating voltage, 24 V DC
X1.3	F01A	Safety output, channel A
X1.4	F01B	Safety output, channel B
X1.5	OD	Door position monitoring output
X1.6	—	n.c.
X1.7	OVUB	Operating voltage ground 0 V DC
X1.8	OVUCM	Solenoid ground, 0 V DC

Safety switch CTP-...-AP-... with guard locking



- ▶ Safety switch with guard locking
 - ▶ Locking force up to 3,900 N
 - ▶ Diagnostics via 3 LEDs
 - ▶ ATEX version available
 - ▶ Version with integrated AS-Interface
- Safety at Work available, see www.euchner.com

Notice

The device is allowed to be operated only in conjunction with the actuators A-C-H-....

Details

Approach direction



Head can be rotated in 90° steps

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Guard locking types

- L1 Closed-circuit current principle**
Guard locking by spring force.
Release by applying voltage to the guard locking solenoid.
- L2 Open-circuit current principle**
Guard locking by solenoid force.
Activation of guard locking by applying voltage to the guard locking solenoid.
- LBI BiState**
Control input for guard locking.
This guard locking type has a function to prevent
- persons from unintentionally locking themselves inside in case of a power failure or if the machine is switched off and the safety door is open.
- the deactivation of activated guard locking in case of a power failure.
- I1** As for L1, but without guard lock monitoring. Guard locking for process protection only.
- I2** As for L2, but without guard lock monitoring. Guard locking for process protection only.
- I** Without guard locking.

Auxiliary release

Included with all versions as standard.

Escape release (optional)

Some devices have an escape release. The actuator shaft for the escape release can be extended with the aid of the support brackets supplied.

Retrofittable releases

Devices with auxiliary release can be retrofitted with various release functions (see accessories).

Extended version

With integrated control elements.

Stainless-steel version

Devices with robust stainless-steel components for harsh ambient conditions. They comply with the IP67/IP69/IP69K degree of protection. ECOLAB certificate available.

ATEX version

There is a version of this device for use in potentially explosive atmospheres. Take a look at our overview flyer *Safety switches for potentially explosive atmospheres* at www.euchner.com.

Connection to IP67 field modules

Devices with plug connector SII (2 x M12, 5-pin) are optimized for direct connection to field modules, such as ET200pro from Siemens or comparable devices from other manufacturers.

LED indicator

STATE	Status
LOCK	Guard locking
DIA	Diagnostics

Additional connections

OD	Door position monitoring output
OI	Diagnostic monitoring output
OL	Guard lock monitoring output

Further information

- ▶ For dimension drawings, see p. 66
- ▶ For accessories and spare parts, see p. 65
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

CTP-L-AP-...-SII-... with 2 plug connectors M12

2x M12 5 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 67	i
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
124468 CTP-L1-AP-U-HA-AZ-SII-124468	U			A	
127640 CTP-L1-AP-U-HA-AE-SII-127640	U	●			
129477 CTP-L1-AP-U-HA-AZ-SII-129477	U			B	
129478 CTP-L1-AP-U-HA-AE-SII-129478	U	●			

CTP-I-AP-...-SBB-... with 2 plug connectors M12

 Order no./item	Coding U = unicode M = multicode	Escape release	Control elements	Guard locking Personnel/process protection	For wiring diagram, see page 67	
CTP-I without Guard Locking						For detailed information, enter the order number for the product in the search box at www.euchner.com .
159614 CTP-I-AP-U-HA-ZZE-SBB-159614	U		Emergency stop			

CTP-...AP-...SA-... with plug connector M12

M12 8 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 67	
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
124225 CTP-L1-AP-U-HA-AZ-SA-124225	U			D	
126912 CTP-L1-AP-U-HA-AE-SA-126912	U				
127727 CTP-L1-AP-U-HA-AZ-SA-127727	U				
128484 CTP-L1-AP-U-HA-AE-SA-128484	U				
124727 CTP-L1-AP-M-HA-AZ-SA-124727	M				
163003 CTP-L1-AP-M-HA-AE-SA-163003	M				
CTP-L2 Open-circuit current principle					
124728 CTP-L2-AP-U-HA-AZ-SA-124728	U			D	
136841 CTP-L2-AP-U-HA-AE-SA-136841	U				
124729 CTP-L2-AP-M-HA-AZ-SA-124729	M				
CTP-LBI BiState					
127798 CTP-LBI-AP-U-HA-AZ-SA-127798	U			E	
CTP-I1 Process protection guard locking, closed-circuit current principle					
136595 CTP-I1-AP-U-HA-AEC-SA-136595	U			F	
CTP-I2 Process protection guard locking, open-circuit current principle					
126258 CTP-I2-AP-U-HA-AZC-SA-126258	U			F	
CTP-I without Guard Locking					
136732 CTP-I-AP-U-HA-AZ-SA-136732	U			G	

CTP-...AP-...-SA-... with plug connector M12, stainless-steel version

M12 8 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 67	
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
157111 CTP-L1-AP-U-HA-AZS-SA-157111	U			D	
157112 CTP-L1-AP-U-HA-AES-SA-157112	U				

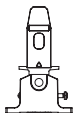
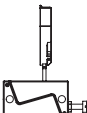
CTP-...AP-...-SH-... with plug connector M23

M23 19 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 67	
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
123364 CTP-L1-AP-U-HA-AZ-SH-123364	U			H	
123375 CTP-L1-AP-U-HA-AE-SH-123375	U				
123365 CTP-L1-AP-M-HA-AZ-SH-123365	M				
123376 CTP-L1-AP-M-HA-AE-SH-123376	M				
CTP-L2 Open-circuit current principle					
123370 CTP-L2-AP-U-HA-AZ-SH-123370	U			H	
123371 CTP-L2-AP-M-HA-AZ-SH-123371	M				

CTP-...AP-...-SH-... with plug connector M23, Extended version

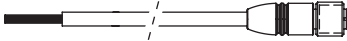
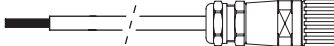
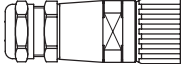
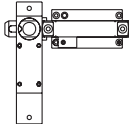
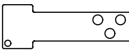
 Order no./item	Coding U = unicode M = multicode	Escape release	Control elements	Guard locking Personnel/process protection	For wiring diagram, see page 67	
CTP-L1 Closed-circuit current principle						For detailed information, enter the order number for the product in the search box at www.euchner.com .
137342 CTP-L1-AP-U-HA-AEE-SH-137342	U	●	2 pushbuttons (illuminated)			
156056 CTP-L1-AP-U-HA-AZE-SH-156056	U		Emergency stop, 2 pushbuttons (illuminated)			
CTP-L2 Open-circuit current principle						
158402 CTP-L2-AP-U-HA-AZE-SH-158402	U		2 pushbuttons (illuminated)			

Actuator

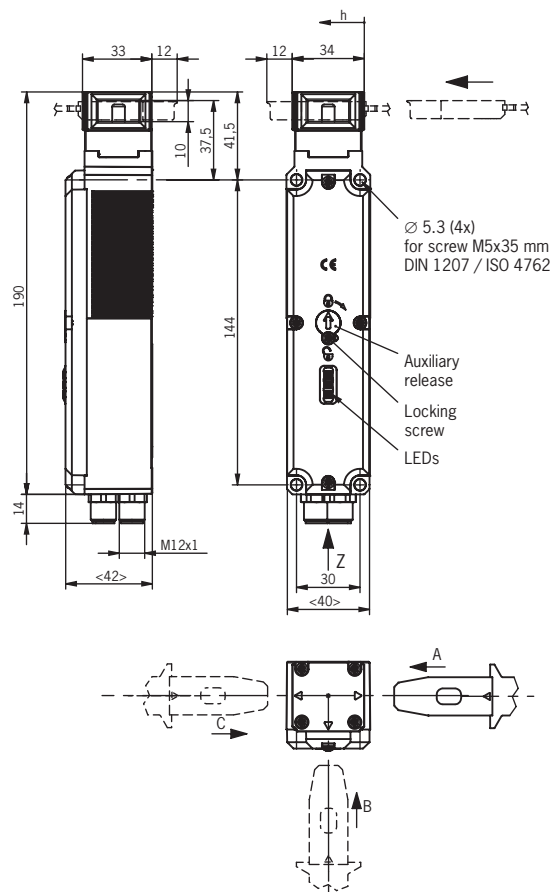
Series	Design	Order no./item	
A-C-H-...	 Straight	126015 A-C-H-G-SST-126015	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 Stainless steel, straight	157696 A-C-H-G-SSS-157696	
	 Bent, upward ¹⁾ Bent, downward ¹⁾	122667 A-C-H-W-SST-122667	
		122668 A-C-H-W-SST-122668	
	 Hinged actuator	 ¹⁾ 122671 A-C-H-RL-LS-122671	
		 ¹⁾ 122672 A-C-H-RR-LS-122672	
	 Hinged actuator	 ¹⁾ 122675 A-C-H-RO-LS-122675	
		 ¹⁾ 122676 A-C-H-RU-LS-122676	

1) Applies to the following orientation: connection/cable outlet pointing downward

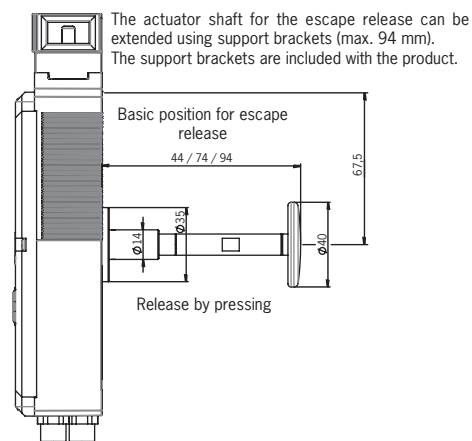
Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 5 pin Page 123
		8 pin Page 126
	Connecting cable with plug connector 	M23 19 pin Page 131/132
	Female plug (for self-assembly) 	M23 19 pin Page 133
Bolts	Bolts for housing design CTP 	Page 139
Fixing material	Mounting plates 	Page 142
	Safety screws	Page 144
Miscellaneous accessories	Auxiliary key release 	Page 144 f.
	Release 	
	Emergency release 	
	Wire front release (bowden) 	
	Handle for wire front release 	
	Lockout bar 	

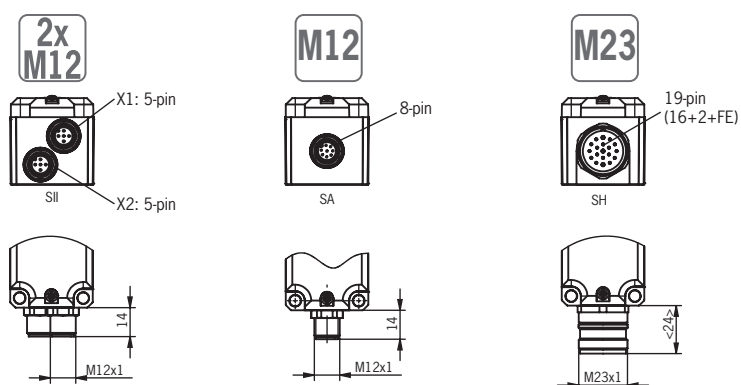
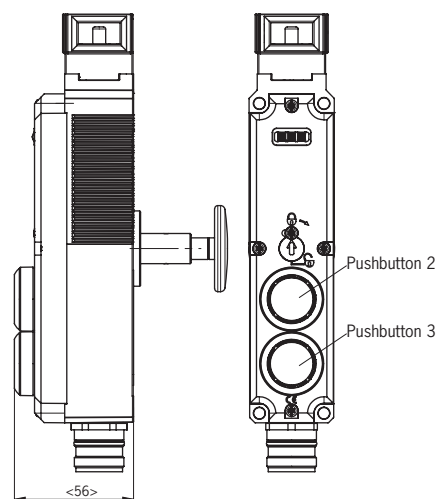
Dimension drawing



With escape release



Extended version



You can find the dimension drawing for version CTP-EX with escape release and for the stainless-steel version by entering the order number for the product at www.euchner.com

2x
M12

5
pin

CTP

Terminal assignment

A 2x M12 5 pin Wiring diagram A

Pin	Designation	Function
X 1.1	UB	Electronics operating voltage, 24 V DC
X 1.2	F01A	Safety output, channel A
X 1.3	0VUB	Electronics operating voltage, 0 V DC
X 1.4	F01B	Safety output, channel B
X 1.5	–	n.c.
X 2.1	–	n.c.
X 2.2	–	n.c.
X 2.3	IMM	Solenoid operating voltage, 0 V DC
X 2.4	IMP	Solenoid operating voltage, 24 V DC
X 2.5	–	n.c.

B 2x M12 5 pin Wiring diagram B

Pin	Designation	Function
X 1.1	UB	Electronics operating voltage, 24 V DC
X 1.2	F01A	Safety output, channel A
X 1.3	0VUB	Electronics operating voltage, 0 V DC
X 1.4	F01B	Safety output, channel B
X 1.5	–	n.c.
X 2.1	–	n.c.
X 2.2	OD	Door position monitoring output
X 2.3	IMM	Solenoid operating voltage, 0 V DC
X 2.4	IMP	Solenoid operating voltage, 24 V DC
X 2.5	–	n.c.

C 2x M12 5 pin Wiring diagram C

Pin	Designation	Function
X 1.1	UB	Electronics operating voltage, 24 V DC
X 1.2	F01A	Safety output, channel A
X 1.3	0VUB	Electronics operating voltage, 0 V DC
X 1.4	F01B	Safety output, channel B
X 1.5	–	n.c.
X 2.1	S1.A1	Emergency stop (channel A contact 1)
X 2.2	S1.B1	Emergency stop (channel B contact 1)
X 2.3	–	n.c.
X 2.4	S1.A2	Emergency stop (channel A contact 2)
X 2.5	S1.B2	Emergency stop (channel B contact 2)

M12 8 pin

D M12 8 pin Wiring diagram D

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	UB	Electronics operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OD	Door position monitoring output
7	OVUB	Electronics operating voltage, 0 V DC
8	IMM	Solenoid operating voltage, 0 V DC

E M12 8 pin Wiring diagram E

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	UB	Electronics operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OD	Door position monitoring output
7	OL	Guard lock monitoring output
8	OV	Electronics and solenoid operating voltage, 0 V DC

F M12 8 pin Wiring diagram F

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	UB	Electronics operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OD	Door position monitoring output
7	OL	Guard lock monitoring output
8	OV	Electronics and solenoid operating voltage, 0 V DC

G M12 8 pin Wiring diagram G

Pin	Designation	Function
1	–	n.c.
2	UB	Electronics operating voltage, 24 V DC
3	FO1A	Safety output, channel A
4	FO1B	Safety output, channel B
5	OI	Diagnostic monitoring output
6	OD	Door position monitoring output
7	OV	Electronics and solenoid operating voltage, 0 V DC
8	–	n.c.

M23 19
pin

CTP

H **M23** **19**
pin **Wiring diagram H**

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	–	n.c.
3	–	n.c.
4	F01A	Safety output, channel A
5	F01B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OD	Door position monitoring output
9	OI	Diagnostic monitoring output
10	OL	Guard lock monitoring output
11	–	n.c.
12	FE	Functional earth
13	–	n.c.
14	–	n.c.
15	–	n.c.
16	–	n.c.
17	–	n.c.
18	IMM	Solenoid operating voltage, 0 V DC
19	OVUB	Electronics operating voltage, 0 V DC

I **M23** **19**
pin **Wiring diagram I**

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	–	n.c.
3	–	n.c.
4	F01A	Safety output, channel A
5	F01B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OD	Door position monitoring output
9	OI	Diagnostic monitoring output
10	OL	Guard lock monitoring output
11	–	n.c.
12	FE	Functional earth
13	IMM	Solenoid operating voltage, 0 V DC
14	–	n.c.
15	S2	Pushbutton 2
16	H2	LED 2
17	S3	Pushbutton 3
18	H3	LED 3
19	OVUB	Electronics operating voltage, 0 V DC

M23 19
pinJ M23 19
pin Wiring diagram J

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	IMM	Solenoid operating voltage, 0 V DC
3	S1.C	Emergency stop (monitoring contact)
4	FO1A	Safety output, channel A
5	FO1B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OD	Door position monitoring output
9	OI	Diagnostic monitoring output
10	S1.A1	Emergency stop (channel A contact 1)
11	S1.A2	Emergency stop (channel A contact 2)
12	FE	Functional earth
13	S1.B1	Emergency stop (channel B contact 1)
14	S1.B2	Emergency stop (channel B contact 2)
15	S2	Pushbutton 2
16	H2	LED 2
17	S3	Pushbutton 3
18	H3	LED 3
19	OVUB	Electronics operating voltage, 0 V DC

Safety switch CET.-AP-... with guard locking



- ▶ Safety switch with guard locking
 - ▶ Locking force up to 6,500 N
 - ▶ Metal housing
 - ▶ Diagnostics via 4 LEDs
 - ▶ Degree of protection IP67
 - ▶ Actuator guide with large freedom of movement
 - ▶ 2-channel solenoid control permissible
 - ▶ Connection via plug connectors
 - ▶ Version with integrated AS-Interface
- Safety at Work available, see www.euchner.com**

Notice

The device is allowed to be operated only in conjunction with the actuator CET-A-....

Details

Approach direction



Head can be rotated in 90° steps

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Guard locking types

- CET3 Closed-circuit current principle**
Guard locking by spring force. Release by applying voltage to the guard locking solenoid. Monitoring of the door position: The door position monitoring output OUT D is set to HIGH as soon as the actuator is above the extended plunger (state: door closed, guard locking not active). The output OUT D also remains set when guard locking is active.
- CET4 Open-circuit current principle**
Guard locking by applying voltage to the guard locking solenoid. Release by spring force. Monitoring of the door position: The door position monitoring output OUT D is set to HIGH as soon as the actuator is above the extended plunger (state: door closed, guard locking not active). The output OUT D also remains set when guard locking is active.

Teach-in input (optional)

Some devices with unicode evaluation have a teach-in input. These devices can be taught-in only if the teach-in input has the corresponding circuit. In this way, the protection against tampering is additionally increased.

Auxiliary release

Included with all versions as standard.

Escape release (optional)

Some devices have an escape release (see ordering table).

Wire front release (optional)

The wire front release permits remote unlocking of the guard locking via a pull wire. Flexible routing of the pull wire permits release of the guard locking in inaccessible installation situations.

Double ramp



Versions with double ramp can be approached from two sides.

Devices with double ramp are also suitable for applications in which the switch must be "passed over." E.g. on doors that can be opened inwards and outwards. The double ramp can be retrofitted (see Accessories, page 146).

LED indicator

- STATE** Status
DIA Diagnostics
LED 1 red See wiring diagram
LED 2 green See wiring diagram

Additional connections (depending on version)

- OUT** Monitoring output (semiconductor)
OUT D Door position monitoring output
DIA Diagnostic monitoring output

Further information

- ▶ For dimension drawings, see p. 76
- ▶ For accessories and spare parts, see p. 75
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table

CET-AP-...-SI-... with 2 plug connectors M12, without door position monitoring output, for connection to decentralized peripheral equipment

2x M12 5 pin Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 78	
CET3 Closed-circuit current principle								
111346 CET3-AP-CRA-AH-50X-SI-111346	U							
121367 CET3-AP-CRA-AH-50X-SI-C2290-121367	U					5 m	A	
114073 CET3-AP-CRA-AH-50F-SI-114073	U				75 mm			
CET4 Open-circuit current principle								
112082 CET4-AP-CRA-AH-50X-SI-112082	U						A	

For detailed information, enter the order number for the product in the search box at www.euchner.com.

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

CET-AP-...-SI-... with 2 plug connectors M12, with door position monitoring output

2x M12 5 pin Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 78	
CET3 Closed-circuit current principle								
124589 CET3-AP-CRA-AH-50X-SI-C2438-124589	U						B	
124594 CET3-AP-CRA-AH-50F-SI-C2438-127594	U				75 mm			
CET4 Open-circuit current principle								
126763 CET4-AP-CRA-AH-50X-SI-C2438-126763	U						B	
161577 CET4-AP-CRA-AH-50X-SI-C2509-161577	U					3 m		

For detailed information, enter the order number for the product in the search box at www.euchner.com.

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

CET-AP-...-SA-... with plug connector M12, with door position monitoring output

M12 8 pin Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 78	
CET3 Closed-circuit current principle								For detailed information, enter the order number for the product in the search box at www.euchner.com.
122398 CET3-AP-CRA-AH-50X-SA-122389	U						C	
161524 ²⁾ CET3-AP-CRA-AH-50X-SF-161524	U							
121579 CET3-AP-CRA-CH-50X-SA-121579	M							
124601 CET3-AP-CRA-AH-50F-SA-124601	U				75 mm			
157287 CET3-AP-CRA-CH-50F-SA-C2312-157287	M				105 mm			
122406 CET3-AP-CRA-AH-50X-SA-122406	U						D	
122409 CET3-AP-CRA-CH-50X-SA-122409	M							
CET4 Open-circuit current principle								
122415 CET4-AP-CRA-AH-50X-SA-122415	U						C	
122413 CET4-AP-CRA-CH-50X-SA-122413	M							
161178 CET4-AP-CRA-CH-50F-SA-161178	M				75 mm			

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

2) Adjustable M12 plug connector, can be rotated by 360°.

CET-AP-...-SH-... with plug connector M23, with door position monitoring output

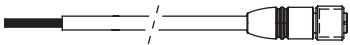
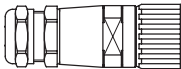
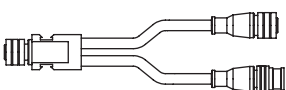
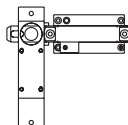
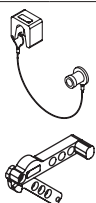
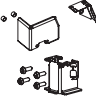
 Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 79	
CET3 Closed-circuit current principle								
119106 CET3-AP-CRA-AH-50F-SH-C2312-119106	U		●		105 mm			For detailed information, enter the order number for the product in the search box at www.euchner.com .

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

Actuator

Series	Design	Order no./item	
CET-A-BWK-50X		096327 CET-A-BWK-50X	For detailed information, enter the order number for the product in the search box at www.euchner.com .

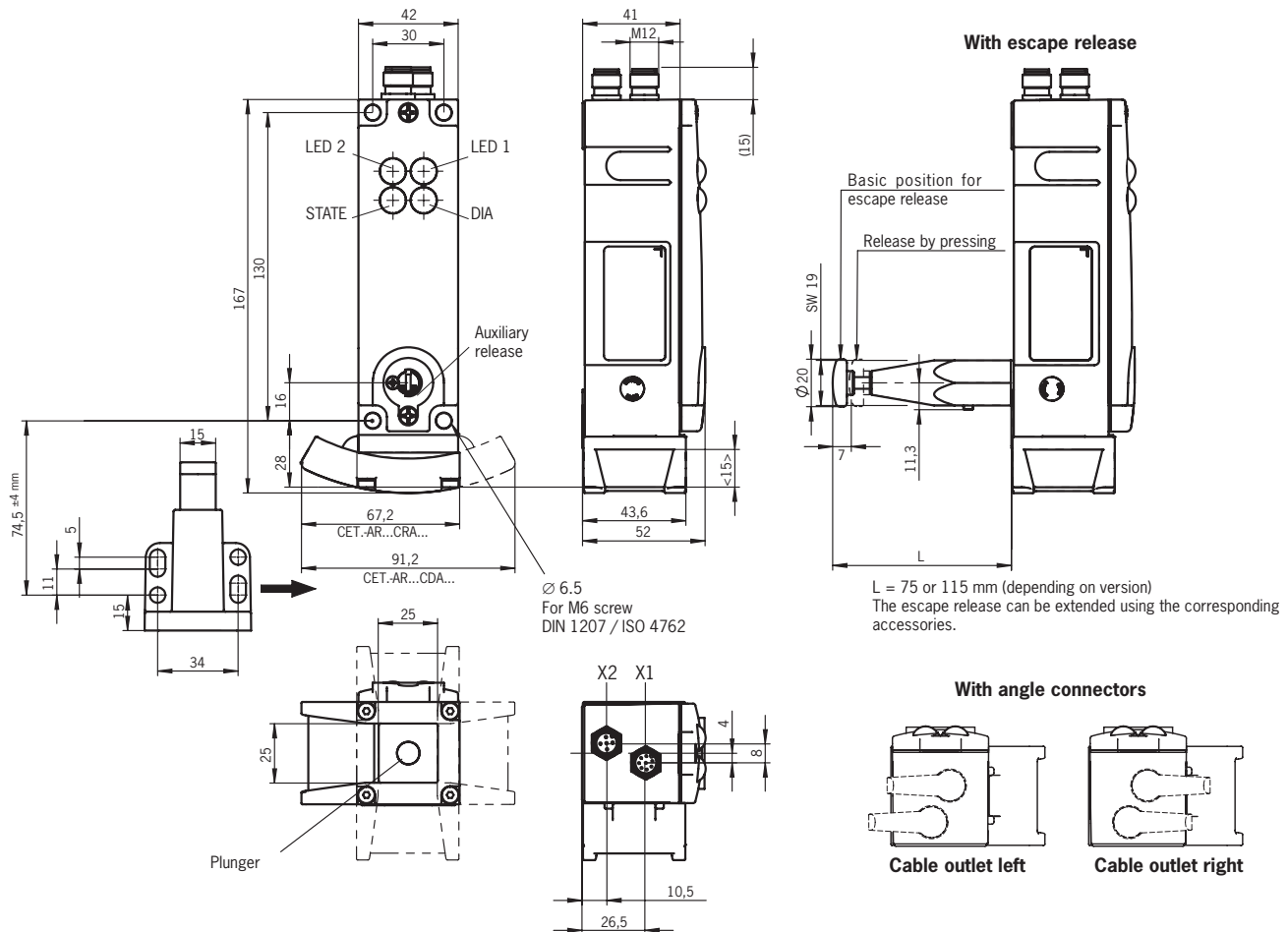
Accessories

Type	Version	
Connection material	Connecting cable with plug connector  M12 5 pin 8 pin	Page 123 f. Page 126
	Connecting cable with plug connector  M23 19 pin	Page 131/132
	Female plug (for self-assembly)  M23 19 pin	Page 133
	Y-distributor for connection to IP67 field modules For AP devices with plug connectors 2 x M12, 5-pin, with monitoring output (e.g. CET-AP with wiring diagram B) for connection to field modules with socket M12, 5-pin.  M12 (socket) 5 pin 2x M12 (plug)	Page 134
	Bolts for housing design CET 	Page 139
Fixing material	Mounting plates 	Page 142
	Safety screws 	Page 144
Miscellaneous accessories	Lockout bar 	Page 144 f.
	Auxiliary key release 	
	Emergency release 	
	Cover 	
	Double ramp 	
	Handle for wire front release 	

Dimension drawing

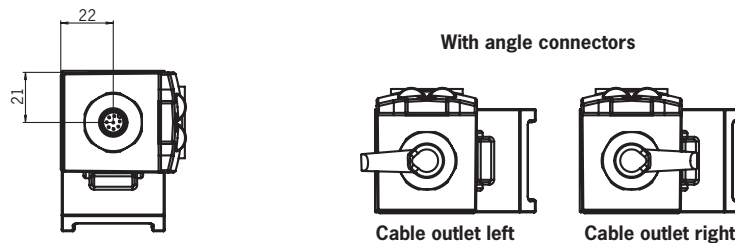
**2x
M12**

With 2 plug connectors M12



M12

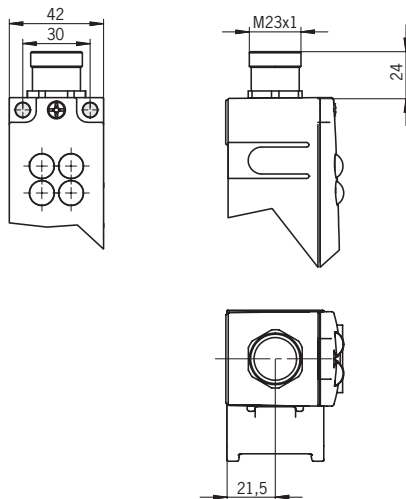
With 1 plug connector M12



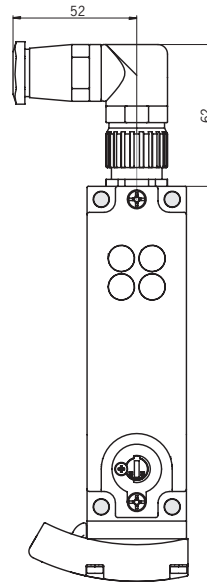
M23

With plug connector M23

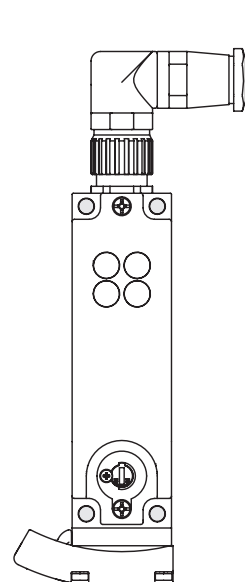
Dimensions with plug connector M23



Cable outlet left

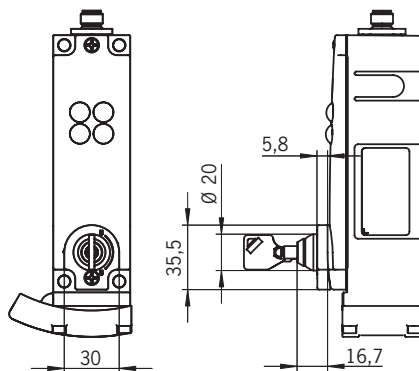


Cable outlet right

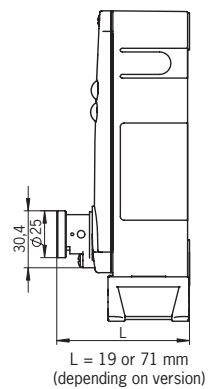


Versions with manual release options

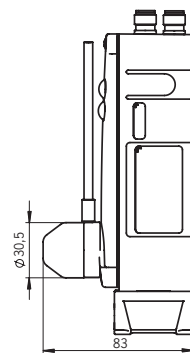
With auxiliary key release



With emergency release



With wire front release (bowden)





Terminal assignment

A **B** **2x M12** **5 pin** Wiring diagrams A and B

Pin	Designation	Function	2x M12	
			A	B
X 1.1	UB	Electronics operating voltage, 24 V DC	●	●
X 1.2	OA	Safety output, channel A	●	●
X 1.3	OVUB	Electronics operating voltage, 0 V DC	●	●
X 1.4	OB	Safety output, channel B	●	●
X 1.5	–	n.c.	●	●
X 2.1	–	n.c.	●	●
X 2.2	–	n.c. (for connection to decentralized peripheral equipment)	●	●
	OUT D	Door position monitoring output		●
X 2.3	OVUCM	Solenoid operating voltage, 0 V DC	●	●
X 2.4	UCM	Solenoid operating voltage, 24 V DC	●	●
X 2.5	–	n.c.	●	●

C **D** **M12** **8 pin** Wiring diagrams C and D

Pin	Designation	Function	M12	
			C	D
1	UCM	Solenoid operating voltage, 24 V DC	●	●
2	UB	Electronics operating voltage, 24 V DC	●	●
3	OA	Safety output, channel A	●	●
4	OB	Safety output, channel B	●	●
5	OUT	Guard lock monitoring output	●	●
	DIA	Diagnostic monitoring output		●
6	OUT D	Door position monitoring output	●	●
7	OVUB	Electronics operating voltage, 0 V DC	●	●
8	OVUCM	Solenoid operating voltage, 0 V DC	●	●

M23 19 pin

CET

E **M23** **19 pin** Wiring diagram E

Pin	Designation	Function
1	UCM	Solenoid operating voltage, 24 V DC
2	–	n.c.
3	–	n.c.
4	OA	Safety output, channel A
5	OB	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OUT D	Door position monitoring output
9	–	n.c.
10	OUT	Guard lock monitoring output
11	–	n.c.
12	FE	Functional earth
13	J	Teach-in input
14	–	n.c.
15	–	n.c.
16	–	n.c.
17	–	n.c.
18	OVUCM	Solenoid operating voltage, 0 V DC
19	OVUB	Electronics operating voltage, 0 V DC

»Minimum wiring effort for large installations with a large number of safety doors.«

- ▶ Can be connected in series with all AR devices (up to 20 devices)
- ▶ Quick connection via M12 connectors (depending on version)
- ▶ Evaluation via safety control systems or an AR evaluation unit (depending on version)
- ▶ Two safe semiconductor outputs
- ▶ Own pulsing for short circuit detection
- ▶ PL e/category 4 according to EN ISO 13849-1 for up to 20 devices
- ▶ Switch chains with cable lengths up to 200 m possible
- ▶ Large selection of devices



CES

C01



CES

C02



CES

C04



CES

C14



CEM

**CEM
C40**



CTP

CTP



CET

CET



CES

CES

Safety switch CES-AR-C01-...



- ▶ Up to 20 switches in series
- ▶ 1 active face, can be repositioned in 5 directions
- ▶ Diagnostics via 2 LEDs
- ▶ Large actuating range
- ▶ Standard housing according to EN 60947-5-2
- ▶ Limit-range indication

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation
- ▶ Fixcode evaluation

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

LED indicator

STATE Status

DIA Diagnostics

Additional connections

OUT Monitoring output (semiconductor)

RST Reset input

Further information

- ▶ For dimension drawings, see p. 83
- ▶ For accessories and spare parts, see p. 83
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table

Safety switch

Series	Version	Order no./item	
CES-AR-C01-AH-SA Unicode		098941 CES-AR-C01-AH-SA	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-AR-C01-CH-SA Multicode		098942 CES-AR-C01-CH-SA	
CES-AR-C01-EH-SA Fixcode (actuator CES-A-BPA included)		098582 CES-AR-C01-EH-SA	

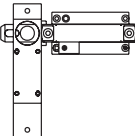
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BRN	80 x 40	27	100251 CES-A-BRN-100251	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BPA	40 x 40	22	098775 CES-A-BPA	
CES-A-BBA	42 x 25	18	071840 CES-A-BBA	
CES-A-BCA	42 x 25 Material: PE-HD	18	088786 CES-A-BCA	
CES-A-BDA-18	Ø18	19	156935 CES-A-BDA-18	

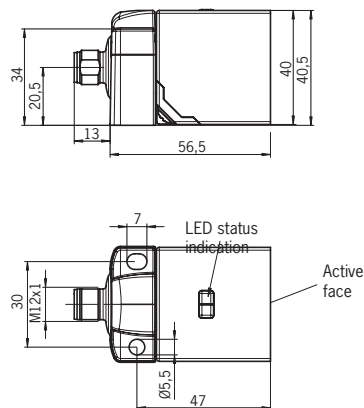
M12 8 pin

C01

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 8 pin Page 126
	Strapping plug/Y-distributor 	M12 Page 128
	Passive distribution module 	M12 Page 129
Bolts	Bolts for housing design C01 	Page 136
Fixing material	Safety screws	Page 144

Dimension drawing



Terminal assignment

Pin	Designation	Function
1	IB	Enable input, channel B
2	UB	Operating voltage, 24 V DC
3	OA	Safety output, channel A
4	OB	Safety output, channel B
5	OUT	Door position monitoring output
6	IA	Enable input, channel A
7	0V	Ground 0 V DC
8	RST	Reset input

Safety switch CES-AR-C.2-...



- ▶ Diagnostics via 2 LEDs
- ▶ 2 active faces
- ▶ Limit-range indication
- ▶ Simple mounting on aluminum profiles
- ▶ Large temperature range (depending on version)
- ▶ Reinforcement plates and safety screws included

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Large temperature range

Devices with connecting cable and flying lead have a temperature range from -30 °C to +65 °C (with rigid cable laying).

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OUT Monitoring output (semiconductor)
RST Reset input

Further information

- ▶ For dimension drawings, see p. 86
- ▶ For accessories and spare parts, see p. 86
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table

Safety switch

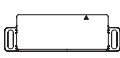
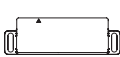
Series	Version	Door hinge ¹⁾	Order no./item	
CES-AR-C.2-AH-... Unicode			105751 CES-AR-CR2-AH-SG-105751	For detailed information, enter the order number for the product in the search box at www.euchner.com.
			105753 CES-AR-CL2-AH-SG-105753	
			105746 CES-AR-CR2-AH-SA-105746	
			105748 CES-AR-CL2-AH-SA-105748	
			109046 CES-AR-CR2-AH-L05-109046	
			109047 CES-AR-CL2-AH-L05-109047	
			109050 CES-AR-CR2-AH-L10-109050	
			109051 CES-AR-CL2-AH-L10-109051	

1) Applies to the following orientation: connection/cable outlet pointing downward

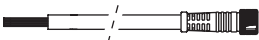
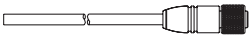
Series	Version	Door hinge ¹⁾	Order no./item	
CES-AR-C.2-CH-... Multicode	 M8 8 pin		105750 CES-AR-CR2-CH-SG-105750	For detailed information, enter the order number for the product in the search box at www.euchner.com .
			105752 CES-AR-CL2-CH-SG-105752	
	 M12 8 pin PUR		115792 CES-AR-CR2-CH-SA-115792	
			115793 CES-AR-CL2-CH-SA-115793	
			105745 CES-AR-CR2-CH-SA-105745	
			105747 CES-AR-CL2-CH-SA-105747	
	 8 wire PUR		109044 CES-AR-CR2-CH-L05-109044	
			109045 CES-AR-CL2-CH-L05-109045	
			109048 CES-AR-CR2-CH-L10-109048	
			109049 CES-AR-CL2-CH-L10-109049	

1) Applies to the following orientation: connection/cable outlet pointing downward

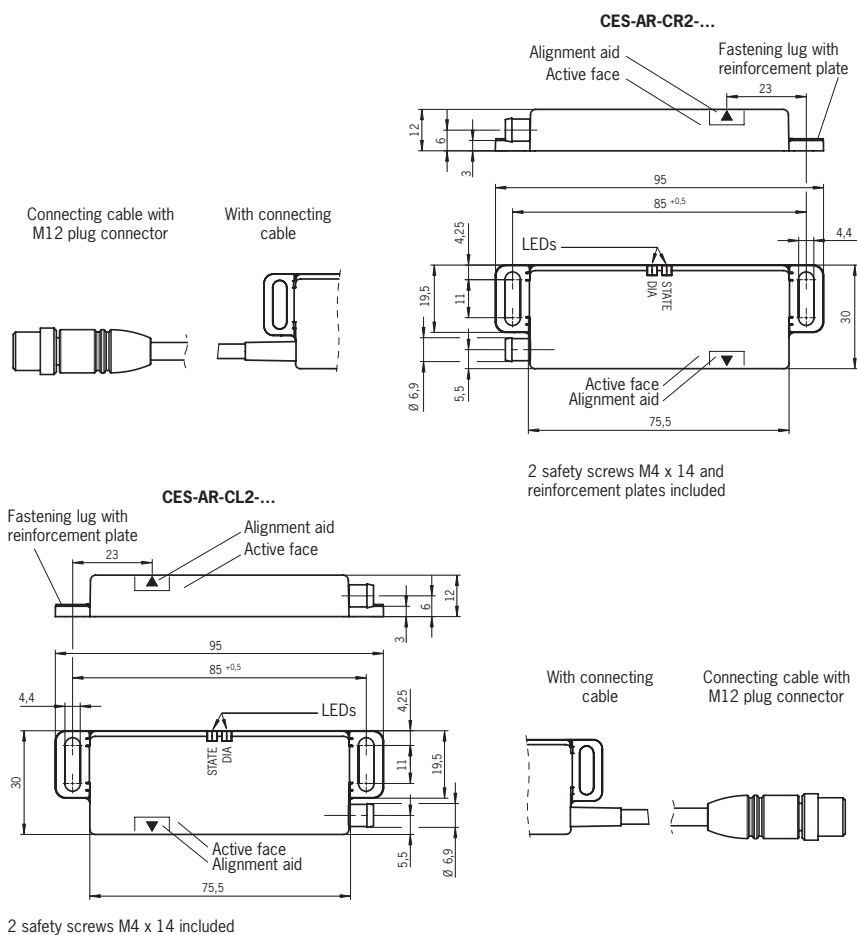
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BDN-06	 Ø6 x 26	19	104730 CES-A-BDN-06-104730	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CES-A-BLN-...	 95 x 30 	15	100776 CES-A-BLN-R2-100776	
	 95 x 30 	15	104510 CES-A-BLN-L2-104510	
	 55 x 30 Independent of the door hinge	15	103450 CES-A-BLN-U2-103450	

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	Page 122
	Connecting cable with plug connector 	Page 126
	Strapping plug/Y-distributor 	Page 128
	Passive distribution module 	Page 129
Fixing material	Safety screws	Page 144

Dimension drawing



M8

8
pin

M12

8
pin8
wire

C02

Terminal assignment

Pin	Designation	Function	Conductor coloring
1	IB	Enable input, channel B	WH
2	UB	Operating voltage, 24 V DC	BN
3	OA	Safety output, channel A	GN
4	OB	Safety output, channel B	YE
5	OUT	Door position monitoring output	GY
6	IA	Enable input, channel A	PK
7	OV	Ground 0 V DC	BU
8	RST	Reset input	RD

Safety switch CES-I-AR-.-C04-...



- ▶ Small design
- ▶ 3 active faces
- ▶ Diagnostics via 2 LEDs
- ▶ Limit-range indication
- ▶ Rubber support for protection against soiling
- ▶ Mounting distance 32 mm (EUCHNER standard)
- ▶ ATEX version available

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation
- ▶ Fixcode evaluation

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

Rubber support

A rubber support is included with each switch and actuator and is intended to prevent the accumulation of soiling in the area of the mounting holes.

LED indicator

STATE Status
DIA Diagnostics

ATEX version

There is a version of this device for use in potentially explosive atmospheres. Take a look at our overview flyer *Safety switches for potentially explosive atmospheres* at www.euchner.com.

Further information

- ▶ For dimension drawings, see p. 90
- ▶ For accessories and spare parts, see p. 90
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table

Safety switch

Series	Version	Order no./item	
CES-I-AR-U-C04-... Unicode	 M8 8 pin	119469 CES-I-AR-U-C04-SG-119469	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 M12 8 pin PUR 1m	119473 CES-I-AR-U-C04-USA-119473	
	 5m	119470 CES-I-AR-U-C04-U05-119470	
	 8 wire PUR 10m	119471 CES-I-AR-U-C04-U10-119471	
	 20m	119472 CES-I-AR-U-C04-U20-119472	

Series	Version	Order no./item	
CES-I-AR-M-C04-... Multicode	 M8 8 pin	119474 CES-IAR-M-C04-SG-119474	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 M12 8 pin PUR 1m	119479 CES-IAR-M-C04-USA-119479	
	 5m	119475 CES-IAR-M-C04-U05-119475	
	 8 wire PUR 10m	119476 CES-IAR-M-C04-U10-119476	
	 20m	119477 CES-IAR-M-C04-U20-119477	
CES-I-AR-F-C04-... ¹⁾ Fixcode	 M8 8 pin	161679 CES-IAR-F-C04-SG-161679	

1) Actuator CES-A-BBN-C04 included

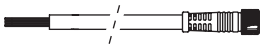
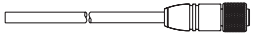
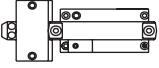
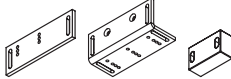
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BDN-06	 Ø6 x 26	19	104730 CES-A-BDN-06-104730	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 Ø6 x 38	26	161742 CES-A-BDN-06-161742	
CES-A-BBN-C04	 42 x 25	15	115271 CES-A-BBN-C04-115271	
CES-A-BBN-161502	 42x25	26	161502 CES-A-BBN-161502	

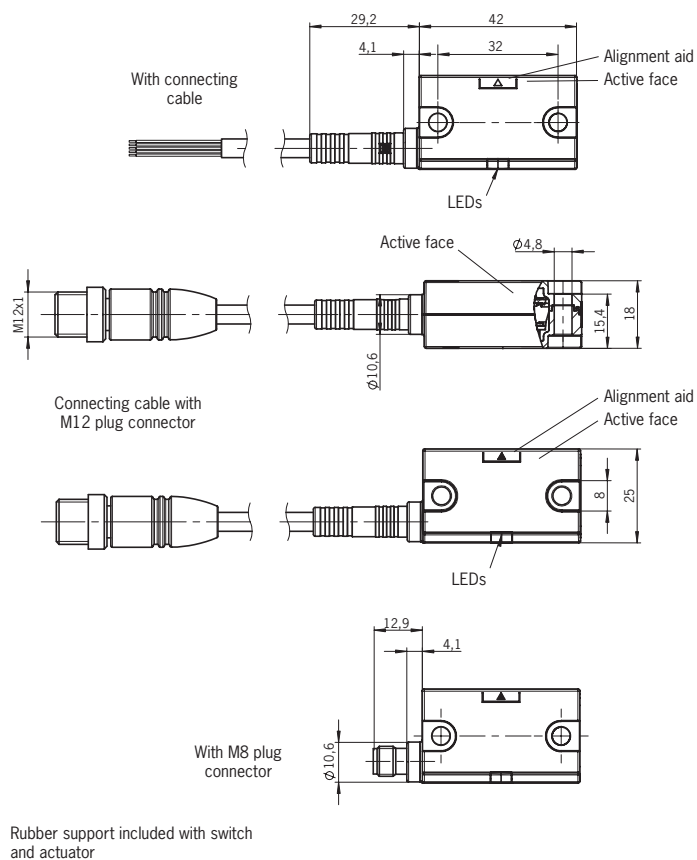


Function expansion with CEM-C60, see page 58.

Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M8  Page 122
	Connecting cable with plug connector 	M12  Page 126
	Strapping plug/Y-distributor 	M12 Page 128
	Passive distribution module 	M12 Page 129
Bolts	Bolts for housing design C04 	Page 138
Fixing material	Mounting sets 	Page 142
	Safety screws 	Page 144

Dimension drawing



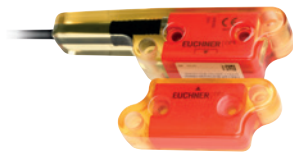


C04

Terminal assignment

Pin	Designation	Function	Conductor coloring
1	FI1B	Enable input, channel B	WH
2	UB	Operating voltage, 24 V DC	BN
3	F01A	Safety output, channel A	GN
4	F01B	Safety output, channel B	YE
5	OD	Door position monitoring output	GY
6	FI1A	Enable input, channel A	PK
7	0V	Ground 0 V DC	BU
8	RST	Reset input	RD

Safety switch CES-I-AR-.-C14-...



- ▶ Safety switch CES-C04 encapsulated in epoxy resin
- ▶ Very high resistance to aggressive media
- ▶ 3 active faces
- ▶ Diagnostic LEDs are easily visible through the transparent sleeve
- ▶ Large actuating range in frontal and lateral approach directions
- ▶ Degree of protection IP65/IP67/IP69/IP69K

Details**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Housing material

The epoxy resin housing material is suitable for use in the food industry (ECOLAB material resistance test).

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

LED indicator

STATE Status
DIA Diagnostics

Additional connections

OD Monitoring output (semiconductor)

Further information

- ▶ For dimension drawings, see p. 93
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.

Ordering table**Safety switch**

Series	Version	Order no./item	
CES-I-AR-M-C14-... Multicode	With monitoring output	162596 CES-I-AR-M-C14-U20-162596	For detailed information, enter the order number for the product in the search box at www.euchner.com .

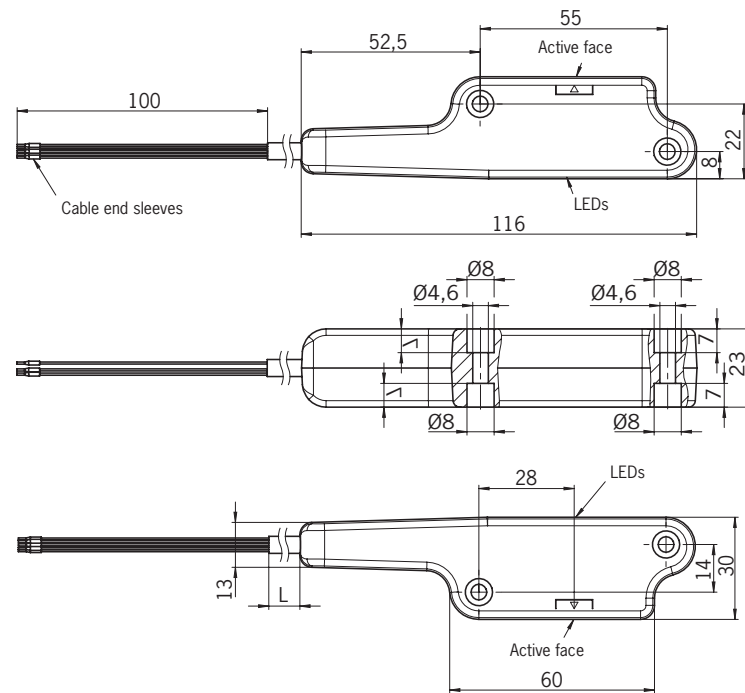
Actuator

Series	Design	Typ. operating distance [mm]	Order no./item	
CES-A-BBN-C14 encapsulated with epoxy resin	72 x 30	24	160441 CES-A-BBN-C14-160441	For detailed information, enter the order number for the product in the search box at www.euchner.com .



C14

Dimension drawing



Terminal assignment

Conductor coloring	Designation	Function
WH	FI1B	Enable input, channel B
BN	UB	Operating voltage, 24 V DC
GN	F01A	Safety output, channel A
YE	F01B	Safety output, channel B
GY	OD	Door position monitoring output
PK	FI1A	Enable input, channel A
BU	0V	Ground 0 V DC
RD	RST	Reset input

Safety switch CEM-I2-AR-.-C40-... with Guard Locking for Process Protection



- ▶ Safety switch with guard locking for process protection
- ▶ Locking force 600 N
- ▶ Diagnostics via 4 LEDs
- ▶ Adjustable adhesive force (with guard locking inactive)
- ▶ Limit-range indication for transponder and anchor plate

Notice

The safety switch CEM-I2-AR-.-C40-... is allowed to be operated only in conjunction with the actuator A-C40.

Details

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Adjustable adhesive force

The adhesive force can be set in steps of 0 N, approx. 30 N and approx. 50 N (delivery state) with the aid of a parametrization key (order no. 125481). The adhesive force is active if guard locking is inactive. The operating voltage U_g must be present for this purpose.

Limit-range indication

The device detects if the actuator drifts out of the actuating range, and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time. The device also signals if the guard locking force is less than 400 N on switching on.

LED indicator

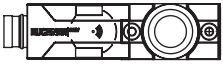
POWER	Operating voltage
STATE	Status
DIA	Diagnostics
LOCK	Guard locking

Further information

- ▶ For dimension drawings, see p. 95
- ▶ For accessories and spare parts, see p. 94
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table

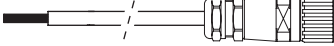
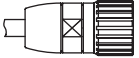
Safety switch

Series	Version	Order no./item	
CEM-I2-AR-... Unicode	 M23 19 pin	124937 CEM-I2-AR-U-C40-SH-124937	For detailed information, enter the order number for the product in the search box at www.euchner.com .
CEM-I2-AR-... Multicode		113739 CEM-I2-AR-M-C40-SH-113739	

Actuator

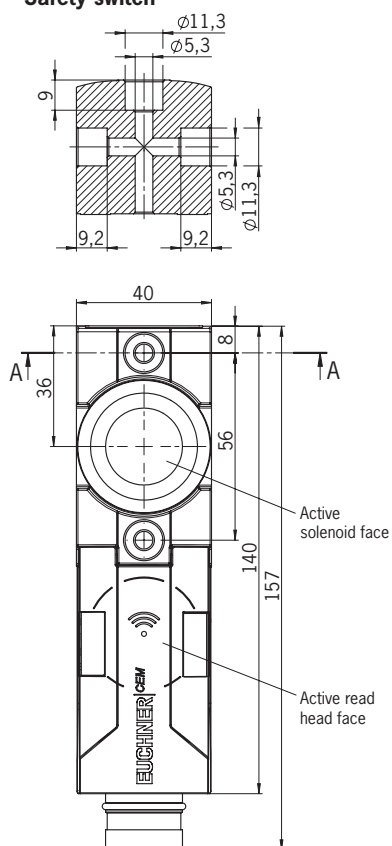
Series	Design	Order no./item	
A-C40	 Adjustable in transverse direction	113869 A-C40-113869	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 Adjustable in longitudinal direction	158436 A-C40-158436	
Parameterization key		125481 A-TI-001-125481	

Accessories

Type	Version	
Connection material	Connecting cable with plug connector  M23 19 pin	Page 131
	Female plug (for self-assembly)  M23 19 pin	Page 133
Fixing material	Mounting bracket 	Page 142
	Safety screws	Page 144
Miscellaneous accessories	Lockout bar 	Page 144

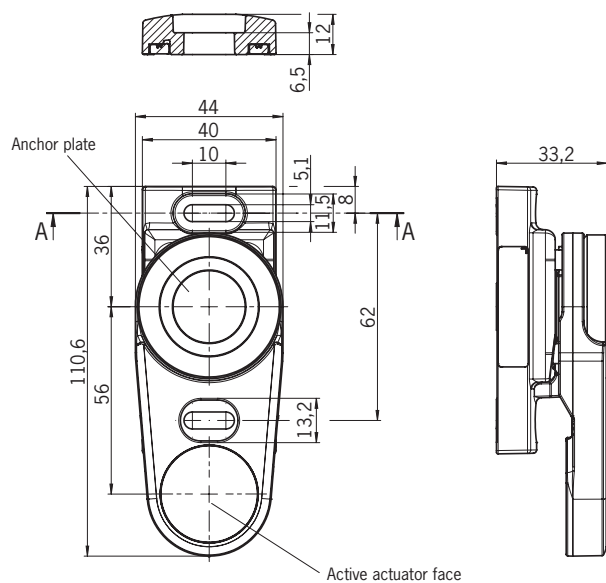
Dimension drawing

Safety switch

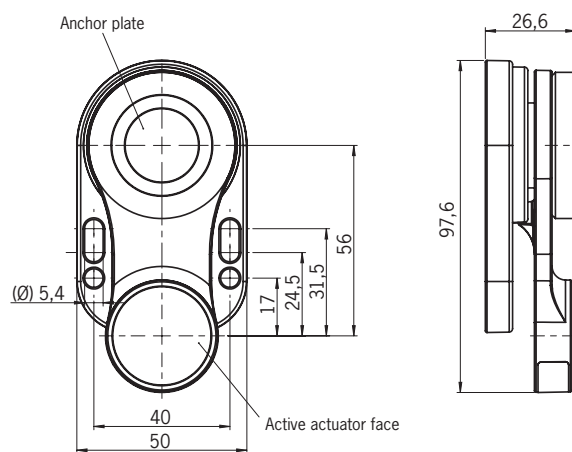


Actuator
A-C40-113869

A-A



Actuator
A-C40-158436



M23	19 pin
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Terminal assignment

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	FI1A	Enable input, channel A
3	FI1B	Enable input, channel B
4	FO1A	Safety output, channel A
5	FO1B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OT	Door position monitoring output
9	OI	Diagnostic monitoring output
10	OL	Guard lock monitoring output
11	–	n.c.
12	FE	Functional earth (must be connected to meet the EMC requirements)
13	–	n.c.
14	–	n.c.
15	–	n.c.
16	–	n.c.
17	–	n.c.
18	–	n.c.
19	OVUB	Electronics operating voltage, 0 V DC

Safety switch CTP-L-AR-... with guard locking



- ▶ Safety switch with guard locking
- ▶ Locking force up to 3,900 N
- ▶ Diagnostics via 3 LEDs

Notice

The device is allowed to be operated only in conjunction with the actuators A-C-H-....

Details

Approach direction



Head can be rotated in 90° steps

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Guard locking types

- L1 Closed-circuit current principle**
Guard locking by spring force.
Release by applying voltage to the guard locking solenoid.
- L2 Open-circuit current principle**
Guard locking by solenoid force.
Activation of guard locking by applying voltage to the guard locking solenoid.
- I2**
As for L2, but without guard lock monitoring. Guard locking for process protection only.

Auxiliary release

Included with all versions as standard.

Escape release (optional)

Some devices have an escape release. The actuator shaft for the escape release can be extended with the aid of the support brackets supplied.

Retrofittable releases

Devices with auxiliary release can be retrofitted with various release functions (see accessories).

Extended version

With integrated control elements.

Stainless-steel version

Devices with robust stainless-steel components for harsh ambient conditions. They comply with the IP67/IP69/IP69K degree of protection. ECOLAB certificate available.

LED indicator

STATE	Status
LOCK	Guard locking
DIA	Diagnostics

Additional connections

OD	Door position monitoring output
OI	Diagnostic monitoring output
OL	Guard lock monitoring output

Further information

- ▶ For dimension drawings, see p. 103
- ▶ For accessories and spare parts, see p. 102
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

1) German Social Accident Insurance approval pending

Ordering table

CTP-L-AR-...-SAB-... with 2 plug connectors M12

2x M12 5 pin 8 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 104	
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
122812 CTP-L1-AR-U-HA-AZ-SAB-122812	U			A	
122813 CTP-L1-AR-U-HA-AE-SAB-122813	U	●			
123307 CTP-L1-AR-M-HA-AZ-SAB-123307	M				
123308 CTP-L1-AR-M-HA-AE-SAB-123308	M	●			
CTP-L2 Open-circuit current principle					
122814 CTP-L2-AR-U-HA-AZ-SAB-122814	U			A	
123361 CTP-L2-AR-M-HA-AZ-SAB-123361	M				

CTP-...-AR-...-SAB-... with 2 plug connectors M12, stainless-steel version

2x M12 5 pin 8 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 67	
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
160862 CTP-L1-AR-U-HA-AZS-SAB-160862	U			A	
157816 CTP-L1-AR-M-HA-AES-SAB-157816	M				

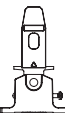
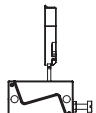
CTP-L-AR-...-SH-... with plug connector M23

M2319 pin Order no./item	Coding U = unicode M = multicode	Escape release	Guard locking Personnel/process protection	For wiring diagram, see page 104	
CTP-L1 Closed-circuit current principle					For detailed information, enter the order number for the product in the search box at www.euchner.com.
123362 CTP-L1-AR-U-HA-AZ-SH-123362	U			B	
123373 CTP-L1-AR-U-HA-AE-SH-123373	U	●			
123363 CTP-L1-AR-M-HA-AZ-SH-123363	M				
123374 CTP-L1-AR-M-HA-AE-SH-123374	M	●			
CTP-L2 Open-circuit current principle					
123366 CTP-L2-AR-U-HA-AZ-SH-123366	U			B	
123369 CTP-L2-AR-M-HA-AZ-SH-123369	M				

CTP-L-AR-...-SH-... plug connector M23, Extended version

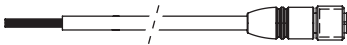
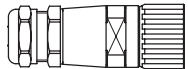
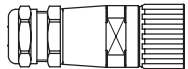
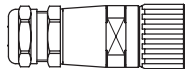
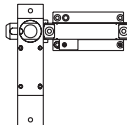
M2319 pin Order no./item	Coding U = unicode M = multicode	Escape release	Control elements	Guard locking Personnel/process protection	For wiring diagram, see page 104	i
CTP-L1 Closed-circuit current principle						For detailed information, enter the order number for the product in the search box at www.euchner.com.
137341 CTP-L1-AR-U-HA-AZE-SH-137341	U		2 pushbuttons (illuminated)		C	
126874 CTP-L1-AR-U-HA-AZE-SH-126874	U		Emergency stop, 2 pushbuttons (illuminated)		D	
137164 CTP-L1-AR-U-HA-AEE-SH-137164	U	•	Emergency stop, 2 pushbuttons (illuminated)			
CTP-L2 Open-circuit current principle						
137165 CTP-L2-AR-U-HA-AZE-SH-137165	U		Emergency stop, 2 pushbuttons (illuminated)		D	
159112 CTP-L2-AR-U-HA-AEE-SH-159112	U	•	Emergency stop, 2 pushbuttons (illuminated)		D	

Actuator

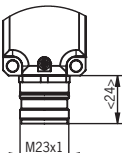
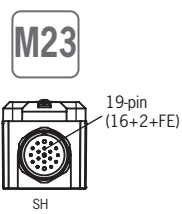
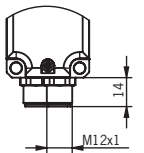
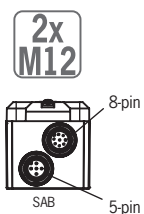
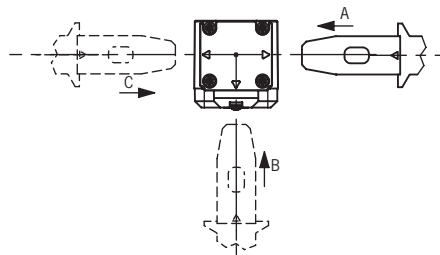
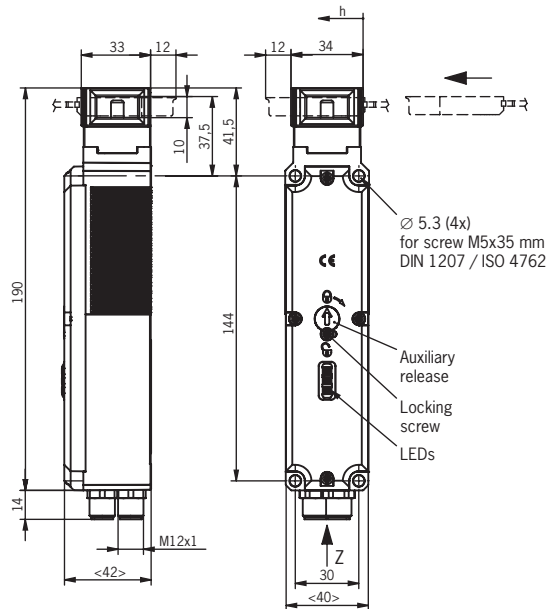
Series	Design	Order no./item	
A-C-H...	 Straight	126015 A-C-H-G-SST-126015	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	 Stainless steel, straight	157696 A-C-H-G-SSS-157696	
	 Bent, upward ¹⁾ Bent, downward ¹⁾	122667 A-C-H-W-SST-122667	
		122668 A-C-H-W-SST-122668	
	 Hinged actuator	 ¹⁾ 122671 A-C-H-RL-LS-122671	
		 ¹⁾ 122672 A-C-H-RR-LS-122672	
	 Hinged actuator	 ¹⁾ 122675 A-C-H-RO-LS-122675	
		 ¹⁾ 122676 A-C-H-RU-LS-122676	

1) Applies to the following orientation: connection/cable outlet pointing downward

Accessories

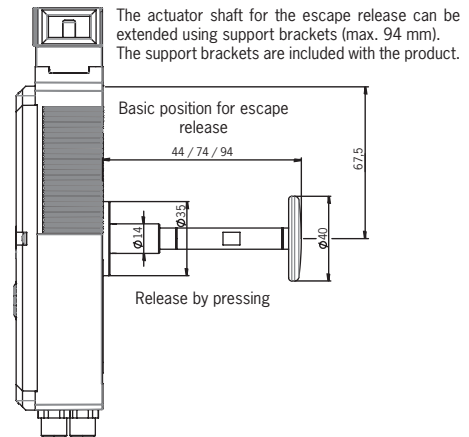
Type	Version	
Connection material	Connecting cable with plug connector 	M12  5 pin Page 123
	Connecting cable with plug connector 	M12  8 pin Page 126
	Connecting cable with plug connector 	M23  19 pin Page 131/132
	Female plug (for self-assembly) 	M23  19 pin Page 133
	Strapping plug/Y-distributor 	M12 Page 128
	Passive distribution module 	M12 Page 129
Bolts	Bolts for housing design CTP 	Page 139
Fixing material	Mounting plates 	Page 142
	Safety screws 	Page 144
Miscellaneous accessories	Auxiliary key release 	Page 144 f.
	Release 	
	Emergency release 	
	Wire front release (bowden) 	
	Handle for wire front release 	
	Lockout bar 	

Dimension drawing

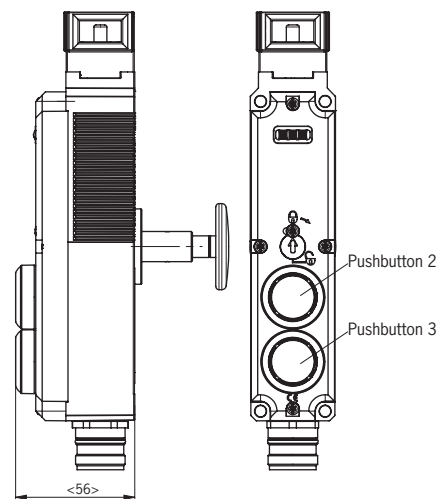


You can find the dimension drawing for the stainless-steel version by entering the order number for the product at www.euchner.com

With escape release



Extended version





Terminal assignment

A 2x M12 5 pin 8 pin Wiring diagram A

Pin	Designation	Function
X 1.1	FI1B	Enable input, channel B
X 1.2	UB	Electronics operating voltage, 24 V DC
X 1.3	FO1A	Safety output, channel A
X 1.4	FO1B	Safety output, channel B
X 1.5	OL	Guard lock monitoring output
X 1.6	FI1A	Enable input, channel A
X 1.7	OVUB	Electronics operating voltage, 0 V DC
X 1.8	RST	Reset input
X 2.1	IMM	Solenoid operating voltage, 0 V DC
X 2.2	OD	Door position monitoring output
X 2.3	OI	Diagnostic monitoring output
X 2.4	IMP	Solenoid operating voltage, 24 V DC
X 2.5	–	n.c.

B M23 19 pin Wiring diagram B

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	FI1A	Enable input, channel A
3	FI1B	Enable input, channel B
4	FO1A	Safety output, channel A
5	FO1B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OD	Door position monitoring output
9	OI	Diagnostic monitoring output
10	OL	Guard lock monitoring output
11	–	n.c.
12	FE	Functional earth (must be connected to meet the EMC requirements)
13	–	n.c.
14	–	n.c.
15	–	n.c.
16	–	n.c.
17	–	n.c.
18	IMM	Solenoid operating voltage, 0 V DC
19	OVUB	Electronics operating voltage, 0 V DC

M23 19 pin

CTP

C M23 19 pin Wiring diagram C

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	FI1A	Enable input, channel A
3	FI1B	Enable input, channel B
4	FO1A	Safety output, channel A
5	FO1B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OD	Door position monitoring output
9	OI	Diagnostic monitoring output
10	OL	Guard lock monitoring output
11	–	n.c.
12	FE	Functional earth (must be connected to meet the EMC requirements)
13	IMM	Solenoid operating voltage, 0 V DC
14	–	n.c.
15	S2	Pushbutton 2
16	H2	LED 2
17	S3	Pushbutton 3
18	H3	LED 3
19	OVUB	Electronics operating voltage, 0 V DC

D M23 19 pin Wiring diagram D

Pin	Designation	Function
1	IMP	Solenoid operating voltage, 24 V DC
2	FI1A	Enable input, channel A
3	FI1B	Enable input, channel B
4	FO1A	Safety output, channel A
5	FO1B	Safety output, channel B
6	UB	Electronics operating voltage, 24 V DC
7	RST	Reset input
8	OD	Door position monitoring output
9	OI	Diagnostic monitoring output
10	S1.A1	Emergency stop (channel A contact 1)
11	S1.A2	Emergency stop (channel A contact 2)
12	FE	Functional earth
13	S1.B1	Emergency stop (channel B contact 1)
14	S1.B2	Emergency stop (channel B contact 2)
15	S2	Pushbutton 2
16	H2	LED 2
17	S3	Pushbutton 3
18	H3	LED 3
19	OV	Electronics and solenoid operating voltage, 0 V DC

Safety switch CET.-AR-... with guard locking



- ▶ Safety switch with guard locking
- ▶ Locking force up to 6,500 N
- ▶ Metal housing
- ▶ Diagnostics via 4 LEDs

Notice

The device is allowed to be operated only in conjunction with the actuator CET-A-....

Details

Approach direction



Head can be rotated in 90° steps

Available coding options

- ▶ Unicode evaluation
- ▶ Multicode evaluation

Guard locking types

CET1 Closed-circuit current principle

Guard locking by spring force. Release by applying voltage to the guard locking solenoid.

CET2 Open-circuit current principle

Guard locking by solenoid force. Activation of guard locking by applying voltage to the guard locking solenoid.

CET3 Function as for CET1-AR, but here the door position is monitored as well. The door position monitoring output OUT D is set to HIGH as soon as the actuator is above the extended plunger (state: door closed, guard locking not active). The output OUT D also remains set when guard locking is active.

CET4 Function as for CET2-AR, but here the door position is monitored as well. The door position monitoring output OUT D is set to HIGH as soon as the actuator is above the extended plunger (state: door closed, guard locking not active). The output OUT D also remains set when guard locking is active.

Auxiliary release

Included with all versions as standard.

Escape release (optional)

Some devices have an escape release (see ordering table).

Wire front release (optional)

The wire front release permits remote unlocking of the guard locking via a pull wire. Flexible routing of the pull wire permits release of the guard locking in inaccessible installation situations.

Teach-in input (optional)

Some devices with unicode evaluation have a teach-in input. These devices can be taught-in only if the teach-in input has the corresponding circuit. In this way, the protection against tampering is additionally increased.

Double ramp



Versions with double ramp can be approached from two sides.

Devices with double ramp are also suitable for applications in which the switch must be "passed over." E.g. on doors that can be opened inwards and outwards. The double ramp can be retrofitted (see Accessories, page 146).

Feedback loop (optional)

Versions with feedback loop permit monitoring of downstream devices (e.g. contactors). Additionally, a start button can be integrated.

LED indicator

STATE	Status
DIA	Diagnostics
LED 1 red	See wiring diagram
LED 2 green	See wiring diagram

Additional connections

OUT	Monitoring output (semiconductor)
OUT D	Door position monitoring output (only CET3/4)
RST	Reset input

Further information

- ▶ For dimension drawings, see p. 112
- ▶ For accessories and spare parts, see p. 111
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table

CET-AR-...-SG-... with 2 plug connectors M12, without door position monitoring output

2x M12 5 pin 8 pin	Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Functional earth	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 114	
CET1										
Closed-circuit current principle										
106275	CET1-AR-CDA-AH-50X-SG-106275	U		●					A	For detailed information, enter the order number for the product in the search box at www.euchner.com .
106159	CET1-AR-CRA-AH-50F-SG-106159	U		●			75 mm			
105802	CET1-AR-CRA-AH-50S-SG-105802	U			●					
103418	CET1-AR-CRA-AH-50X-SG-103418	U		●						
110241	CET1-AR-CRA-CH-50F-SG-110241	M					75 mm			
105764	CET1-AR-CRA-CH-50S-SG-105764	M			●					
105763	CET1-AR-CRA-CH-50X-SG-105763	M								
109015	CET1-AR-CRA-CH-50X-SG-C2290-109015	M				●		3 m		
109231	CET1-AR-CDA-CH-50X-SG-109231	M								
CET2										
Open-circuit current principle										
109075	CET2-AR-CRA-AH-50S-SG-109075	U			●				A	For detailed information, enter the order number for the product in the search box at www.euchner.com .
110240	CET2-AR-CRA-AH-50X-SG-110240	U		●						
109941	CET2-AR-CRA-CH-50F-SG-C2312-109941	M					105 mm			
110082	CET2-AR-CRA-CH-50X-SG-110082	M								

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

CET-AR-...-SG-... with 2 plug connectors M12, with door position monitoring output

2x M12 5 pin 8 pin	Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Functional earth	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 114	
CET3										
Closed-circuit current principle										
110114 CET3-AR-CRA-CH-50X-SG-C2290-110114	M									
110906 CET3-AR-CRA-CH-50X-SG-110906	M									
110907 CET3-AR-CRA-CH-50F-SG-110907	M									
109401 CET3-AR-CRA-AH-50X-SG-109401	U									
113139 CET3-AR-CRA-AH-50X-SG-C2290-113139	U									
113965 CET3-AR-CRA-AH-50F-SG-113965	U									
112992 CET3-AR-CRA-CH-50S-SG-112992	M									
114090 CET3-AR-CDA-CH-50F-SG-114090	M									
CET4										
Open-circuit current principle										
111683 CET4-AR-CRA-AH-50X-SG-111683	U									
128193 CET4-AR-CRA-AH-50X-SG-C2290-128193	U									
111684 CET4-AR-CRA-CH-50X-SG-111684	M									
114650 CET4-AR-CRA-CH-50F-SG-114650	M									
113081 CET4-AR-CRA-CH-50S-SG-113081	M									
114712 CET4-AR-CDA-CH-50X-SG-114712	M									
162555 CET4-AR-CRA-AH-50X-SG-C2355-162555	U									
113609 CET4-AR-CRA-CH-50X-SG-C2355-113609	M									

For detailed information, enter the order number for the product in the search box at www.euchner.com

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

CET.-AR-...-SH-... with plug connector M23, without door position monitoring output

M23 19 pin Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Functional earth	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 112	i
CET1 Closed-circuit current principle									For detailed information, enter the order number for the product in the search box at www.euchner.com .
110203 CET1-AR-CRA-AH-50X-SH-110203	U		●		●			D	
113022 CET1-AR-CRA-AH-50X-SH-C2290-113022	U		●		●		3 m		
110943 CET1-AR-CRA-AH-50F-SH-C2312-110943	U		●		●	105 mm			
110204 CET1-AR-CRA-CH-50X-SH-110204	M			●					
113255 CET1-AR-CDA-CH-50X-SH-113255	M				●				
CET2 Open-circuit current principle									
110205 CET2-AR-CRA-AH-50X-SH-110205	U		●		●			D	
110206 CET2-AR-CRA-CH-50X-SH-110206	M				●				

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

CET.-AR-...-SH-... with plug connector M23, with door position monitoring output

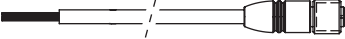
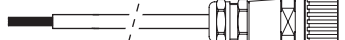
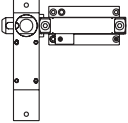
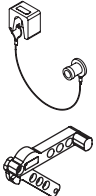
 Order no./item	Coding U = unicode M = multicode	Ramp	Teach-in input	Feedback loop	Functional earth	Escape release	Wire front release (L1) ¹⁾	For wiring diagram, see page 112	
CET3 Closed-circuit current principle									
110103 CET3-AR-CRA-AH-50X-SH-110103	U		●		●				For detailed information, enter the order number for the product in the search box at www.euchner.com .
111725 CET3-AR-CRA-AH-50F-SH-C2312-111725	U		●		●	105 mm			
113024 CET3-AR-CRA-AH-50X-SH-C2290-113024	U		●		●		3 m		
113023 CET3-AR-CRA-AH-50F-SH-C2353-113023	U		●		●	105 mm	3 m		
114088 CET3-AR-CRA-AH-50X-SH-C2290-114088	U		●		●		5 m		
113148 CET3-AR-CRA-AH-50F-SH-113148	U		●		●	75 mm			
115202 CET3-AR-CRA-AH-50X-SH-C2375-115202	U				●				
174313 CET3-AR-CRA-AH-50F-SH-C2375-174313	U				●	105 mm			
110104 CET3-AR-CRA-CH-50X-SH-110104	M				●				
CET4 Open-circuit current principle									
110201 CET4-AR-CRA-AH-50X-SH-110201	U		●		●				
116285 CET4-AR-CRA-AH-50F-SH-116285	U		●		●	75 mm			
110202 CET4-AR-CRA-CH-50X-SH-110202	M				●				

1) L1 = hose length; rope length = L1 + 1 m. Important: Handle must be ordered separately (see Accessories, page 144).

Actuator

Series	Design	Order no./item	
CET-A-BWK-50X		096327 CET-A-BWK-50X	For detailed information, enter the order number for the product in the search box at www.euchner.com .

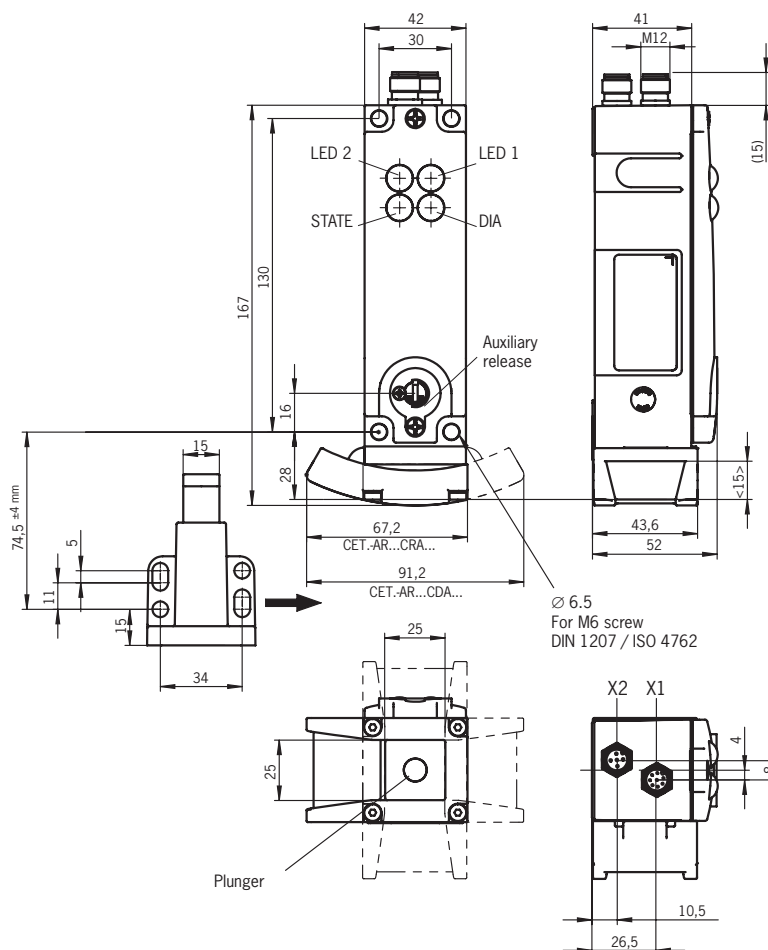
Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	M12 5 pin Page 123
	Connecting cable with plug connector 	M12 8 pin Page 126
	Connecting cable with plug connector 	M23 19 pin Page 131/132
	Female plug (for self-assembly) 	M23 19 pin Page 133
	Strapping plug/Y-distributor	M12 Page 128
	Passive distribution module	M12 Page 129
Bolts	Bolts for housing design CET 	Page 139
Fixing material	Mounting plates	 Page 142
	Safety screws	Page 144
Miscellaneous accessories	Lockout bar 	Page 145
	Auxiliary key release	
	Emergency release	
	Cover	
	Double ramp	
	Handle for wire front release	

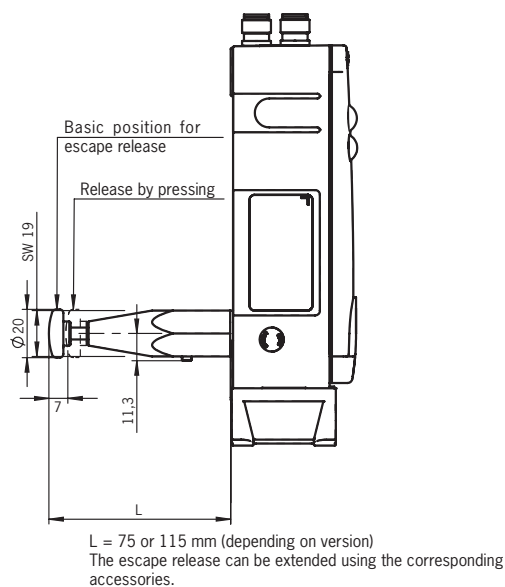
Dimension drawing

2x
M12

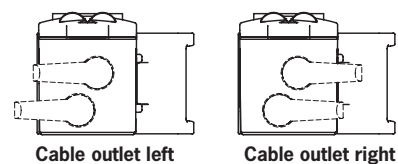
With 2 plug connectors M12



With escape release

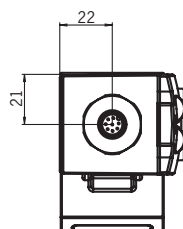


With angle connectors

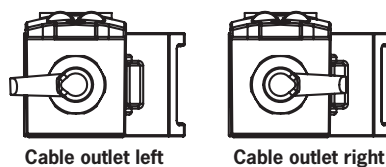


M12

With 1 plug connector M12



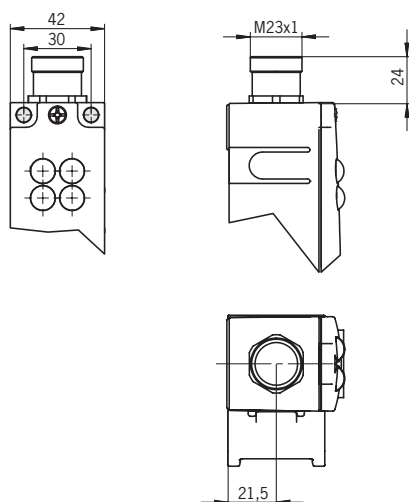
With angle connectors



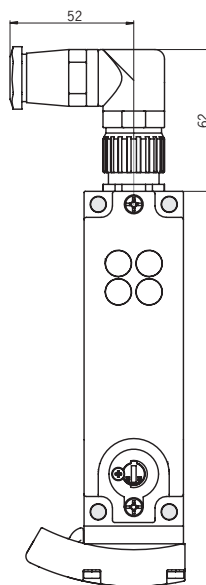
M23

With plug connector M23

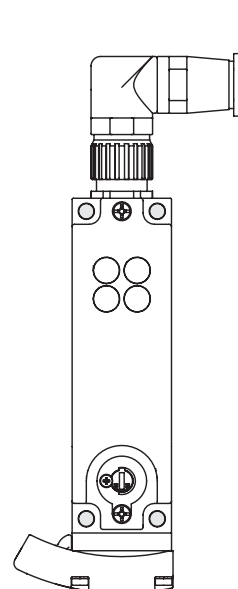
Dimensions with plug connector M23



Cable outlet left

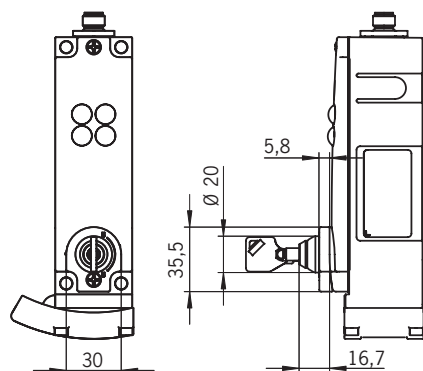


Cable outlet right

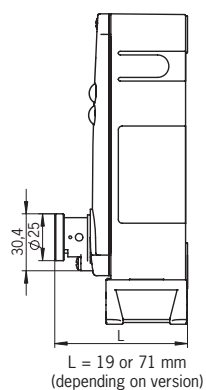


Versions with manual release options

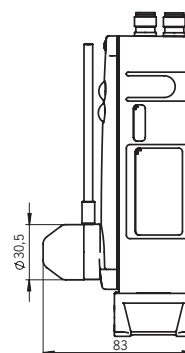
With auxiliary key release



With emergency release



With wire front release (bowden)





Terminal assignment

A ... **C** Wiring diagrams A to C

Pin	Designation	Function	2x M12		
			A	B	C
X 1.1	IB	Enable input, channel B	●	●	●
X 1.2	UB	Electronics operating voltage, 24 V DC	●	●	●
X 1.3	OA	Safety output, channel A	●	●	●
X 1.4	OB	Safety output, channel B	●	●	●
X 1.5	OUT	Guard lock monitoring output	●	●	●
X 1.6	IA	Enable input, channel A	●	●	●
X 1.7	OVUB	Electronics operating voltage, 0 V DC	●	●	●
X 1.8	RST	Reset input	●	●	●
X 2.1	OVUCM	Solenoid operating voltage, 0 V DC	●	●	●
X 2.2	LED 1	LED 1 red, freely configurable, 24 V DC	●		
	–	n.c.	● ¹⁾		
	OUT D	Door position monitoring output (indication on LED 2)		●	●
X 2.3	LED 1	LED 1 red, freely configurable, 24 V DC		●	
	LED 2	LED 2 green, freely configurable, 24 V DC	●		
	OUT	Guard lock monitoring output			●
X 2.4	UCM	Solenoid operating voltage, 24 V DC	●	●	●
X 2.5	J	Version with teach-in input	●	●	
	Y	Version with feedback loop	●	●	
	–	Version without feedback loop, without teach-in input and without functional earth	●	●	●
	FE	Functional earth	● ¹⁾	●	

1) Only for order no.109015

M23 19 pin

CET

D ... E Wiring diagrams D and E

Pin	Designation	Function	M23	
			D	E
1	UCM	Solenoid operating voltage, 24 V DC	●	●
2	IA	Enable input, channel A	●	●
3	IB	Enable input, channel B	●	●
4	OA	Safety output, channel A	●	●
5	OB	Safety output, channel B	●	●
6	UB	Electronics operating voltage, 24 V DC	●	●
7	RST	Reset input	●	●
8	OUT D	Door position monitoring output (only CET3-AR and CET4-AR)		●
9	–	n.c.	●	●
10	OUT	Guard lock monitoring output	●	●
11	–	n.c.	●	●
12	FE	Functional earth	●	●
13	J	Version with teach-in input	●	●
	Y	Version with feedback loop	●	●
	–	Version without feedback loop and without teach-in input	●	●
14	–	n.c.	●	●
15	LED 1	LED 1 red, freely configurable, 24 V DC	●	●
16	LED 2	LED 2 green, freely configurable, 24 V DC	●	●
17	–	n.c.	●	●
18	OVUCM	Solenoid operating voltage, 0 V DC	●	●
19	OVUB	Electronics operating voltage, 0 V DC	●	●

AR evaluation unit CES-AR-AES-12



- ▶ **Central evaluation of an AR switch chain**
- ▶ **Status of each individual switch can be recognized**
- ▶ **For switch chains of up to 12 devices**
- ▶ **Four individual safe relay contacts**

Details

The AR evaluation unit is used to evaluate the individual safety switches in an AR switch chain and to safely interrupt a safety circuit.

The unit has two inputs for the connection of an AR switch chain. The safety contacts are switched as a function of the input signals. Downstream parts of the safety circuit can be monitored using a feedback loop.

The switching states of the connected safety switches can be signaled by means of monitoring outputs (see table Terminal assignment p. 117). If the actuator on one of the safety switches in the switch chain is moved out of the actuating range, the AR evaluation unit opens its contacts and the corresponding monitoring output is reset. The system is designed so that failures will not result in the loss of the safety function. The occurrence of failures is detected by cyclic self-monitoring at the latest at the next demand to close the safety contacts. The system can be started either manually using a start button or automatically.

Category according to EN ISO 13849-1

Due to two redundant safety paths (relay contacts) with 2 internal, monitored normally open contacts per safety path, suitable for:

- ▶ Category 4 / PLe according to EN ISO 13849-1
- ▶ Each safety path is independently safe.

LED indicator

STATE	Device status
DIA	Fault display
OUT	Switch chain status

Notice

The plug-in connection terminals are not included and must be ordered separately.

Further information

- ▶ For dimension drawings, see p. 117
- ▶ For accessories and spare parts, see p. 116
- ▶ For detailed information, enter the order number for the product in the search box at www.euchner.com.
- ▶ You will find information on the series connection of AR devices on page 5.

Ordering table**AR evaluation unit**

Series	Order no./item	
CES-AR-AES-12 Unicode	098225 CES-AR-AES-12	For detailed information, enter the order number for the product in the search box at www.euchner.com .

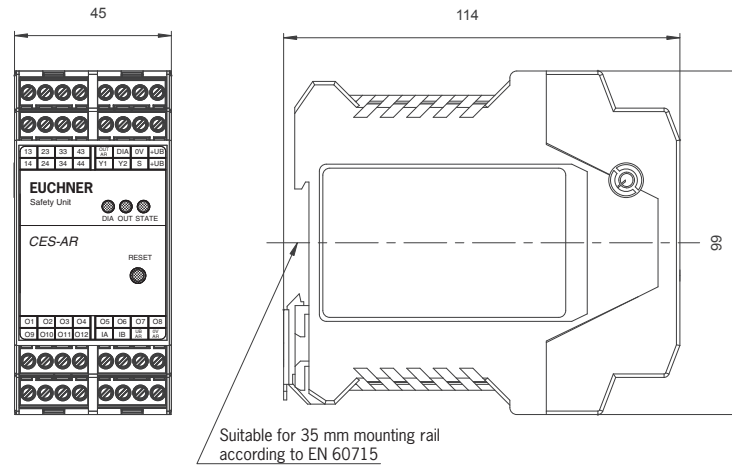
Accessories

Type	Version	
Connection material	Connection kits for AR evaluation unit CES-AR-AES-12	Page 134

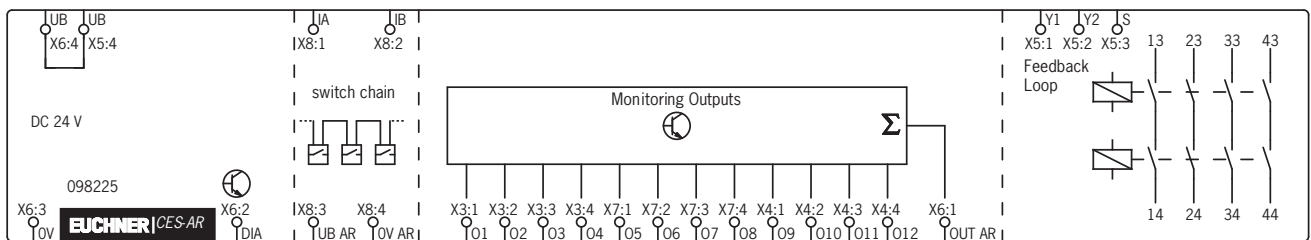
Which safety switches can be connected?

AR evaluation unit	Safety switch
098225 CES-AR-AES-12	CES-AR-C01... from V1.1.2 (see type label on the device)
	CES-AR-CR2... from V1.1.2 (see type label on the device)
	CES-AR-CL2... from V1.1.2 (see type label on the device)
	CES-I.-AR-C04 from V1.0.1 (see type label on the device)
	CET1/2-AR... from V1.1.2 (see type label on the device)
	CET3/4-AR... from V1.0.0 (see type label on the device)
	CTP-AR

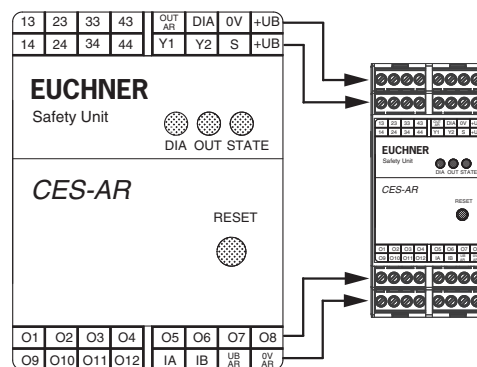
Dimension drawing



Block diagram



Terminal assignment



Several monitoring outputs are occupied depending on the switch type, e.g. one monitoring output for the door position and one for the guard locking status. The table below shows how many monitoring outputs the individual safety switches occupy.

Series	Number (type) of monitoring outputs	Maximum number of switches that can be connected
CES-AR	1 (door position or diagnostics)	12
CET1/2-AR	1 (status of guard locking)	12
CET3/4-AR CTP-AR	2 (first monitoring output: door position, second monitoring output: status of guard locking)	6

»Exploit all the advantages
– with well thought-out
original accessories from
EUCHNER.«

- ▶ Connection material – connect safely and easily; no long search for cables and plug connectors.
- ▶ Fixing material – secure and easy installation for many installation situations.
- ▶ Bolts and bolt sets – door handle and mounting plate in one. Complete sets comprising bolt and switch as complete solution.
- ▶ Function expansions – increase the possible applications with additional functions such as releases, lockout bars, etc.



Connection material

click

6 pin

PVC

Connecting cables with snap-on catch

For the connection of:

CES-AP-C.2-...-SF



Version		Order no./item	
click 6 pin PVC Connecting cable with female plug, flying lead, 6 x 0.14 mm² 	5m	103556 C-R08F06-06X014PV05,0-ES-103556	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	10m	103557 C-R08F06-06X014PV10,0-ES-103557	
	15m	103558 C-R08F06-06X014PV15,0-ES-103558	
	20m	103559 C-R08F06-06X014PV20,0-ES-103559	
	25m	103560 C-R08F06-06X014PV25,0-ES-103560	

Connecting cables with plug connector

For the connection of:

CES-IP...C04-SK



The following applies to the device installation orientation shown:

Cable outlet C (left)

Cable outlet A (right)



Version		Cable outlet	Order no./item	
M8 4 pin PVC	Connecting cable with female plug, flying lead, 4 x 0.25 mm ² 		2m — 088812 C-M08F04-04X025PV02,0-ES-088812	For detailed information, enter the order number for the product in the search box at www.euchner.com .
			5m — 088813 C-M08F04-04X025PV05,0-ES-088813	
			10m — 088814 C-M08F04-04X025PV10,0-ES-088814	
			15m — 088815 C-M08F04-04X025PV15,0-ES-088815	
			25m — 095035 C-M08F04-04X025PV25,0-ES-095035	
			50m — 097100 C-M08F04-04X025PV50,0-ES-097100	
M8 4 pin PUR	Connecting cable with female plug, flying lead, 4 x 0.25 mm ² 	10m	A 084703 C-M08F04-04X025PV10,0-ES-084703	
		5m	— 116049 C-M08F04-04X034PU05,0-ES-116049	
		10m	— 116050 C-M08F04-04X034PU10,0-ES-116050	
		20m	— 116051 C-M08F04-04X034PU20,0-ES-116051	
		50m	— 120241 C-M08F04-04X034PU50,0-ES-120241	

M8

8
pin

PVC

PUR

Connecting cables with plug connector

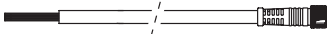
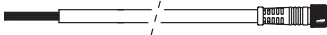
For the connection of:

CES-AR-C.2...-SG



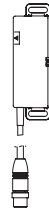
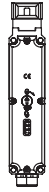
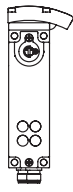
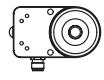
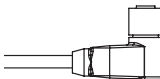
CES-I-AR-.C04-SG

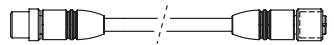


Version		Order no./item	
M8 8 pin PVC	Connecting cable with female plug, flying lead, 8 x 0.14 mm² 	5m 110933 C-M08F08-08X014PV05,0-ES-110933	For detailed information, enter the order number for the product in the search box at www.euchner.com .
		10m 110934 C-M08F08-08X014PV10,0-ES-110934	
		15m 110935 C-M08F08-08X014PV15,0-ES-110935	
		20m 111603 C-M08F08-08X014PV20,0-ES-111603	
M8 8 pin PUR	Connecting cable with female plug, flying lead, 8 x 0.14 mm² 	5m 106671 C-M08F08-08X014PU05,0-ES-106671	
		10m 106672 C-M08F08-08X014PU10,0-ES-106672	
		20m 106673 C-M08F08-08X014PU20,0-ES-106673	

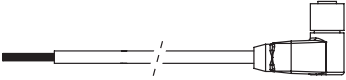
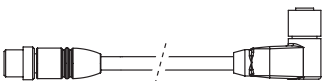
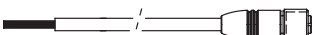
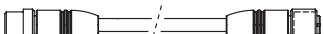
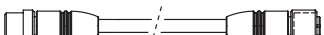
Connecting cables with plug connector

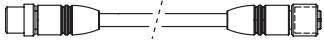
For the connection of:

CES-AP-C01-...-SB 	CES-AP-C.2-...-SB 	CES-AP-...-USB CES-AP-...-USI 	CTP-...AP-...-SII CTP-...AP-...-SBB CTP-...AR-...-SAB 	CET-AP-...-SI CET-AR-...-SG  CES-IP-...C07-SI CES-IP-...C07-SB 	CEM-...C60-...-SE 
Plug connector can be adjusted in 6 orientations	Terminal plug not aligned. Cable outlet not defined		The following applies to the device installation orientation shown: Cable outlet C (left)  C Cable outlet A (right)  A		

Version	Cable outlet	Order no./item	
M12 5 pin PVC	5m	100183 C-M12F05-05X034PV05,0-MA-100183	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	10m	100184 C-M12F05-05X034PV10,0-MA-100184	
	20m	100185 C-M12F05-05X034PV20,0-MA-100185	
	50m	156064 C-M12F05-05X034PV50,0-MA-156064	
Extension, plug connectors at both ends for connection to decentralized peripheral equipment 	5m	100180 C-M12F05-05X034PV05,0-M12M05-100180	
	10m	100181 C-M12F05-05X034PV10,0-M12M05-100181	
	20m	100182 C-M12F05-05X034PV20,0-M12M05-100182	

M12 5 pin PUR

Version		Cable outlet	Order no./item	
M12 5 pin PUR	Connecting cable with female plug, flying lead, 5 x 0.25 mm ²	10m	113190 C-M12F05-05X025PU10,0-MA-113190	For detailed information, enter the order number for the product in the search box at www.euchner.com .
		C		
		A	113187 C-M12F05-05X025PU10,0-MA-113187	
	Extension, plug connectors at both ends for connection to decentralized peripheral equipment	10m	115566 C-M12F05-05X025PU10,0-M12M05-115566	
M12 5 pin PUR		C		
		A	115565 C-M12F05-05X025PU10,0-M12M05-115565	
	Connecting cable with female plug, flying lead, 5 x 0.34 mm ²	5m	113620 C-M12F05-05X034PU05,0-MA-113620	
		10m	113640 C-M12F05-05X034PU10,0-MA-113640	
		20m	113682 C-M12F05-05X034PU20,0-MA-113682	
		30m	122784 C-M12F05-05X034PU30,0-MA-122784	
	Extension, black cable, plug connectors at both ends for connection to decentralized peripheral equipment	5m	119932 C-M12F05-05X034PU05,0-M12M05-119932	
		10m	119947 C-M12F05-05X034PU10,0-M12M05-119947	
		20m	119971 C-M12F05-05X034PU20,0-M12M05-119971	
	Extension, gray cable, plug connectors at both ends for connection to decentralized peripheral equipment	1m	159355 C-M12F05-05X034PU1,0-M12M05-159355	
		1,5m	159356 C-M12F05-05X034PU1,5-M12M05-159356	
		3m	159357 C-M12F05-05X034PU3,0-M12M05-159357	
		5m	159358 C-M12F05-05X034PU5,0-M12M05-159358	
		8m	159359 C-M12F05-05X034PU8,0-M12M05-159359	
		10m	159360 C-M12F05-05X034PU10,0-M12M05-159360	
		15m	159361 C-M12F05-05X034PU15,0-M12M05-159361	

Version		Cable outlet	Order no./item	
M12 5 pin PUR	Extension, yellow cable, plug connectors at both ends for connection to decentralized peripheral equipment 	0,22m	– C-M12F05-05X034PU0,22-M12M05-163573	For detailed information, enter the order number for the product in the search box at www.euchner.com .
		1m	– C-M12F05-05X034PU1,0-M12M05-159362	
		1,5m	– C-M12F05-05X034PU1,5-M12M05-159363	
		3m	– C-M12F05-05X034PU3,0-M12M05-159364	
		5m	– C-M12F05-05X034PU5,0-M12M05-159365	
		8m	– C-M12F05-05X034PU8,0-M12M05-159919	
		10m	– C-M12F05-05X034PU10,0-M12M05-159920	
		15m	– C-M12F05-05X034PU15,0-M12M05-159921	

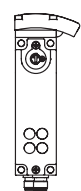
M12

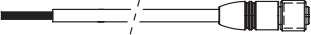
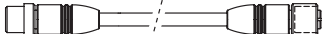
8
pin

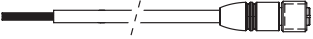
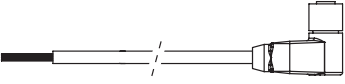
PVC

Connecting cables with plug connector

For the connection of:

CES-AP-C01-...-SA CES-AR-C01-...-SA 	CES-AR-C.2-...-SA 	CES-AR-C.04-USA 	CTP-...AP-...-SA CTP-...AR-...-SAB 	CET-AP-...-SA CET-AR-...-SG 	CEM-...AY-...-SA 
Plug connector can be adjusted in 6 orientations	Terminal plug not aligned. Cable outlet not defined		The following applies to the device installation orientation shown: Cable outlet C (left) Cable outlet A (right) 		

Version	Cable outlet	Order no./item	
Connecting cable with female plug, flying lead, 8 x 0.25 mm ² 	5m	100177 C-M12F08-08X025PV05,0-MA-100177	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	10m	100178 C-M12F08-08X025PV10,0-MA-100178	
	20m	100179 C-M12F08-08X025PV20,0-MA-100179	
	30m	115116 C-M12F08-08X025PV30,0-MA-115116	
	40m	156065 C-M12F08-08X025PV40,0-MA-156065	
Extension, plug connectors at both ends 	1m	123430 C-M12M08-08X025PV01,0- M12F08-123430	
	2m	123431 C-M12M08-08X025PV02,0- M12F08-123431	
	5m	123432 C-M12M08-08X025PV05,0- M12F08-123432	
	10m	123433 C-M12M08-08X025PV10,0- M12F08-123433	

Version		Cable outlet	Order no./item	
M12 8 pin PUR	Connecting cable with female plug, flying lead, 8 x 0.25 mm ² 	5m	115112 C-M12F08-08X025PU05,0-MA-115112	For detailed information, enter the order number for the product in the search box at www.euchner.com .
		10m	115113 C-M12F08-08X025PU10,0-MA-115113	
		20m	115114 C-M12F08-08X025PU20,0-MA-115114	
		30m	115257 C-M12F08-08X025PU30,0-MA-115257	
M12 8 pin PUR	Connecting cable with female plug, flying lead, 8 x 0.25 mm ² 	10m	C 113189 C-M12F08-08X025PU10,0-MA-113189	
			A 113188 C-M12F08-08X025PU10,0-MA-113188	
		20m	C 120999 C-M12F08-08X025PU20,0-MA-120999	
			A 120998 C-M12F08-08X025PU20,0-MA-120998	

M12

AR

BR

IO-
Link

Strapping plug/Y-distributor

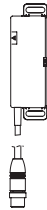
For the series connection of devices from the output families AR and BR

For the connection of:

CES-AR-C01-.-SA



CES-AR-C.2-.-SA



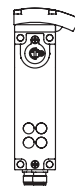
CES-I-AR-.-C04-USA



CTP-L-AR-.-SAB



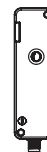
CET-AR-.-SG

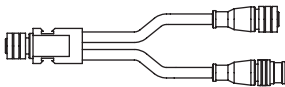
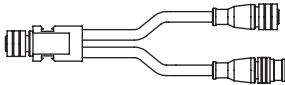


CES-I-BR-.-C07-SA



CTM-.-BR-.-SA



Version				Order no.	
M12 AR BR	Strapping plug for AR/BR series connection with Y-distributors (male plug) 			097645 AC-SP-A0-SJ-097645	For detailed information, enter the order number for the product in the search box at www.euchner.com.
Series connection of AR/BR devices without IO-Link evaluation					
M12 AR BR	8 pin 1x	Y-distributor M12 with connecting cable 	0,2m	111696 AC-YD-V0,2-SBB-111696	
	5 pin 2x		1m	112395 AC-YD-V1,0-SBB-112395	
	8 pin 1x	Y-distributor M12 		097627 AC-YD-SBB-097627	
	5 pin 2x	Not suitable for CTP-AR! Instead, please use a Y-distributor with connecting cable (see above)			
Series connection of BR devices with IO-Link evaluation					
M12 BR IO-Link	8 pin 1x	Y-distributor M12 with connecting cable 	0,2m	158192 AC-YD-V0,2-SBB-158192	
	5 pin 2x		1m	158193 AC-YD-V1,0-SBB-158193	
	8 pin 1x	Y-distributor M12 		157913 AC-YD-SBB-157913	
	5 pin 2x				

Passive distribution module

For the series connection of devices from the output family AR

For the connection of:

CES-AR-C01-...-SA



CES-AR-C.2-...-SA



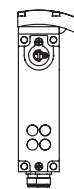
CES-I-AR-...C04-USA



CTP-L-AR-...-SAB

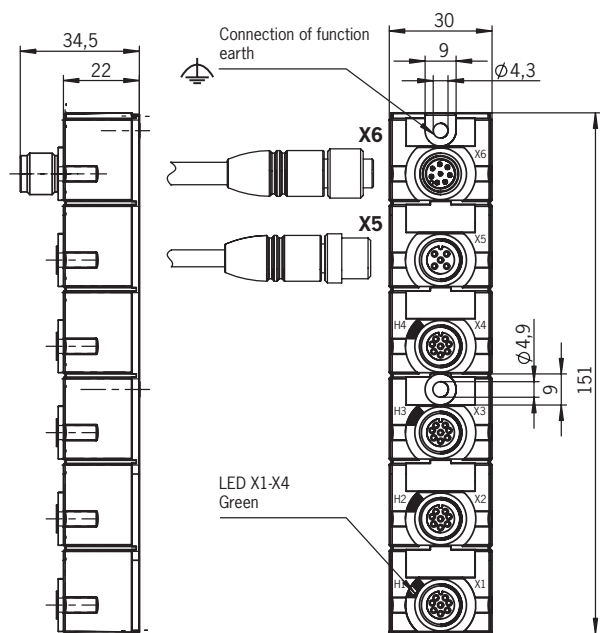


CET-AR-...-SG



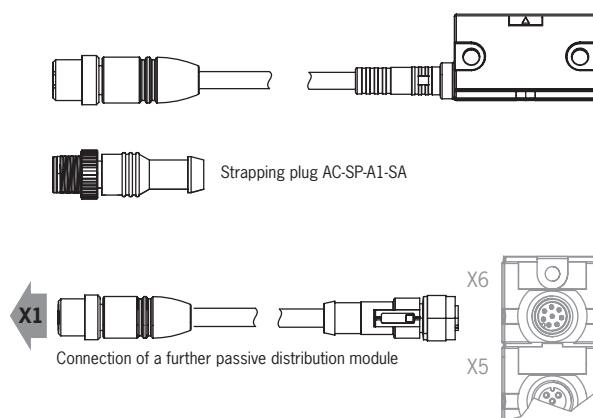
Version		Order no.	
8 pin 5 pin	5x 1x	Passive distribution module Strapping plug for bypassing unused connections on the passive distribution module (male plug)	
M12 AR		120861 AC-DP-04-SAA-120861 123340 AC-SP-A1-SA-123340	For detailed information, enter the order number for the product in the search box at www.euchner.com .

Dimension drawing and connection options



Connection	Use
X1 ... X4	- Connection of AR devices (CES-AR, CET-AR, ...) or - Bypassing using strapping plug if connection is not used or - Connection of a further passive distribution module (important : only on X1)
X5	Provision of the status signals for all connected AR devices
X6	Operating voltage for the AR devices and transmission of the safety signals

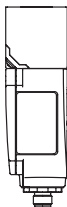
For details, see table



Screened connecting cables with plug connector

For the connection of:

CES-A.5



Version		Order no./item	
M12 8 pin PVC Connecting cable with female plug, screened ¹⁾, 8 x 0.25 mm² 	5m	077751 C-M12F08-08X025PV05,0-GA-077751	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	10m	077752 C-M12F08-08X025PV10,0-GA-077752	
	15m	077753 C-M12F08-08X025PV15,0-GA-077753	
	20m	077871 C-M12F08-08X025PV20,0-GA-077871	
	25m	077872 C-M12F08-08X025PV25,0-GA-077872	
	50m	077873 C-M12F08-08X025PV50,0-GA-077873	

1) The shield on the connecting cable is connected to the plug housing.

Connecting cable with straight plug connector

For the connection of:

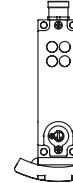
CEM-...AR-...-SH

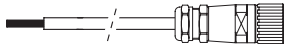


CTP-...AP-...-SH
CTP-...AR-...-SH



CET-AP-...-SH
CET-AR-...-SH



Version		Order no./item	
M23 19 pin PUR Connecting cable with female connector, flying lead 	1,5m	092761 C-M23F19-19XDIFPU01,5-MA-092761	For detailed information, enter the order number for the product in the search box at www.euchner.com.
	3m	092816 C-M23F19-19XDIFPU03,0-MA-092816	
	6m	077014 C-M23F19-19XDIFPU06,0-MA-077014	
	8m	077015 C-M23F19-19XDIFPU08,0-MA-077015	
	10m	092898 C-M23F19-19XDIFPU10,0-MA-092898	
	15m	077016 C-M23F19-19XDIFPU15,0-MA-077016	
	20m	092726 C-M23F19-19XDIFPU20,0-MA-092726	
	25m	092727 C-M23F19-19XDIFPU25,0-MA-092727	
	30m	095993 C-M23F19-19XDIFPU30,0-MA-095993	
	40m	102490 C-M23F19-19XDIFPU40,0-MA-102490	

M23

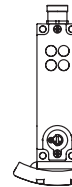
19
pin

PUR

Connecting cable with angled plug connector

For the connection of:

CEM-...-AR-...-SH

CTP-...-AP-...-SH
CTP-...-AR-...-SHCET-AP-...-SH
CET-AR-...-SH

The following applies to the device installation orientation shown:

Cable outlet C (left)

Cable outlet A (right)



Version		Order no./item Cable outlet		
		C	A	
M23 19 pin PUR Female connector angled with cable, halogen-free 	1,5m	092906 C-M23F19-19XDIFPU01,5- MA-092906	092907 C-M23F19-19XDIFPU01,5- MA-092907	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	3m	092908 C-M23F19-19XDIFPU03,0- MA-092908	092909 C-M23F19-19XDIFPU03,0- MA-092909	
	6m	077018 C-M23F19-19XDIFPU06,0- MA-077018	085194 C-M23F19-19XDIFPU06,0- MA-085194	
	8m	077019 C-M23F19-19XDIFPU08,0- MA-077019	085195 C-M23F19-19XDIFPU08,0- MA-085195	
	10m	092901 C-M23F19-19XDIFPU10,0- MA-092901	092902 C-M23F19-19XDIFPU10,0- MA-092902	
	15m	077020 C-M23F19-19XDIFPU15,0- MA-077020	085196 C-M23F19-19XDIFPU15,0- MA-085196	
	20m	092910 C-M23F19-19XDIFPU20,0- MA-092910	092911 C-M23F19-19XDIFPU20,0- MA-092911	
	25m	092912 C-M23F19-19XDIFPU25,0- MA-092912	092913 C-M23F19-19XDIFPU25,0- MA-092913	

Female plug M23

For the connection of:

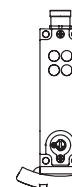
CEM-...AR-...-SH

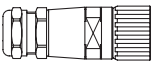
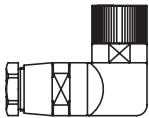


CTP-...AP-...-SH
CTP-...AR-...-SH



CET-AP-...-SH
CET-AR-...-SH



Version	Remark	Order no.	
Female plug straight (for self-assembly) 	EF Female plug For conductor cross-section 19 x 0.5 - 1 mm ²	167839 AC-PC-M23F19G-167839	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	EF-C1825 Female plug For conductor cross-section 16 x 0.14 - 0.56 mm ² + 3 x 0.5 - 1 mm ²	167838 AC-PC-M23F19G-C1825-167838	
Female connector angled (for self-assembly) 	WF Female connector angled For conductor cross-section 19 x 0.5 - 1 mm ²	167837 AC-PC-M23F19W-167837	
	WF-C1825 Female connector angled For conductor cross-section 16 x 0.14 - 0.56 mm ² + 3 x 0.5 - 1 mm ²	167836 AC-PC-M23F19W-C1825-167836	
Replacement crimp contacts	For female connectors EF and WF Conductor cross-section 19 x 0.5 - 1 mm ²	167671 AY-SET-CF-167671	
	For female connectors EF-C1825 and WF-C1825 Conductor cross-section 16 x 0.14 - 0.56 mm ² + 3 x 0.5 - 1 mm ²	167669 AY-SET-CF-C1825-167669	

M23

19 pin



Connection kits

For connection to AR evaluation unit CES-AR-AES-12

Version	Remark	Order no.	
 Connection kits for evaluation unit CES-AR-AES-12	Plug-in screw terminals	104776 CES-EA-TC-AK08-104776	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	Plug-in spring terminals	112629 CES-EA-TC-KK08-112629	

Teach-in adapter

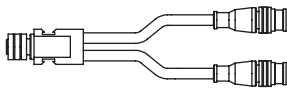
For connection to safety switch CET

Version	Remark	Order no.	
 Teach-in adapter AC-TA-A-...	For safety switch CET1-AR/CET3-AR	125496 AC-TA-A1-SG-125496	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	For safety switch CET2-AR/CET4-AR	125497 AC-TA-A2-SG-125497	
	For safety switch CET1/CET3	122748 AC-TA-A1-SH-122748	
	For safety switch CET2/CET4	122749 AC-TA-A2-SH-122749	

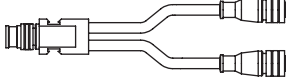
Y-distributor for connection to IP67 field modules

Y-distributor for AP devices with plug connectors 2 x M12, 5-pin, with monitoring output (e.g. CET-AP with wiring diagram B) for connection to field modules with sockets M12, 5-pin.

The Y-distributor makes it possible to control the guard locking solenoid via a safe output module and to route the monitoring contact OUT D to an input module of a control system.

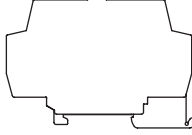
Designation	Version	Order no.	
 Y-distributor for connection to IP67 field modules 	 (socket)  (plug) 	124516 AC-YD-V0,2-SBB-124516	For detailed information, enter the order number for the product in the search box at www.euchner.com .

Y-distributor for connection of CEM-M2-C60 and CES-AP/BP

Designation	Version	Order no.	
2x M12 AP BP Y-distributor for connection of a guard locking solenoid CEM-M2-C60 to a safety switch CES-AP/BP 	M12 8 pin (plug) 2x M12 5 pin (socket)	161909 AC-YD-U0,2-SBB-161909	For detailed information, enter the order number for the product in the search box at www.euchner.com.

Filter module for the connection of switchgear with OSSD outputs

The test pulses of safety inputs FI1A and FI1B for short circuit monitoring are filtered out at the outputs FO1A* and FO1B* to such an extent that the downstream control system can no longer detect them. Owing to smoothing of the test pulses at safety inputs FI1A/FI1B, short circuit monitoring will no longer be effective downstream of the filter module. Ruling out short circuits downstream of safety outputs FO1A*/FO1B* requires laying the cables with protection or mounting in the control cabinet of the control system.

Designation	Order no.	
AP AR BP BR Filter module for the connection of switchgear with OSSD outputs  For 35 mm mounting rail	127460 AC-FM-AR-127460	For detailed information, enter the order number for the product in the search box at www.euchner.com.

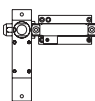
Bolts

C01 C05

Bolts for housing design C01**Notice:** The actuators are included with these bolts.**For mounting:**CES-AP-C01-...
CES-AR-C01-...

C01

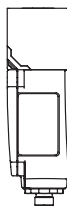


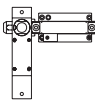
Designation	Detent mechanism/ door gap	Material	Version	Order no.	
  Bolts CES-A-C	Closed position: ball detent mechanism Open position: none/ door gap: 15 mm	Steel	For doors hinged on the right or left	082220	For detailed information, enter the order number for the product in the search box at www.euchner.com .

Bolts for housing design C05**Notice:** The actuators are included with these bolts.**For mounting:**

CES-A-5...

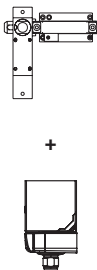
C05



Designation	Detent mechanism/ door gap	Material	Version	Order no.	
  Bolts CES-A-C/F	Closed position: ball detent mechanism Open position: detent knob/ door gap: 15 mm	Steel	Emergency release lever, for doors hinged on the right or left	098357	For detailed information, enter the order number for the product in the search box at www.euchner.com .

Bolt sets (complete with switch)

Notice: The actuators are included with these bolts.

Designation	Detent mechanism/ door gap	Material	Version	Order no.	
  Bolts CES-AC...C01	Closed position: ball detent mechanism/ door gap: 7 mm	Steel	Bolt with pre-assembled safety switch CES-AR-C01-AH-SA-098941 for doors hinged on the right or left	109358	For detailed information, enter the order number for the product in the search box at www.euchner.com.
	Closed position: ball detent mechanism/ door gap: 7 mm	Steel	Bolt with pre-assembled safety switch CES-AP-C01-AH-SB-111145 for doors hinged on the right or left	113986	
	Closed position: ball detent mechanism Open position: detent knob/ door gap: 15 mm	Steel	Bolt with pre-assembled safety switch CES-AR-C01-AH-SA-098941 and safety plate ¹⁾ for doors hinged on the right or left, emergency release lever	105619	
	Closed position: ball detent mechanism Open position: detent knob/ door gap: 7 mm	Steel	Bolt with pre-assembled safety switch CES-AP-C01-AH-SB-111145 for doors hinged on the right or left, emergency release lever	124401	
	Closed position: ball detent mechanism Open position: detent knob/ door gap: 15 mm	Steel	Bolt with pre-assembled safety switch CES-AP-C01-AH-SB-111145 and safety plate ¹⁾ for doors hinged on the right or left, emergency release lever	116246	
	Closed position: ball detent mechanism/ door gap: 15 mm	Steel	Bolt with pre-assembled safety switch CES-AP-C01-CH-SB-106798 and safety plate ¹⁾ for doors hinged on the right or left	110355	
	Closed position: ball detent mechanism/ door gap: 15 mm	Steel	Bolt with pre-assembled safety switch CES-AP-C01-CH-SB-111708 and safety plate ¹⁾ for doors hinged on the right or left	110354	

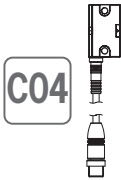
1) The safety plate prevents the use of a padlock in closed bolt position.

Bolts for housing design C04

Notice: Actuators are **not** included with these bolts.

For mounting:

CES-AP-.-C04-...
CES-AR-.-C04-...



Designation	Detent mechanism/ door gap	Material	Version	Order no.	
  Bolts BTC-CES04-...	Closed position: spring catch Open position: none/ door gap: 7 mm	Aluminum	For doors hinged on right and left, can be locked in open position with padlocks	121646	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	Closed position: spring catch Open position: detent knob/ door gap: 7 mm	Aluminum	Emergency release lever, for doors hinged on right and left, can be locked in open position with padlocks	123583	

Bolts for housing design CTP

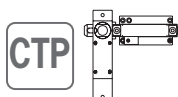
Notice: The actuators are included with the bolts CTP-... and BTC-.... Order actuator separately for the bolts BTM-UNIP-S-TH-... (for suitable actuators, see page 140).

For mounting:

CTP-...-...



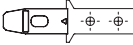
Designation	Detent mechanism/ door gap	Material	Version	Order no.	
Bolts CTP-AC	none/ door gap: 15 mm	Steel	For doors hinged on right and left, can be locked in open position with padlocks	123653	For detailed information, enter the order number for the product in the search box at www.euchner.com .
Bolts CTP-ACF	Closed position: none Open position: detent knob/ door gap: 15 mm	Steel	Emergency release lever, for doors hinged on right and left, can be locked in open position with padlocks	123655	
Bolts CTP-AC-C2308	none/ door gap: 15 mm	Steel	For doors hinged on the right and left; bolt can be opened outward and inward (no end stop)	137354	
Bolts BTC-CTP-S-TH-00-X	none/ door gap: 15 mm	Die-cast aluminum	For doors hinged on right and left, can be locked in open position with padlocks	123659	
Bolts BTC-CTP-S-TH-01-F	Closed position: none Open position: detent knob/ door gap: 15 mm	Die-cast aluminum	Emergency release lever, for doors hinged on right and left, can be locked in open position with padlocks	123660	
Bolts BTM-UNIP-S-TH-00-X-159951 1)	None / door gap: 15 mm	Steel	For doors hinged on right and left, can be locked in open position with padlocks	159951	
Bolts BTM-UNIP-S-TH-01-F-164196 1)	Closed position: none Open position: detent knob/ door gap: 15 mm	Steel	Emergency release lever, for doors hinged on right and left, can be locked in open position with padlocks	164196	
Bolts CTP-GFK	none/ door gap: 7 mm	Plastic	For doors hinged on right and left, can be locked in open position with padlocks	123657	



1) Please order actuator separately. For suitable actuators, see page 140.

Designation	Detent mechanism/ door gap	Material	Version	Order no.	
  Bolts CTP-GFK-F Switch bracket	Closed position: none Open position: detent knob/ door gap: 7 mm	Plastic	Emergency release lever, for doors hinged on right and left, can be locked in open position with padlocks	123658	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	–	Plastic	For safety switch CTP	096613	

Actuator for bolt BTM-UNIP-S-TH-...

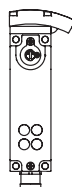
Series	Design	Order no./item	
A-C-H-G-LS-122677	 Straight	122677 A-C-H-G-LS-122677	For detailed information, enter the order number for the product in the search box at www.euchner.com .

Bolts for housing design CET

Notice: - Actuators are **not** included with these bolts.
- Cover AM-C-124721 (protection against tampering) for CET actuators included.

For mounting:

CET.-A-....

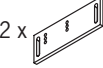
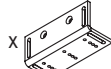
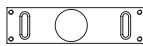


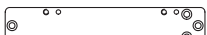
Designation	Detent mechanism/ door gap	Material	Version	Order no.	
Bolts CET-A-C	none/ door gap: 15 mm	Steel	For doors hinged on the right or left	104309	For detailed information, enter the order number for the product in the search box at www.euchner.com .
Bolts CET-A-C/F	Closed position: none Open position: detent knob/ door gap: 15 mm	Steel	For doors hinged on the right or left, for CET with escape release	106172	
Bolts CET-A-C/F-C2282	Closed position: none Open position: detent knob/ door gap: 15 mm	Steel, guide strip made of stainless steel	For doors hinged on the right or left, for CET with escape release	106350	
Bolts CET-A-C-C2308	none/ door gap: 15 mm	Steel	For doors hinged on the right or left. Bolt can be opened outward and inward (no end stop).	109672	



Fixing material

Mounting sets/mounting plates

Series		Use	Order no./item	
C04	Mounting set AM-SET-PP  2 x	For safety switch and actuator design C04 Set comprising: 2 x mounting plates	119690 AM-SET-PP-119690	For detailed information, enter the order number for the product in the search box at www.euchner.com .
	Mounting set AM-SET-PPB  1 x  1 x  1 x	For safety switch and actuator design C04 Set comprising: 1 x mounting plate 1 x angle mounting plate 1 x spacer	119694 AM-SET-PPB-119694	
	Mounting bracket AM-B-126230 	For actuator CEM-...-C40	126230 AM-B-126230	
C40	Mounting bracket AM-B-126231 	For safety switch CEM-...-C40	126231 AM-B-126231	
	Angle mounting plate EMP-SB 	For safety switch CTP	093456 EMP-SB	
	Mounting plate EMP-B2 	For actuator CTP	093458 EMP-B2	
	Mounting plate EMP-B1 	For actuator CTP and actuator CET	093457 EMP-B1	
CTP	Mounting plate AM-P 	For safety switch CTP	126026 AM-P-126026	

Series	Use	Order no./item	
Mounting plate EMP-L-CET 	For safety switch CET	106695 EMP-L-CET	For detailed information, enter the order number for the product in the search box at www.euchner.com .
Mounting plate EMP-B-CET 	For actuator CET	106694 EMP-B-CET	
Mounting plate EMP-B1 	For actuator CTP and actuator CET	093457 EMP-B1	
Mounting plate AM-P 	For safety switch CET	126399 AMP-126399	
Mounting plate AM-P 	For actuator CET	126400 AMP-126400	
Mounting plate with handle 	Can be combined with mounting plates AMP-126399 and AMP-126400	126398 AMP-126398	

CET

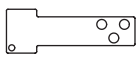
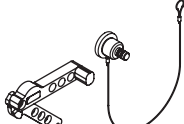
Miscellaneous accessories

Safety screws

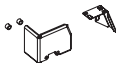
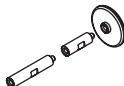
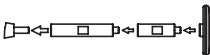
Fixing material/screw size	Screw head diameter	Version/use	Packaging unit [qty.]	Order no.
Safety screws, stainless steel M4 x 14	7 mm	Actuators CES-A-BBA, CES-A-BCA	20	071863 M4X14-NIRO/V20
Safety screws, stainless steel M4 x 14	10 mm	Safety switch CES-...C.2, actuator CES-A-BLN.2 and actuator CTP (straight/angled)	100	086232 M4X14-NIRO/V100
Safety screws, stainless steel M4 x 20	7 mm	Safety switch CES-...C04/C07 and actuator CES-A-...C04/C07	20	116978 M4X20-NIRO/V20
Safety screws, stainless steel M5 x 10	10 mm	Safety switch CES-...C01, actuator CES-A-BPA and hinged actuator CTP (left/right)	100	073455 M5X10-NIRO/V100
Safety screws, galvanized steel M5 x 16	10 mm	Actuator CES-A-BRN, CET-A-BWK, A-C40 and A-C60	100	073456 M5X16/V100
Safety screws, galvanized steel M5 x 25	10 mm	Hinged actuator CTP (top/bottom)	100	073457 M5X25/V100
Plastic inserts for hexagon socket screws M5/SW4	–	Safety switch with guard locking	18	161344 AM-C-SW4-V3-161344
Plastic inserts for hexagon socket screws M6/SW5	–	Safety switch with guard locking	18	161348 AM-C-SW5-V3-161348

Miscellaneous accessories

Designation	Use	Version	Order no.
Covers 			
 	For safety switch CES-C07 and actuator CES-A-BTN-C07	–	161164
Lockout bar 			
 	For safety switch design C40	–	123625 AE-L-C40-123625
Auxiliary key release 			
 	For safety switch CTP	Identical locking, including 2 keys	086236
		Identical locking, key removable only in <i>unlocked</i> position, including 2 keys	109212
		Unique locking, including 2 keys	084177
		Identical locking, key removable in <i>locked</i> position, including 2 keys	121917
Replacement key	For auxiliary key release, identical locking	2 keys, identical locking	099434
Release 	For safety switch CTP	Resetting	103110

Designation	Use	Version	Order no.
Emergency release 	For safety switch CTP	–	099877
Lead seal kit 	For emergency release	–	087256
Wire front release (bowden) 	For safety switch CTP	Resetting, sheath length 2 m (rope length 6 m)	097747 AE-B-A1-02,0-F-097747
		Resetting, sheath length 3 m (rope length 6 m)	111233 AE-B-A1-03,0-F-111233
Handle for wire front release 	Suitable for all safety switches with wire front release (bowden)		099795 AY-HDL-099795
			124204 AY-HDL-124204
Lockout bar 	For safety switch CTP	–	123411 AE-L-C-H-123411
Lockout bar 	For actuator CET	Suitable for shackle diameter 5 mm - 6 mm	122609 AE-L-CET-122609
Lockout bar 	For actuator CET	Suitable for shackle diameter 5 mm - 9 mm	156429 AE-L-CET-156429
Holder for lockout bar 	For lockout bar AE-L-CET-156420	Including wire rope and ring to hang the wire rope onto the lockout bar	156338 AY-CHN-A1-156338
Set Lockout bar + holder 	For actuator CET	Suitable for shackle diameter 5 mm - 9 mm. Holder including wire rope and ring to hang the wire rope onto the lockout bar.	155865 AE-SET-LCHN-A1-155865
Auxiliary key release 	For safety switch CET	Identical locking, including 2 keys	098850
Replacement key 	For auxiliary key release, identical locking	2 keys, identical locking	099434
Emergency release 	For safety switch CET	Latching in both positions, installation height 19 mm	103714 AE-M-CET-103714
		Latching in both positions, installation height 70 mm	159080 AE-M-CET-159080
Lead seal kit 	For emergency release	–	087256

CET

Designation	Use	Version	Order no.
Cover 	For safety switch CET and actuator CET	Door hinge right	098808
		Door hinge left	098807
Cover 	For actuator CET	Horizontal and vertical mounting option on the actuator, suitable for safety screws M5 x 16	124979 AM-C-124979
Double ramp 	For safety switch CET	—	114091 CET-DR
Handle for wire front release 	Suitable for all safety switches with wire front release (bowden)		099795 AY-HDL-099795
			124204 AY-HDL-124204
Extension for escape release 	For safety switch CET		127377 AF-E-80-127377

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Representatives

International

Austria

EUCHNER GmbH
Aumühlweg 17-19/Halle 1C
2544 Leobersdorf
Tel. +43 720 010 200
info@euchner.at

Benelux

EUCHNER (BENELUX) BV
Visschersbuurt 23
3356 AE Papendrecht
Tel. +31 78 615-4766
info@euchner.nl

Brazil

EUCHNER Com.Comp.
Eletronicos Ltda.
Av. Rio das Pedras, 3597
Jardim Aricanduva
São Paulo - SP
CEP 03930-310
Tel. +55 11 29182200
euchner@euchner.com.br

Canada

EUCHNER Canada Inc.
111 Zenway Blvd. Units 2 & 3
Vaughan, ON L4H 3H9
Tel. +1 866 5069998
sales@euchner.ca

China

EUCHNER (Shanghai)
Trading Co., Ltd.
No. 15 building,
No. 68 Zhongchuang Road,
Songjiang
Shanghai, 201613, P.R.C
Tel. +86 21 5774-7090
info@euchner.com.cn

Czech Republic

EUCHNER electric s.r.o.
Trnkova 3069/117h
628 00 Brno
Tel. +420 533 443-150
info@euchner.cz

France

EUCHNER France S.A.R.L.
Parc d'Affaires des Bellevues
Allée Rosa Luxembourg
Bâtiment le Colorado
95610 ERAGNY sur OISE
Tel. +33 1 3909-9090
info@euchner.fr

Hungary

EUCHNER Magyarország Kft.
FSD Park 2.
2045 Törökbálint
Tel. +36 1 919 0855
info@euchner.hu

India

EUCHNER (India) Pvt. Ltd.
"MAAJISA"
CTS No. 1707A, Plot No. 1, 2 & 3,
Stilt Floor, Office No. C-1,C-2 & C-3,
Bhavkar Bhavan Lane,
Shivajinagar, Pune,
Maharashtra 411005
Tel. +91 9156565844
info@euchner.in

Italy

TRITECNICA SpA
Viale Lazio 26
20135 Milano
Tel. +39 02 541941
info@tritecnica.it

Japan

EUCHNER Co., Ltd.
1269-1 Komakiharashinden,
Komaki-shi, Aichi-ken
485-0012, Japan
Tel. +81 568 74 5237
info@euchner.jp

Korea

EUCHNER Korea Co., Ltd.
115 Gasan Digital 2 - Ro
(Gasan-dong, Daeryung
Technotown 3rd Rm 810)
08505 Kumchon-Gu, Seoul
Tel. +82 2 2107-3500
info@euchner.co.kr

EUCHNER Korea Co., Ltd.
Busan Office
#405, BonGwanDong,
41, Yutongdanji 1-ro,
Gangseo-gu, Busan,
Tel. +82 55 266-3501

Mexico

EUCHNER México S de RL de CV
Terra Business Park
Av. 1er Retorno Universitario Ext 1,
Int 23B
La Pradera, El Marques
76246 Querétaro, México
Tel. +52 442 402 1485
info@euchner.mx

Poland

EUCHNER Sp. z o.o.
Kraśnińskiego 29
40-019 Katowice
Tel. +48 32 252 20 15
info@euchner.pl

Portugal

EUCHNER, S.L.
Tel. +351 914 003 737
info@euchner.pt

Spain

EUCHNER, S.L.
Gurutze 12 - Local 1
Poligono Belartza
20018 San Sebastian
Tel. +34 943 316-760
info@euchner.es

Sweden

EUCHNER Svenska AB
Sjöängsvägen 7
192 72 Sollentuna
Tel. + 46 8 912 822
info@euchner.se

Switzerland

EUCHNER AG
Falknisstrasse 9a
7320 Sargans
Tel. +41 81 720-4590
info@euchner.ch

Turkey

EUCHNER End. Emn. Tek. Ltd. Şti.
Girne Mahallesi, Dörtel Çıkmazı Sokak,
Bina No. 1/A, No. 4,
34852 Maltepe-İstanbul
Tel. +90 216 5211000
info@euchner.com.tr

United Kingdom

EUCHNER (UK) Ltd.
Capstone House
Dunston Way
Chesterfield
S41 9RD
Tel. +44 114 2560123
sales@euchner.co.uk

USA

EUCHNER USA Inc.
1665 N. Penny Lane
Schaumburg, Illinois 60173
Tel. +1 315 701-0315
info@euchner-usa.com

EUCHNER USA Inc.
Detroit Office
1650 Research Drive, Suite 105
Troy, Michigan 48083
Tel. +1 315 701-0315
info@euchner-usa.com

Germany

Augsburg

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Julius-Spokojny-Weg 8
86153 Augsburg
Tel. +49 821 56786540
peter.klopper@euchner.de

Berlin

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Ulmenstraße 115a
12621 Berlin
Tel. +49 30 50508214
alexander.walz@euchner.de

Chemnitz

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Am Vogelherd 2
09627 Bobritzsch-Hilbersdorf
Tel. +49 37325 906000
jens.zehrtner@euchner.de

Düsseldorf

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Tippgarten 3
59427 Unna
Tel. +49 2308 9337284
christian.schimke@euchner.de

Essen

Thomas Kreißl
fördern - steuern - regeln
Hackenberghang 8a
45133 Essen
Tel. +49 201 84266-0
info@kreissl-essen.de

Lübeck

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Am Stadtrand 13
23556 Lübeck
Tel. +49 451 88048371
martin.pape@euchner.de

Nürnberg

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Steiner Straße 22a
90522 Oberasbach
Tel. +49 911 6693829
ralf.paulus@euchner.de

Stuttgart

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Kohlhammerstraße 16
70771 Leinfelden-Echterdingen
Tel. +49 711 7597-0
oliver.laier@euchner.de
uwe.kupka@euchner.de

Villingen-Schwenningen

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Untere Vorstadt 13
78564 Wehingen
Tel. +49 7426 9638447
thomas.moosbrucker@euchner.de

Wiesbaden

EUCHNER GmbH + Co. KG
Ingenieur- und Vertriebsbüro
Adolfsallee 3
65185 Wiesbaden
Tel. +49 611 98817644
giancarlo.pasquesi@euchner.de



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EUCHNER GmbH + Co. KG

Kohlhammerstraße 16
70771 Leinfelden-Echterdingen
Germany
Tel. +49 711 7597-0
Fax +49 711 753316
info@euchner.de
www.euchner.com

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