

# Transponder-coded safety systems

with external evaluation



**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 60 years.

The medium-sized family-operated company based in Leinfelden, Germany, employs around 750 people around the world.

17 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

 **made  
in  
Germany**

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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 people, machines and processes. They are based on non-contact transponder technology 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 or in the field.

### 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. All components in this catalog are part of a system with external evaluation

### Internal evaluation

Transponder signals are evaluated in the field, not in the control cabinet.

**You will find more information on these devices in the catalog for transponder-coded safety switches or at [www.euchner.com](http://www.euchner.com).**

## The advantages of transponder-coded safety systems

Transponder-coded safety systems 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
- More tolerance on the door guide

- Less susceptible to vibration and shock
- The actuator can be rotated within the read head's operating distance.
- Insensitive to dirt on the surface
- Can be used in harsh environment
- Suitable for areas with increased hygiene requirements
- Depending on the application, a device with a suitable operating distance can be selected

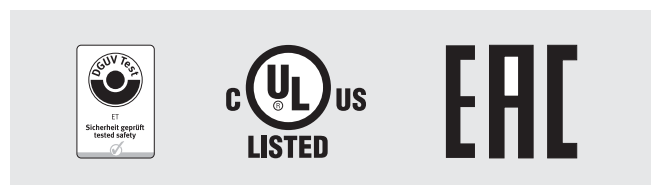
## Type examinations and approvals

EUCHNER is allowed to undertake 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 undertaken 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, multiple approvals 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](http://www.euchner.com).**

## Selection criteria


### Evaluation units

#### Control cabinet evaluation unit CES-AZ

 CES evaluation units combine transponder evaluation with a safety relay in a single device. Depending on version, up to four read heads can be connected. They feature two safety outputs and monitoring outputs for each connected read head, and they also possess connections for a monitored start button and feedback loop. The safety outputs are switched

via relay contacts and permit direct connection of contactors and loads up to 6 A. The devices are each available with unicode and multicode evaluation. The device status can be seen at any time via the indicator LEDs.

#### Field evaluation unit CES-FD

 This device permits evaluation in the field. The devices are particularly suitable for the connection of safety evaluation units and safety control systems that require short test pulses. The M12 plug connector makes it possible to forward the safety signals directly to an IP 67 field module in a decentral peripheral system, e.g. ET200pro from SIEMENS.

The safe semiconductor outputs have short circuit monitoring and correspond to the standard of the system family AP. The device status can be seen at any time via the indicator LEDs.

### Read heads


The read head is fastened to the fixed part of the guard and is connected to the evaluation unit via a two-core screened cable. The actuator fastened to the guard is moved towards the read head by closing the door. When the switch-on distance is reached, power is supplied to the actuator via the read head and the read head transfers the actuator's data to the evaluation unit.

Actuator and read head have a wide operating distance and a broad hysteresis. Misalignment of the door will therefore not result in the system

switching off unintentionally. If the actuator is positioned exactly at the limit of the switch-on distance, vibration at the guard will not cause the machine to stop unintentionally.


EUCHNER provides read heads in a very wide range of designs, with and without guard locking.

#### Read heads without guard locking (interlocking)

 Interlocking is a feature that ensures a dangerous machine movement cannot be undertaken as long as a guard is open.


For this purpose EUCHNER has read heads that, in combination with the evaluation unit, safely detect whether the actuator is in the operating distance and the guard is closed.

#### Read heads with guard locking

 Guard locking is a feature that prevents the unintentional opening of a door as long as there is a hazard. For this purpose, EUCHNER has read heads with guard locking in its range. They function like any other CES read head, but also contain a guard locking mechanism.

Different safety levels can be achieved depending on the evaluation unit used. You will find exact information on the level of safety that can be achieved in the combinations tables for each product.

#### Key adapter CKS

 These devices represent a special type of read head. The CKS does not monitor the door position, but instead detects whether there is a CKS key in the device. This safe key detection can prevent the starting

of hazardous movements if the key is not inserted, for example. The possible applications are very wide ranging.

## Coding

Each transponder actuator from EUCHNER features unique coding and significantly surpasses the requirement 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 evaluation unit. During the teach-in operation, the actuator code is assigned to the evaluation unit. This code is saved in the evaluation unit. Whenever an actuator is read, the evaluation unit compares the code just read with the last code saved. Only if the two bit patterns are identical is the actuator detected and the enable paths are closed. The number of possible teach-in operations is dependent of the evaluation unit used. Only the last actuator taught in is detected. Unicode detection provides a high level of protection against tampering.

### Fixcode evaluation

With fixcode devices, the teach-in operation is performed at EUCHNER prior to delivery. An actuator is permanently assigned to the device in this process. The device can be operated only with this one actuator. No additional actuators can be taught in.

### Multicode evaluation

Unlike systems with unique code detection, with multicode evaluation a specific actuator code is not requested, 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

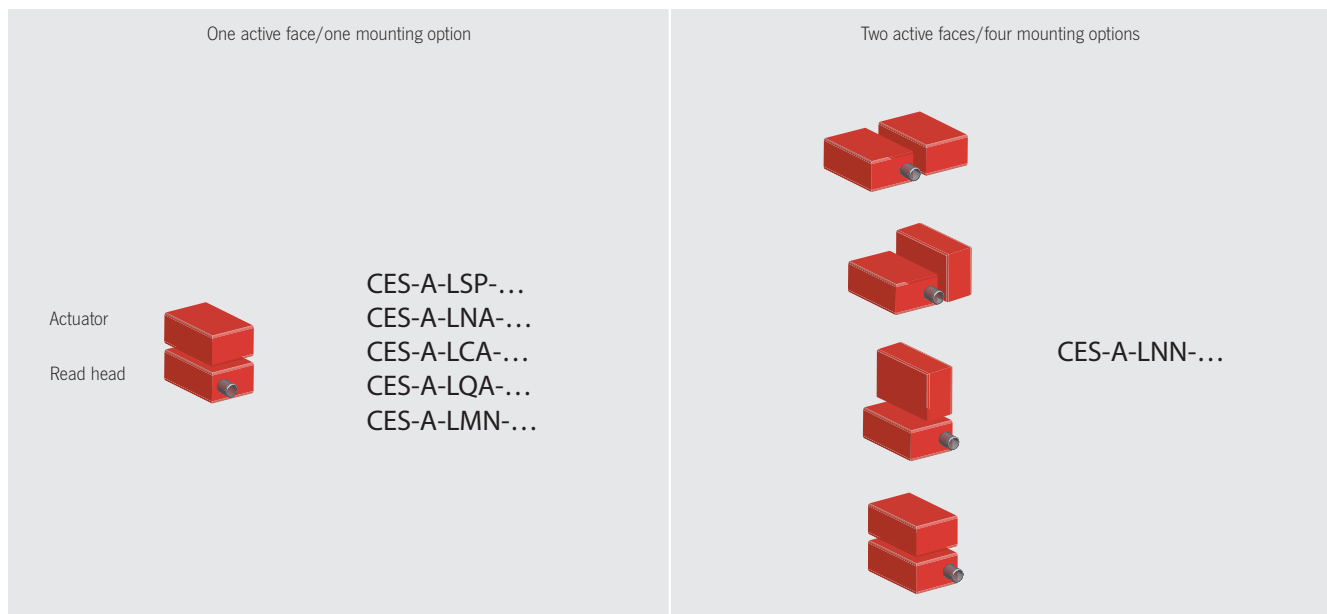
The operating distances indicate the distance between the actuator and sensor from which a switching process is triggered. The active faces on the actuator and read head define these distances. The faces must be parallel to each other on approach.

### Approach directions

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

## The transponder field

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



## The transponder field

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

### Switch-on distance, switch-off distance and hysteresis

On moving an actuator toward a switch, a switching signal is triggered on reaching the switch-on 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 switch-off distance. As the switch-on distance and switch-off 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 switch-off distance $s_{ar}$

According to EN 60947-5-3, the assured switch-off 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

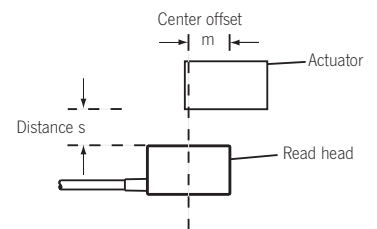
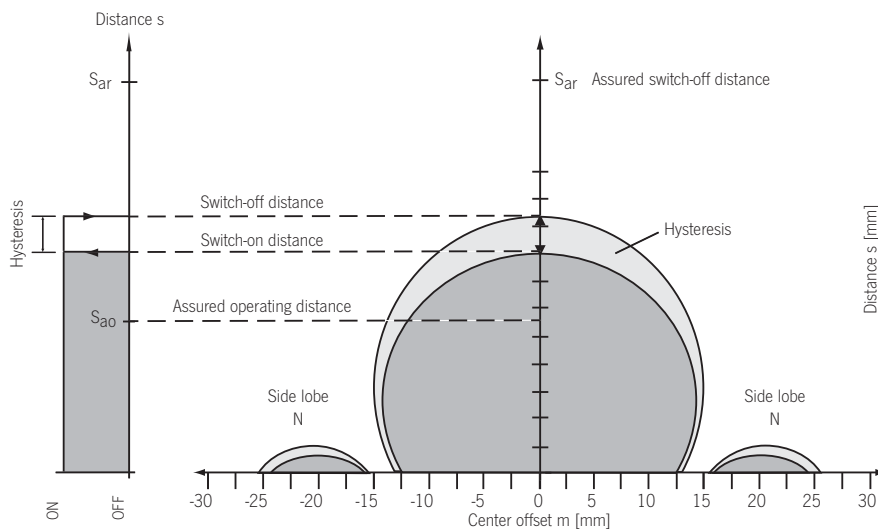
The device detects if the actuator wanders out of the operating distance and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

### 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 in general not possible, as the field is attenuated excessively.

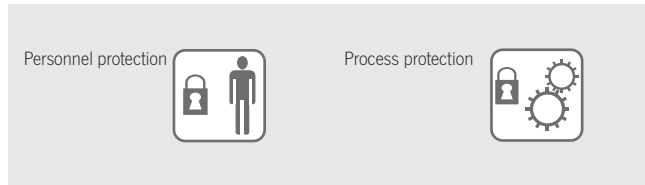


## Guard locking type

### Process protection or personnel protection?

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 for process protection is not monitored. 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 guard locking pin is moved, which prevents the removal of the actuator (form 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 two guard locking principles:

Guard locking method	Closed-circuit current principle	Open-circuit current principle
Electromechanical guard locking	Guard locking actuated by spring force applied and power-ON released	Guard locking actuated by power-ON applied and spring released
Magnetic guard locking		Guard locking actuated by power-ON applied and released by power-OFF applied



## Evaluation units

### CES-AZ

- ▶ Evaluation of signals in the control cabinet
- ▶ Versions for the connection of one, two or four read heads
- ▶ Integrated safety relay
- ▶ Two relay safety outputs (relay contacts)
- ▶ PL e/category 4 according to EN ISO 13849-1
- ▶ Available in the unicode and multicode variants



### CES-FD

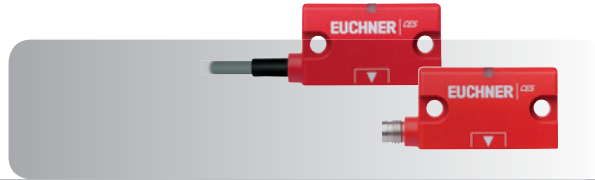
- ▶ Evaluation of signals in the field
- ▶ Connection of a CES read head or a CKS key adapter via plug connector
- ▶ Familiar EUCHNER AP interface
- ▶ Direct connection to IP 67 field modules for various decentral peripheral systems
- ▶ PL e/category 4 according to EN ISO 13849-1
- ▶ Available in the unicode and multicode variants



## Read heads without guard locking

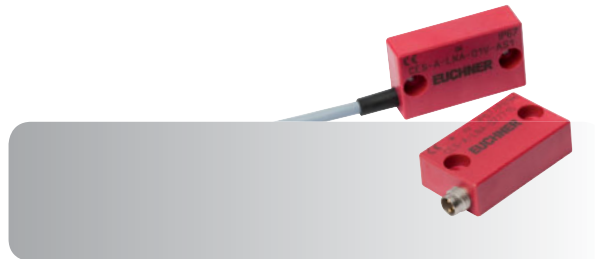
### CES-A-LNN

- ▶ Cube-shaped design 42 x 25 mm
- ▶ Two active faces
- ▶ LED for the indication of the door position
- ▶ Degree of protection IP 67
- ▶ M8 plug connector/connecting cable



### CES-A-LNA/CES-A-LNC

- ▶ Cube-shaped design 42 x 25 mm
- ▶ One active face
- ▶ Degree of protection IP 67/IP 69/IP 69K
- ▶ Version with increased resilience to aggressive media
- ▶ M8 plug connector/connecting cable



### CES-A-LQA

- ▶ Square design 50 x 50 mm
- ▶ One active face
- ▶ Large tolerance for center offset
- ▶ Degree of protection IP 67
- ▶ M8 plug connector



### CES-A-LSP

- ▶ Very flat design
- ▶ Optimized for profile mounting
- ▶ One active face
- ▶ LED for the indication of the door position
- ▶ Degree of protection IP 67
- ▶ M5 plug connector/connecting cable



### CES-A-LMN

- ▶ Cylindrical design M12
- ▶ One active face
- ▶ Suitable for pressure ranges up to 10 bar
- ▶ Large temperature range
- ▶ Degree of protection IP 67/IP 69/IP 69K
- ▶ M8 plug connector



## Read heads with guard locking

### CEM-A

- ▶ Magnetic guard locking for process protection
- ▶ Locking force 650 N or 1,000 N
- ▶ Version with adjustable adhesive force (acts with guard locking inactive)
- ▶ Degree of protection IP 67
- ▶ LED indicator (voltage at solenoid)



### CET-AX

- ▶ Guard locking for personnel protection according to EN 14119
- ▶ Very high locking force up to 6,500 N
- ▶ Head can be rotated in 90° steps
- ▶ Actuator guide with large freedom of movement
- ▶ Metal housing
- ▶ Degree of protection IP 67
- ▶ LED indicator (guard locking position)
- ▶ M8/M12 plug connector



## Key Adapter CKS

### CKS

- ▶ Key adapter with integrated CES read head
- ▶ Safe detection of the CKS key in the key adapter
- ▶ M8 plug connector
- ▶ For installation in control panel



## 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 mechanical key release (1)

Option for manual guard locking release using a tool or key from outside danger area in the event of a malfunction.

#### Escape release (2)

Option for manual guard locking release to leave the danger area from the escape side (danger area) without tools.

#### Emergency unlocking (3)

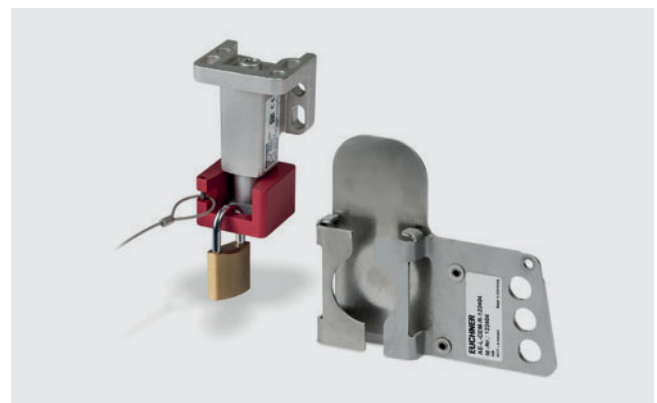
Option for manual guard locking release without tools from the access side (outside the danger area) in case of danger. The emergency unlocking mechanism must be returned to the locked state manually.



### 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.

A removable lockout bar that blocks the switch head or the actuator is available for this purpose.



## 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 read head and the actuator and that could damage the read head and actuator.

There are bolts for many safety switches from EUCHNER. Some as a set with pre-assembled read head and actuator.

### Function expansions that can be retrofitted

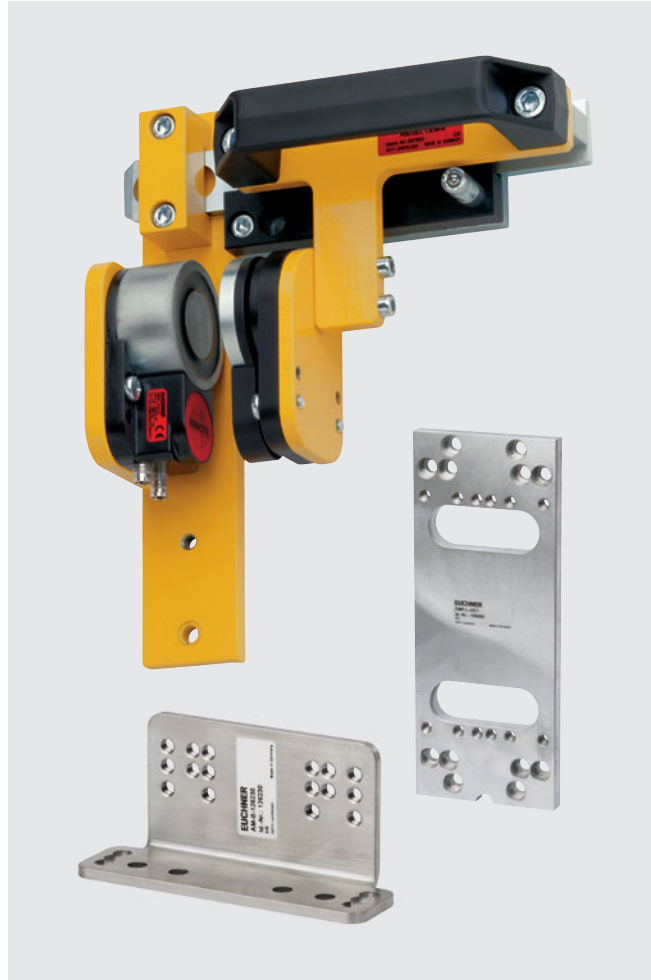
For some devices there are function expansions that can be retrofitted, e.g. manual releases, cover plates, lockout bars and much more. You can find suitable accessories for your device very simply at [www.euchner.com](http://www.euchner.com).

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

### Installation material

EUCHNER offers mounting plates and brackets for many devices for a wide variety of fastening situations. You can find suitable accessories for your device very simply at [www.euchner.com](http://www.euchner.com).





“Evaluation and safety relay in one device – cost-effective solution for up to four safety doors.”

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- ▶ Evaluation of transponder signals in the control cabinet
- ▶ Up to four read heads can be connected
- ▶ Two pairs of safe relay contacts
- ▶ Start button and feedback loop can be connected
- ▶ Plug-in connection terminals
- ▶ PL e/category 4 according to EN ISO 13849-1





CES  
CET  
CEM  
CKS



**Evaluation unit CES-AZ-.ES-01B**



- ▶ One read head can be connected
- ▶ Two safety outputs (relay contacts with two internally connected NO contacts per output)
- ▶ Start button and feedback loop can be connected
- ▶ Plug-in connection terminals

**Details**

**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

**Guard lock monitoring**

Evaluation units in the series CES-AZ also make it possible to use read heads with integrated guard locking for personnel protection during overtraveling machine movements. For suitable read heads, please refer to the ordering table below.

**Category according to EN ISO 13849-1**

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

- ▶ PL e/category 4 according to EN ISO 13849-1

Each safety path is independently safe.

**LED indicator**

**STATE** Status LED  
**DIA** Diagnostics LED  
**OUT** Safety output status

**Additional connections**

**TST** Input for self-test  
**O1** Monitoring output (semiconductor)  
**DIA** Diagnostics output  
**Y1, Y2** Feedback loop  
**S** Start button connection (monitoring of the falling edge)

**Notice**

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

**Further information**

- ▶ Dimension drawings see p. 19
- ▶ 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](http://www.euchner.com).




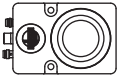


**Ordering table**

**Evaluation unit**


Series	Version	Order no./item	
<b>CES-AZ-AES-01B</b> Unicode		<b>104770</b> CES-AZ-AES-01B	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
<b>CES-AZ-UES-01B</b> Multicode		<b>105139</b> CES-AZ-UES-01B	
<b>Connection kits</b> for evaluation unit CES-AZ-...-01B	Plug-in screw terminals	<b>104756</b> CES-EA-TC-AK04-104756	
	Plug-in spring terminals	<b>112631</b> CES-EA-TC-KK04-112631	

**Read heads**

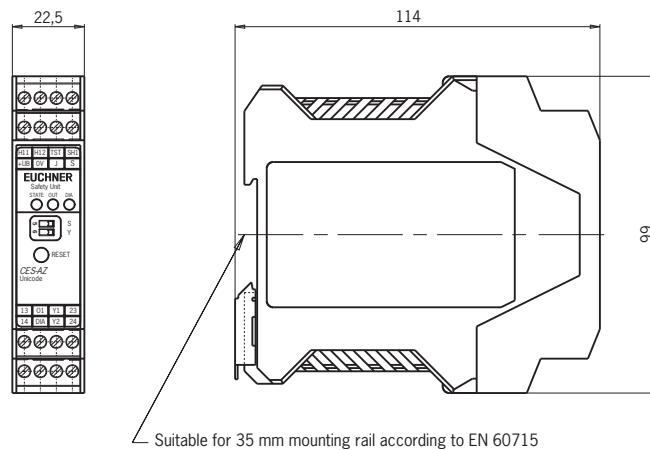
Series	Design	Guard locking	Typ. switch-on distance [mm]	
<b>CES-A-LNN-...</b>		–	15	Page 30
		–	15	
<b>CES-A-LNA-...</b>		–	15	Page 32
		–	15	
<b>CES-A-LCA-...</b>		–	15	Page 32
<b>CES-A-LQA-...</b>		–	23	Page 34
<b>CES-A-LSP-...</b>		–	20	Page 36
		–	20	
<b>CES-A-LMN-...</b>		–	5	Page 38
<b>CKS-A-...</b>		–	–	Page 60

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CEM-A-...			-	Page 42
				
CET-AX-...			-	Page 52

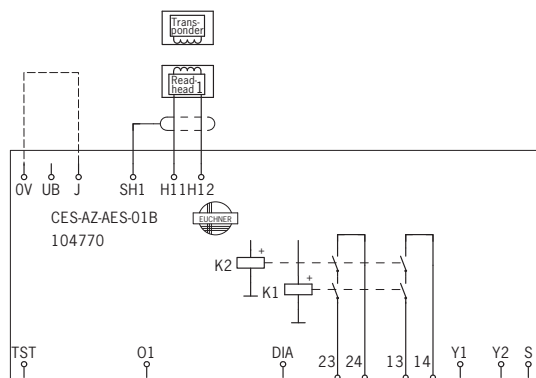
**Accessories**

Type	Version	
<b>PM-SCL</b> Inrush current limiting module	For CES evaluation units	Page 71

**Dimension drawing**



**Block diagram**



**Evaluation unit CES-AZ-.ES-02B**



- ▶ Two read heads can be connected
- ▶ Two safety outputs (relay contacts with two internally connected NO contacts per output)
- ▶ Start button and feedback loop can be connected
- ▶ Plug-in connection terminals

**Details**

**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

**Guard lock monitoring**

Evaluation units in the series CES-AZ also make it possible to use read heads with integrated guard locking for personnel protection during overtraveling machine movements. For suitable read heads, please refer to the ordering table below.

**Category according to EN ISO 13849-1**

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

- ▶ PL e/category 4 according to EN ISO 13849-1

Each safety path is independently safe.

**LED indicator**

- STATE** Status LED
- DIA** Diagnostics LED
- OUT** Safety output status

**Additional connections**

- TST** Input for self-test
- O1, O2** Monitoring outputs (semiconductor)
- DIA** Diagnostic output
- Y1, Y2** Feedback loop
- S** Start button connection (monitoring of the falling edge)

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**Further information**

- ▶ Dimension drawings see p. 21
- ▶ Accessories and spare parts see p. 21
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).




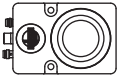


**Ordering table**

**Evaluation unit**


Series	Version	Order no./item	
<b>CES-AZ-AES-02B</b> Unicode	 p-switching	<b>104775</b> CES-AZ-AES-02B	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
<b>CES-AZ-UES-02B</b> Multicode		<b>105140</b> CES-AZ-UES-02B	
<b>Connection kits</b> for evaluation unit CES-AZ-...-02B	Plug-in screw terminals	<b>104771</b> CES-EA-TC-AK06-104771	
	Plug-in spring terminals	<b>112630</b> CES-EA-TC-KK06-112630	

**Read heads**

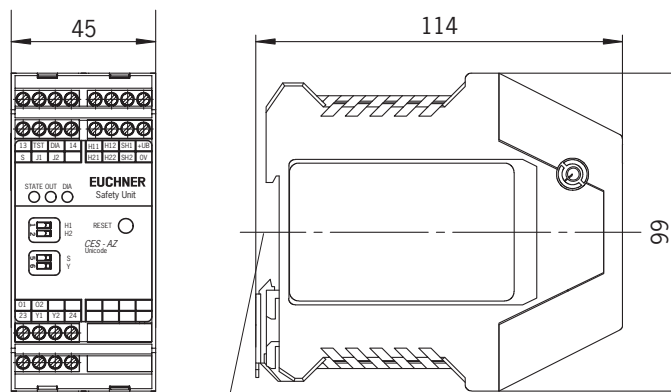
Series	Design	Guard locking	Typ. switch-on distance [mm]	
<b>CES-A-LNN-...</b>		-	15	Page 30
		-	15	
<b>CES-A-LNA-...</b>		-	15	Page 32
		-	15	
<b>CES-A-LCA-...</b>		-	15	Page 32
<b>CES-A-LQA-...</b>		-	23	Page 34
<b>CES-A-LSP-...</b>		-	20	Page 36
		-	20	
<b>CES-A-LMN-...</b>		-	5	Page 38
<b>CKS-A-...</b>		-	-	Page 60

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CEM-A-...			-	Page 42
				
CET-AX-...			-	Page 52

**Accessories**

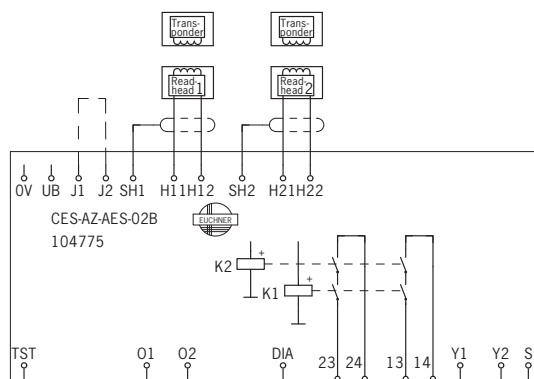
Type	Version	
<b>PM-SCL</b> Inrush current limiting module	For CES evaluation units	Page 71

**Dimension drawing**



Suitable for 35 mm mounting rail according to EN 60715

**Block diagram**



**Evaluation unit CES-AZ-.ES-04B**



- ▶ Four read heads can be connected
- ▶ Two safety outputs (relay contacts with two internally connected NO contacts per output)
- ▶ Start button and feedback loop can be connected
- ▶ Plug-in connection terminals

**Details**

**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

**Guard lock monitoring**

Evaluation units in the series CES-AZ also make it possible to use read heads with integrated guard locking for personnel protection during overtraveling machine movements. For suitable read heads, please refer to the ordering table below.

**Category according to EN ISO 13849-1**

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

- ▶ PL e/category 4 according to EN ISO 13849-1

Each safety path is independently safe.

**LED indicator**

- STATE** Status LED
- DIA** Diagnostics LED
- OUT** Safety output status

**Additional connections**

- TST** Input for self-test
- O1...O4** Monitoring outputs (semiconductor)
- DIA** Diagnostic output
- Y1, Y2** Feedback loop
- S** Start button connection (monitoring of the falling edge)

**Notice**

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

**Further information**

- ▶ Dimension drawings see p. 23
- ▶ Accessories and spare parts see p. 23
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

**Ordering table**


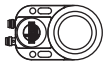


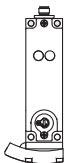

**Evaluation unit**

Series	Version	Order no./item	
<b>CES-AZ-AES-04B</b> Unicode	Monitoring outputs p-switching	<b>104780</b> CES-AZ-AES-04B	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
<b>CES-AZ-ALS-04B</b> Unicode	Monitoring outputs n-switching	<b>113090</b> <sup>1)</sup> CES-AZ-ALS-04B	
<b>CES-AZ-UES-04B</b> Multicode	Monitoring outputs p-switching	<b>105141</b> CES-AZ-UES-04B	
<b>Connection kits</b> for evaluation unit CES-AZ-...-04B	Plug-in screw terminals	<b>104776</b> CES-EA-TC-AK08-104776	
	Plug-in spring terminals	<b>112629</b> CES-EA-TC-KK08-112629	


1) No UL or German Social Accident Insurance approval

**Read heads**

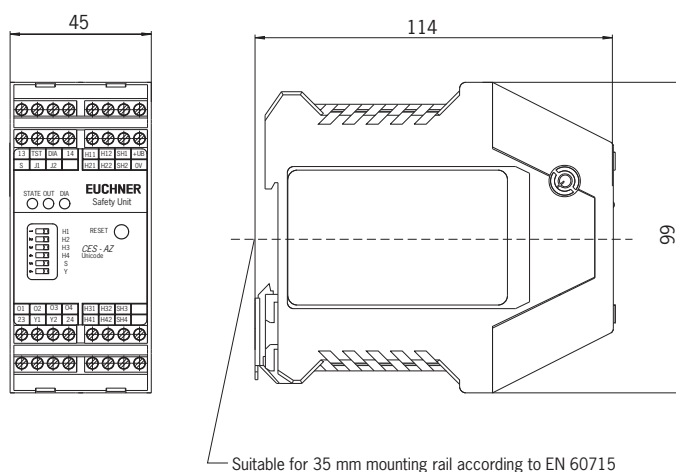
Series	Design	Guard locking	Typ. switch-on distance [mm]	
<b>CES-A-LNN-...</b>		-	15	Page 30
		-	15	
<b>CES-A-LNA-...</b>		-	15	Page 32
		-	15	
<b>CES-A-LCA-...</b>		-	15	Page 32
<b>CES-A-LQA-...</b>		-	23	Page 34
<b>CES-A-LSP-...</b>		-	20	Page 36
		-	20	
<b>CES-A-LMN-...</b>		-	5	Page 38
<b>CKS-A-...</b>		-	-	Page 60

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CEM-A-...			-	Page 42
				
CET-AX-...			-	Page 52

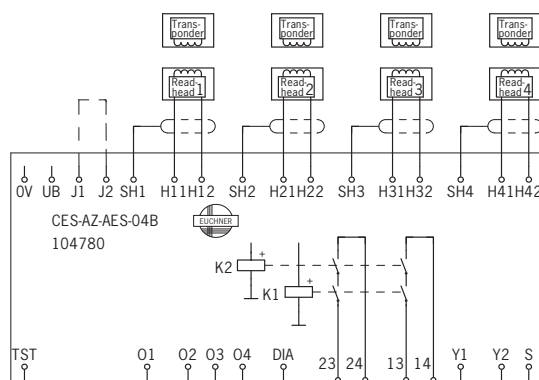
**Accessories**

Type	Version	
<b>PM-SCL</b> Inrush current limiting module	For CES evaluation units	Page 71

**Dimension drawing**



**Block diagram**



“Evaluation and forwarding of the signals to the control system directly in the field – ideal for field-based connection concepts.”

---

- ▶ Evaluation of transponder signals in the field
- ▶ For one read head
- ▶ Direct connection to IP 67 field modules for various decentral peripheral systems
- ▶ Two safe semiconductor outputs (EUCHNER system family AP)
- ▶ Minimal wiring effort
- ▶ Own pulsing for short circuit detection
- ▶ Small space requirement
- ▶ PL e/category 4 according to EN ISO 13849-1





CES  
CKS



**Field evaluation unit CES-FD-AP-...**



- ▶ Connection of a CES read head or a CKS key adapter
- ▶ Evaluation of signals in the field
- ▶ Connection to the ET200s and ET200pro
- ▶ Familiar EUCHNER AP interface
- ▶ Limit-range indication

**Details**

**Available coding options**

- ▶ Unicode evaluation
- ▶ Multicode evaluation

**Short circuit monitoring**

The switch generates its own clock signal on the output lines F01A/F01B. Pay attention to this aspect when connecting to control systems and relays.

**Category according to EN ISO 13849-1**

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

- ▶ PL e/category 4 according to EN ISO 13849-1

**LED indicator**

**STATE** Status LED  
**DIA** Diagnostics LED

**Further information**

- ▶ Dimension drawings see p. 27
- ▶ Accessories and spare parts see p. 26
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

**Ordering table**

**Field evaluation unit**

Series	Version		Order no./item	
CES-FD-AP-U-01-... Unicode	<b>A</b>	<b>B</b>	<b>119865</b> CES-FD-AP-U-01-USI-119865	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
CES-FD-AP-M-01-... Multicode	<b>M12</b> <b>5 pin</b>	<b>M8</b> <b>3 pin</b>	<b>115534</b> CES-FD-AP-M-01-USI-115534	

**Read heads**

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CES-A-LMN-...		-	5	Page 38
CKS-A-...		-	-	Page 60

**Accessories**

Type	Version		
<b>Connection material</b>	Connecting cable with plug connector 	<b>M12</b> <b>5 pin</b>	Page 68
	Extension for read head connection 	<b>M8</b> <b>3 pin</b>	Page 65

M12

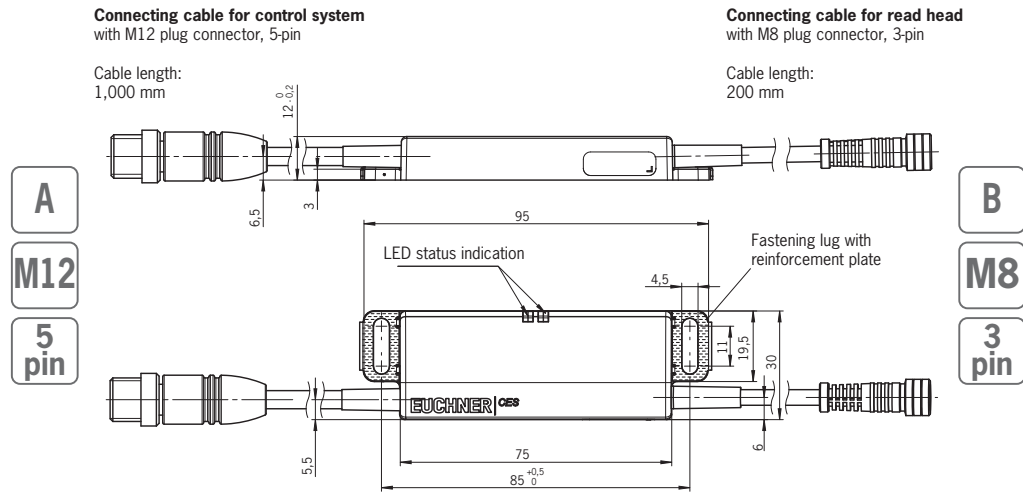
5 pin

M8

3 pin

FD

## Dimension drawing



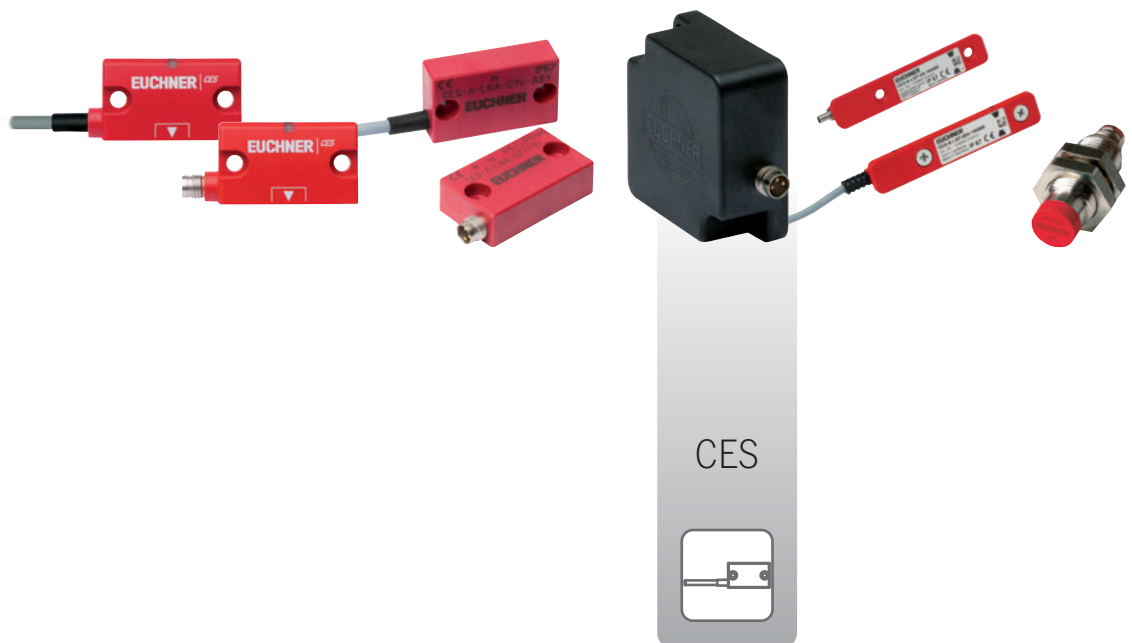
## Terminal assignment

A		Pin	Designation	Function	Wire color
M12	5 pin	Without monitoring output (pin 5 not used)			
		1	UB	Power supply DC 24 V	BN
		2	FO1A	Safety output, channel 1	WH
		3	0V	Ground DC 0 V	BU
		4	FO1B	Safety output, channel 2	BK
		-	-	-	GY
B		Pin	Designation	Function	Wire color
M8	3 pin				
		1	H1	Data line	BN
		2	H2	Data line	WH
		3	SH	Shield	-

“Large selection of read heads – find the right sensor for every purpose.”

---

- ▶ Read heads optimized for special applications
- ▶ Evaluation of different actuator designs
- ▶ Numerous combination options
- ▶ Various operating distances
- ▶ With either plug connector or fixed connecting cable
- ▶ LED for the indication of the door position (depending on version)



**Read head CES-A-LNN-...**



**Details**

**Combination options**

See ordering table below.

**Notice**

▶ Actuators must be ordered separately!

**Further information**

- ▶ Dimension drawings see p. 31
- ▶ Accessories and spare parts see p. 30
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

- ▶ Cube-shaped design 42 x 25 mm
- ▶ Attachment compatible with series CES-A-LNA/LCA
- ▶ LED for the indication of the door position
- ▶ Two active faces

**Ordering table**

**Read head**

Series	Version	Order no./item	
CES-A-LNN-...	42 x 25	5m 106602 CES-A-LNN-05V-106602	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
		10m 113294 CES-A-LNN-10V-113294	
		25m 115107 CES-A-LNN-25V-115107	
	M8 3 pin 106601 CES-A-LNN-SC-106601		
	42 x 25		

**Actuator**

Series	Design	Typ. switch-on distance [mm]	Order no./item	
CES-A-BBN	42 x 25	15	106600 CES-A-BBN-106600	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
CES-A-BDN	Ø6 x 26	19	104730 CES-A-BDN-06-104730	

**Accessories**

Type	Version	
Connection material	Connecting cable with plug connector 	M8 3 pin Page 65
Fixing material	Safety screws	Page 76

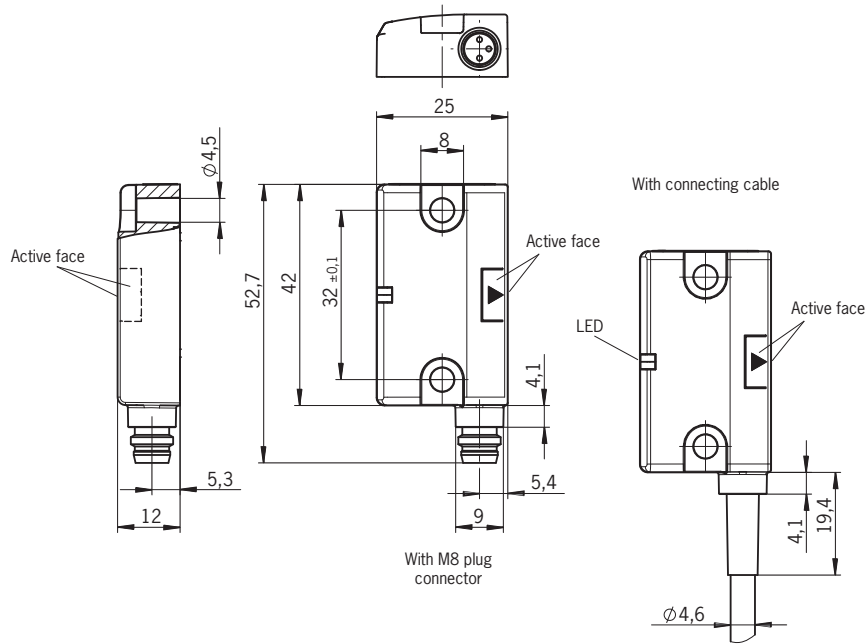


3  
pin

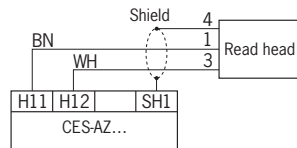
M8

3  
pin

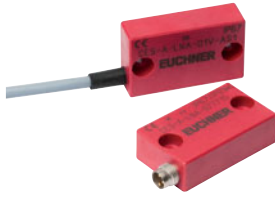
**Dimension drawing**



**Terminal assignment**



**Read head CES-A-LCA-.../CES-A-LNA-...**



**Details**

**Combination options**

See ordering table below.

**Notice**

▶ Actuators must be ordered separately!

**Further information**

- ▶ Dimension drawings see p. 33
- ▶ Accessories and spare parts see p. 33
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

- ▶ Cube-shaped design 42 x 25 mm
- ▶ Version with plug connector suitable for snap-action and screw terminals
- ▶ One active face

**Ordering table**

Read head

Series	Version	Order no./item		
CES-A-LCA-...	42 x 25 Material: PE-HD <sup>1)</sup>	10m PVC	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .	
	CES-A-LNA-...	42 x 25		5m
10m				<b>071846</b> CES-A-LNA-10V
PVC 15m				<b>071847</b> CES-A-LNA-15V
25m				<b>071975</b> CES-A-LNA-25V
5m				<b>077806</b> CES-A-LNA-05P
10m				<b>077807</b> CES-A-LNA-10P
PUR 15m				<b>084682</b> CES-A-LNA-15P
42 x 25				M8 3 pin

1) Suitable for use in aggressive media (e.g. acids, alkalines)





3 pin

M8

3 pin

# CES

## Actuator

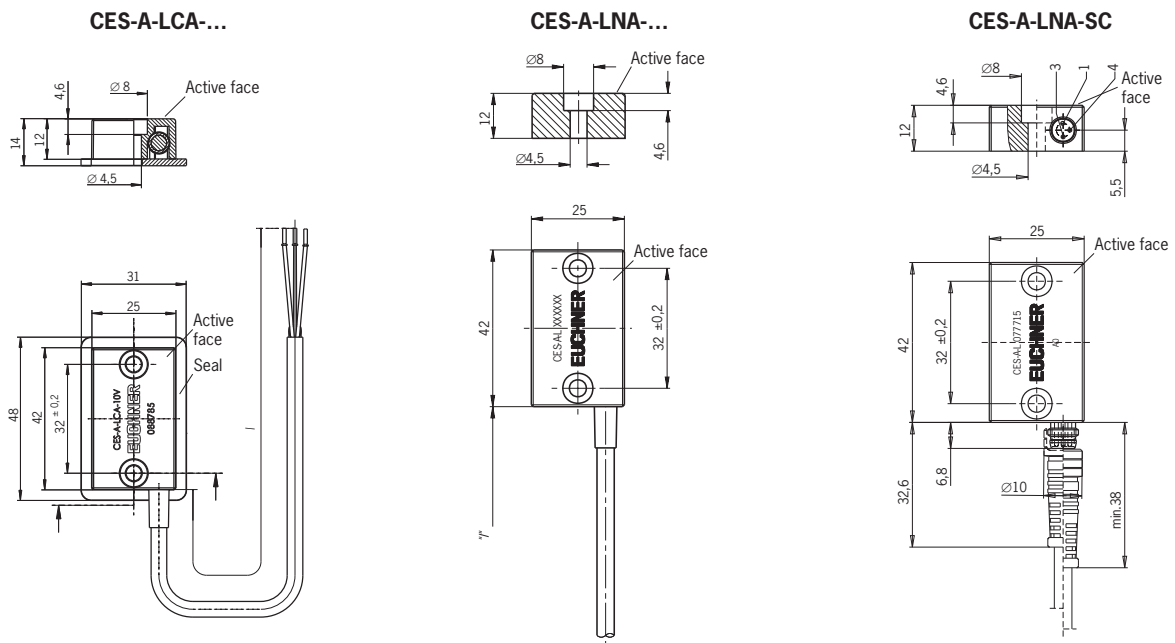
Series	Design	Typ. switch-on distance [mm]	Order no./item	
CES-A-BCA	42 x 25 Material: PE-HD <sup>1)</sup>	15	<b>088786</b> CES-A-BCA	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
CES-A-BBA	42 x 25		<b>071840</b> CES-A-BBA	
CES-A-BDA	Ø20	16	<b>084720</b> CES-A-BDA-20	
CES-A-BDA-18	Ø18	16	<b>156935</b> CES-A-BDA-18	

1) Suitable for use in aggressive media (e.g. acids, alkalines)

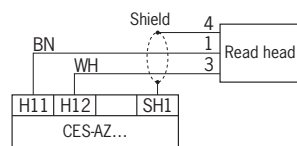
## Accessories

Type	Version	
Connection material	Connecting cable with plug connector 	<b>M8</b> <b>3 pin</b> Page 65
Bolts	Bolts for read head CES-A-LNA... 	Page 72
Fixing material	Safety screws	Page 76

## Dimension drawing



## Terminal assignment



**Read head CES-A-LQA-...**



**Details**

**Combination options**

See ordering table below.

**Notice**

▶ Actuators must be ordered separately!

**Further information**

- ▶ Dimension drawings see p. 35
- ▶ Accessories and spare parts see p. 34
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

- ▶ Cube-shaped design 50 x 50 mm
- ▶ M8 plug connector (snap-action and screw terminals)
- ▶ Large tolerance for center offset
- ▶ One active face

**Ordering table**

**Read head**

Series	Version	Order no./item	
CES-A-LQA-...	50 x 50 <div style="display: inline-block; border: 1px solid black; padding: 2px; margin: 0 5px;">M8</div> <div style="display: inline-block; border: 1px solid black; padding: 2px; margin: 0 5px;">3 pin</div>	<b>095650</b> CES-A-LQA-SC	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

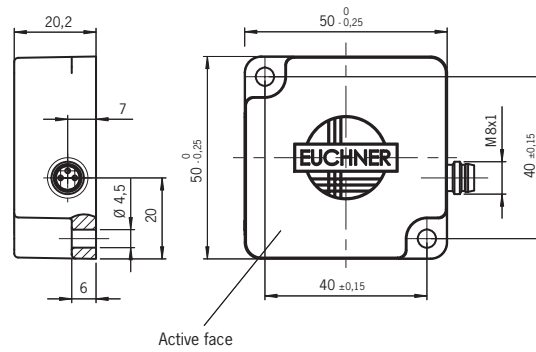
**Actuator**

Series	Design	Typ. switch-on distance [mm]	Order no./item	
CES-A-BQA	50 x 50	23	<b>098108</b> CES-A-BQA	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
CES-A-BBA	42 x 25	15	<b>071840</b> CES-A-BBA	

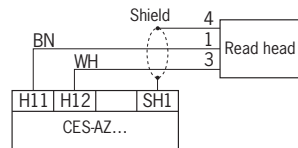
**Accessories**

Type	Version	
Connection material	Connecting cable with plug connector <div style="display: inline-block; border: 1px solid black; padding: 2px; margin: 0 5px;">M8</div> <div style="display: inline-block; border: 1px solid black; padding: 2px; margin: 0 5px;">3 pin</div>	Page 65
Fixing material	Safety screws	Page 76

**Dimension drawing**



**Terminal assignment**



**Read head CES-A-LSP-...**



**Details**

**Combination options**  
See ordering table below.

**Notice**

Actuators must be ordered separately!

**Further information**

- ▶ Dimension drawings see p. 37
- ▶ Accessories and spare parts see p. 36
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

- ▶ Optimized for aluminum profile mounting
- ▶ LED for the indication of the door position
- ▶ One active face

**Ordering table**

**Read head**

Series	Version	Order no./item	
CES-A-LSP-...	97 x 18 <div style="display: flex; gap: 5px;"> <div style="border: 1px solid black; padding: 2px;">5m</div> <div style="border: 1px solid black; padding: 2px;">PVC</div> <div style="border: 1px solid black; padding: 2px;">10m</div> </div>	<b>104966</b> CES-A-LSP-05V-104966	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
		<b>104967</b> CES-A-LSP-10V-104967	
	97 x 18 <div style="display: flex; gap: 5px;"> <div style="border: 1px solid black; padding: 2px;">M5</div> <div style="border: 1px solid black; padding: 2px;">4 pin</div> </div>	<b>104969</b> CES-A-LSP-SB-104969	

**Actuator**

Series	Design	Typ. switch-on distance [mm]	Order no./item	
CES-A-BSP	97 x 18	20	<b>104970</b> CES-A-BSP-104970	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

**Accessories**

Type	Version	
<b>Connection material</b>	Connecting cable with plug connector 	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid black; padding: 2px;">M5</div> <div style="border: 1px solid black; padding: 2px;">4 pin</div> </div> Page 64
<b>Installation material</b>	Clamping pieces for mounting on aluminum profiles	Page 75



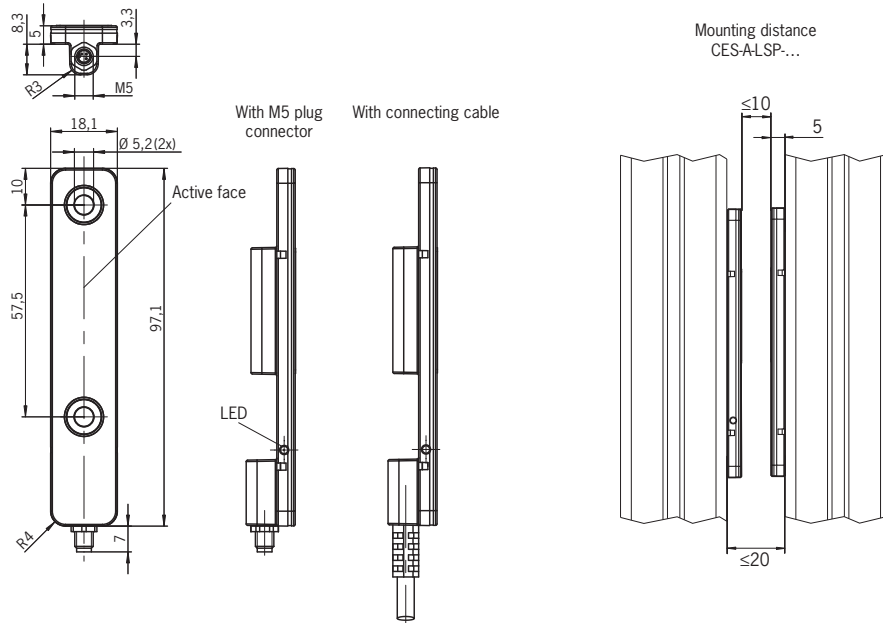
**3 pin**

**M5**

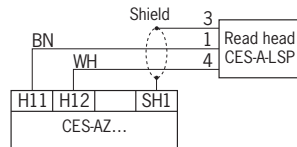
**4 pin**

**CES**

**Dimension drawing**



**Terminal assignment**



**Read head CES-A-LMN-...**



**Details**

**Combination options**

See ordering table below.

**Notice**

▶ Actuators must be ordered separately!

**Further information**

- ▶ Dimension drawings see p. 39
- ▶ Accessories and spare parts see p. 38
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

- ▶ Cylindrical design M12
- ▶ M8 plug connector (snap-action and screw terminals)
- ▶ One active face

**Ordering table**

**Read head**

Series	Version	Order no./item	
CES-A-LMN-...	 M12 x 1 <div style="display: flex; gap: 5px;"> <div style="border: 1px solid black; padding: 2px;">M8</div> <div style="border: 1px solid black; padding: 2px;">3 pin</div> </div>	<b>077790</b> CES-A-LMN-SC	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

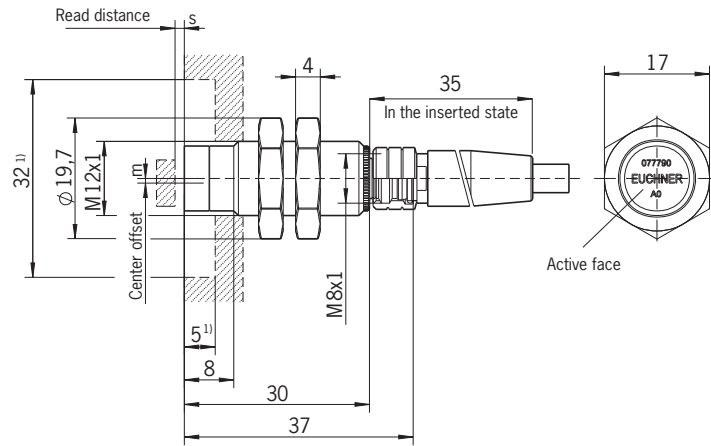
**Actuator**

Series	Design	Typ. switch-on distance [mm]	Order no./item	
CES-A-BMB	 M12 x 0.75	5	<b>077791</b> CES-A-BMB	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

**Accessories**

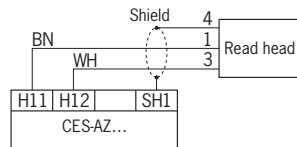
Type	Version	
Connection material	Connecting cable with plug connector <div style="display: flex; gap: 5px;"> <div style="border: 1px solid black; padding: 2px;">M8</div> <div style="border: 1px solid black; padding: 2px;">3 pin</div> </div>	Page 65

**Dimension drawing**



1) Metal-free zone

**Terminal assignment**



## “Unmonitored magnetic guard locking for process protection.”

---

- ▶ Very rugged construction
- ▶ Guard locking and door stop in one
- ▶ Locking force 650 N or 1,000 N (depending on version)
- ▶ Adjustable adhesive force (depending on version)
- ▶ With and without remanence (depending on version)
- ▶ Spring-mounted anchor plate for the actuator
- ▶ LED for the indication of the door position (depending on version)



Read  
Head

**CEM**



**CEM**

CEM



**Read head CEM-A-LE05...**  
with unmonitored guard locking for process protection



- ▶ Read head with guard locking without guard lock monitoring
- ▶ Locking force 650 N
- ▶ With and without remanence

**Details**

**Without remanence**

Read heads without remanence are de-magnetized when the solenoid is switched off. As a consequence soiling due to adhering metal chips is reduced.

For this purpose the operating voltage  $U_B$  must always be applied.

**Further information**

- ▶ Dimension drawings see p. 43
- ▶ 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](http://www.euchner.com).

**Ordering table**

**Read head**

Series	Version	Order no./item	
CEM-A-LE05...	50 x 80	With remanence 094800 CEM-A-LE05K-S2	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
		Without remanence 095792 CEM-A-LE05R-S2	


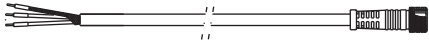


**Actuator**

Series	Design	Order no./item	
CEM-A-BE05	50 x 80	094805 CEM-A-BE05	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

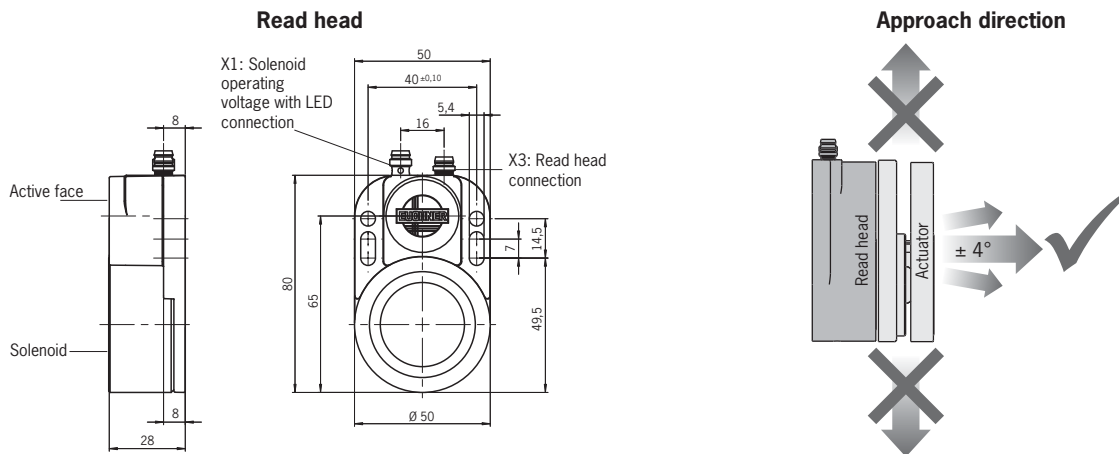
**Solenoid (without read head)**

Series	Design	Order no./item	
CEM-A-ME05K	50 x 80	109755 CEM-A-ME05K-S1-109755	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

**Accessories**

Type	Version	
<b>Connection material</b>	Connecting cable with plug connector 	<b>M8</b> <b>3 pin</b> Page 65
		<b>M8</b> <b>4 pin</b> Page 66
<b>Bolts</b>	Bolts for read heads CEM	Page 72
<b>Fixing material</b>	Mounting plates 	Page 74
	Safety screws for actuators	Page 76
<b>Miscellaneous accessories</b>	Lockout bar CEM (mounting on the actuator CEM-A-BE05) 	Page 77

**Dimension drawing**



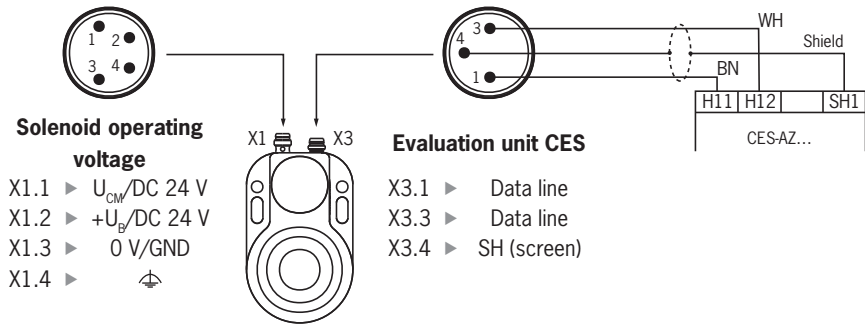
M8

3 pin

M8

4 pin

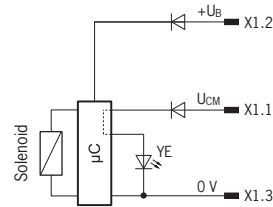
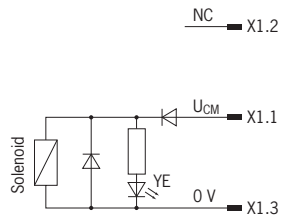
**Terminal assignment**



CEM-A-LE05K-S2  
CEM-A-ME05K-S1-109755



CEM-A-LE05R-S2



Circuit diagram for connection of solenoid operating voltage, plug X1  
A free-wheeling diode is already integrated into each CEM



**Read head CEM-A-LE05H-S2**  
with unmonitored guard locking for process protection



- ▶ Read head with guard locking without guard lock monitoring
- ▶ Locking force 650 N
- ▶ Adjustable adhesive force

**Details**

**Adjustable adhesive force**

This version has an adhesive force also with the guard locking switched off. In this way it is intended, for example, to prevent the safety door from opening due to vibration or similar. The adhesive force can be adjusted using a programming adapter to 70 N, 110 N (factory setting) or 150 N.

**Further information**

- ▶ Dimension drawings see p. 47
- ▶ 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](http://www.euchner.com).

**Ordering table**

**Read head**

Series	Version	Order no./item	
CEM-A-LE05...	50 x 80 With adjustable adhesive force (factory setting: 110 N)	<b>104606</b> CEM-A-LE05H-S2	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
CEM-A-ZPS-110013	Programming adapter for setting the adhesive force	<b>110013</b> CEM-A-ZPS-110013	

**Actuator**

Series	Design	Order no./item	
CEM-A-BE05	50 x 80	<b>094805</b> CEM-A-BE05	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

**Accessories**

Type	Version	
Connection material	Connecting cable with plug connector 	<b>M8 3 pin</b> Page 65
		<b>M8 4 pin</b> Page 66
Bolts	Bolts for read heads CEM	Page 72
Fixing material	Mounting plates 	Page 74
	Safety screws for actuators	Page 76
Miscellaneous accessories	Lockout bar CEM (mounting on the actuator CEM-A-BE05) 	Page 77

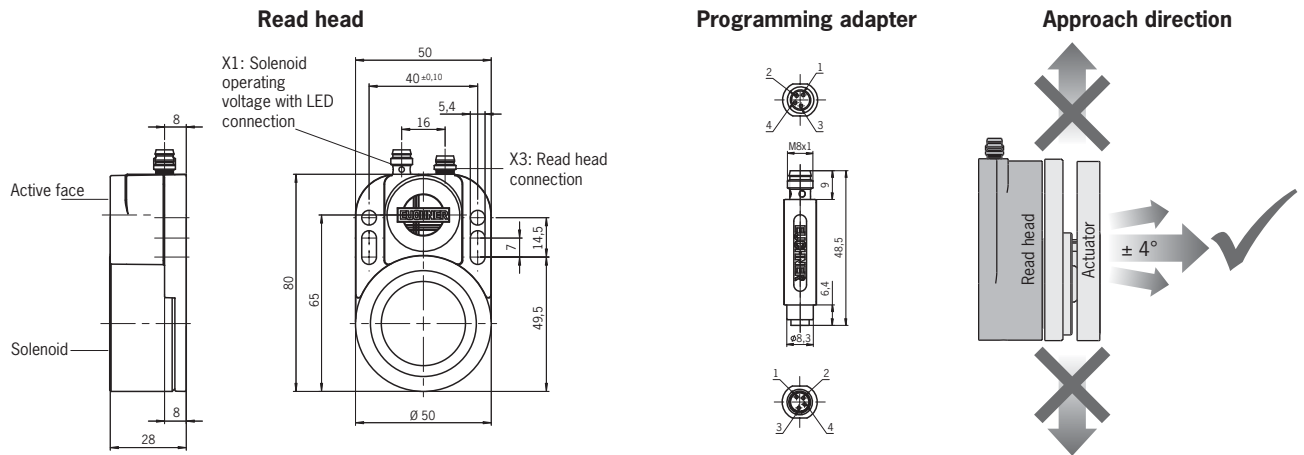
M8

3 pin

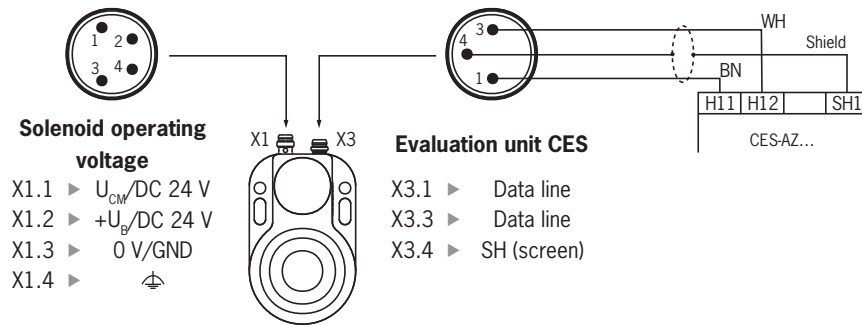
M8

4 pin

## Dimension drawing

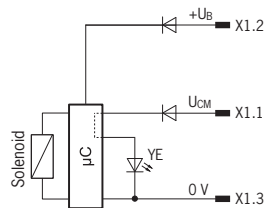


## Terminal assignment



CEM-A-LE05HS2

⚡ X1.4



Circuit diagram for connection of solenoid operating voltage, plug X1  
A free-wheeling diode is already integrated into each CEM

**Read head CEM-A-LH10...**  
with unmonitored guard locking for process protection



- ▶ Read head with guard locking without guard lock monitoring
- ▶ Locking force 1,000 N
- ▶ With and without remanence

**Details**

**Without remanence**

Read heads without remanence are de-magnetized when the solenoid is switched off. As a consequence soiling due to adhering metal chips is reduced.

For this purpose the operating voltage  $U_B$  must always be applied.

**Further information**

- ▶ Dimension drawings see p. 49
- ▶ Accessories and spare parts see p. 48
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

**Ordering table**

**Read head**

Series	Version		Order no./item	
CEM-A-LH10...		65 x 95	With remanence 095170 CEM-A-LH10K-S3	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
			Without remanence 095793 CEM-A-LH10R-S3	

**Actuator**

Series	Design	Order no./item	
CEM-A-BH10		65 x 95 095175 CEM-A-BH10	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

**Accessories**

Type	Version	
Connection material	Connecting cable with plug connector 	M8 3 pin Page 65
	Connecting cable with male plug for LED indicator 	M8 4 pin Page 66
		M8 4 pin Page 67
Fixing material	Safety screws for actuators	Page 76



M8

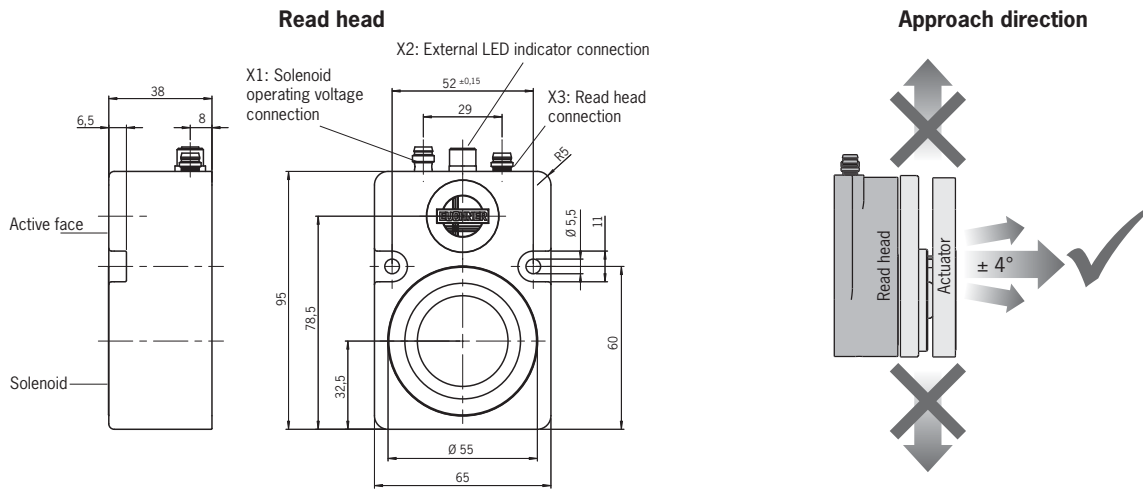
3 pin

M8

4 pin

CEM

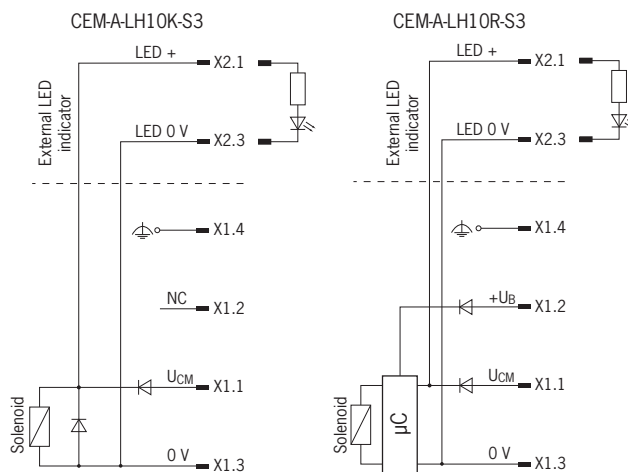
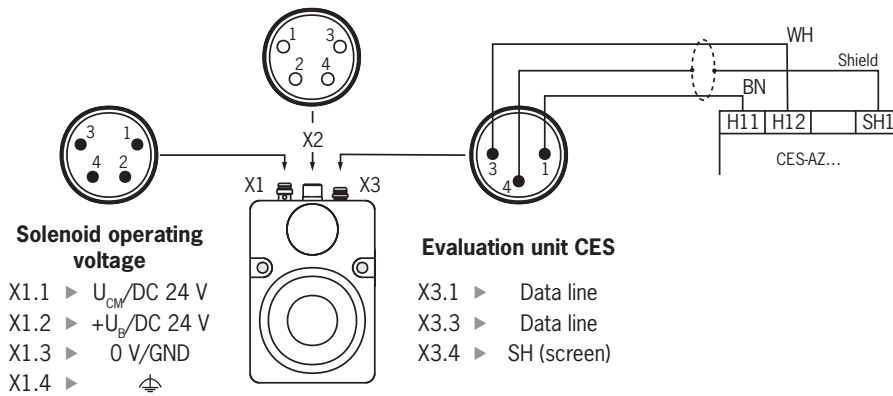
## Dimension drawing



## Terminal assignment

### External LED indicator connection

- X2.1 ▶ LED +
- X2.2 ▶ -
- X2.3 ▶ LED 0 V
- X2.4 ▶ -



Circuit diagram for connection of solenoid operating voltage, plug S1  
 A free-wheeling diode is already integrated into each CEM

# “Guard locking for personnel protection.”

---

- ▶ Locking force 6,500 N
- ▶ Robust metal housing
- ▶ No precise door adjustment necessary
- ▶ Two LED indicators

Read  
Head

**CET**



**CET**

## Read head CET.-AX-... with guard locking for personnel protection



- ▶ Read head with guard locking and guard lock monitoring
- ▶ Locking force up to 6,500 N
- ▶ Dual-channel control of the guard locking solenoid possible

### Notice

Actuators must be ordered separately!

### Details

#### Approach direction



Head can be rotated in 90° steps

#### Category according to EN ISO 13849-1

The category is dependent on the installation position:

Installation position	Category/PL
	Cat. 3 PLe
	Cat. 4 PLe

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

#### Auxiliary release

Included with all versions as standard.

#### Escape release (optional)

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

The escape release can be extended by 30/50/80 mm when the accessory AFE-80-127377 is used.

#### Lockout bar (optional)

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 with up to three locks.

#### 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 77).

#### LED indicator

**LED red** see wiring diagram









**LED green** see wiring diagram

#### Further information

- ▶ Dimension drawings see p. 55
- ▶ 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](http://www.euchner.com).

**Ordering table**







**CET-AX-...-SA/SE/SF-... with plug connector M12**

 <b>Order no./item</b>	<b>Ramp</b>	<b>Escape release</b>	<b>Two LEDs (one freely configurable)</b>	<b>Two LEDs (two freely configurable)</b>	<b>For wiring diagram see page 56</b>
<b>CET1</b> Closed-circuit current principle					
<b>095735</b> CET1-AX-LRA-00-50X-SA		75 mm	•		
<b>102161</b> CET1-AX-LRA-00-50F-SA			•		
<b>104051</b> <sup>1)</sup> CET1-AX-LRA-00-50X-SF			•		
<b>104062</b> CET1-AX-LRA-00-50L-SA				•	
<b>100399</b> CET1-AX-LDA-00-50X-SE			•		
<b>103750</b> CET1-AX-LDA-00-50F-SA		75 mm	•		
<b>CET2</b> Open-circuit current principle					
<b>106039</b> <sup>2)</sup> CET2-AX-LRA-00-50X-SA			•		

1) Plug connector can be rotated by 360°



2) No German Social Accident Insurance or UL approval

**CET-AX-...-SC with two plug connectors M8**


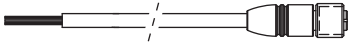
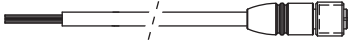

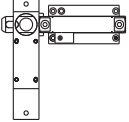

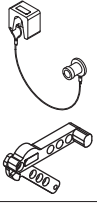


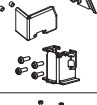


 <b>Order no./item</b>	<b>Ramp</b>	<b>Escape release</b>	<b>Two LEDs (one freely configurable)</b>	<b>Two LEDs (two freely configurable)</b>	<b>For wiring diagram see page 56</b>
<b>CET1</b> Closed-circuit current principle					
<b>102988</b> CET1-AX-LRA-00-50X-SC			•		
<b>103444</b> CET1-AX-LDA-00-50X-SC			•		
<b>CET2</b> Open-circuit current principle					
<b>109932</b> <sup>1)</sup> CET2-AX-LRA-00-50X-SC			•		

1) No German Social Accident Insurance or UL approval

**Actuator**

Series	Design	Order no./item	
CET-A-BWK-50X		<b>096327</b> CET-A-BWK-50X	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

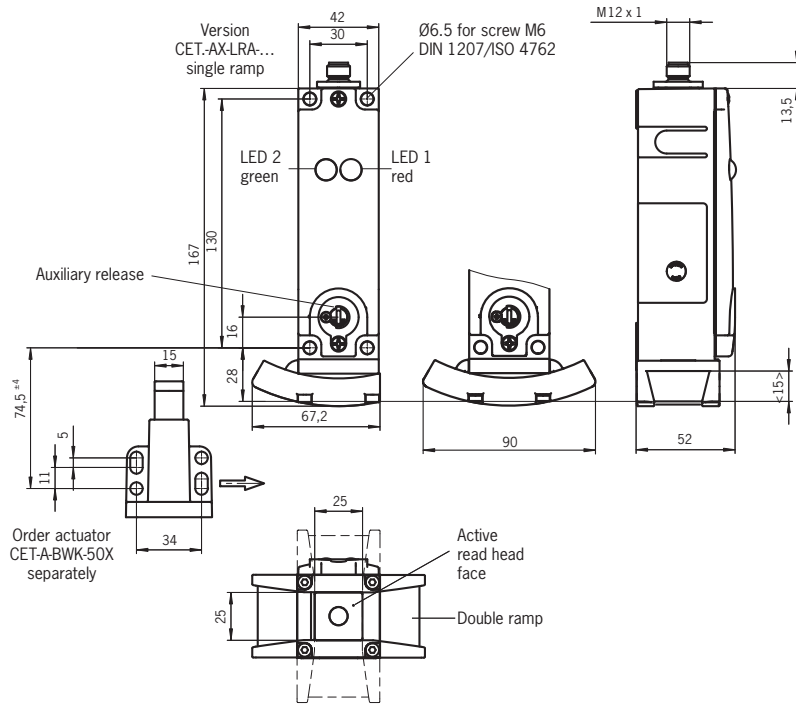
**Accessories**

Type	Version	
<b>Connection material</b>	Connecting cable with plug connector 	<b>M8</b> <b>3 pin</b> Page 65
	Connecting cable with plug connector 	<b>M8</b> <b>4 pin</b> Page 66
	Connecting cable with plug connector 	<b>M12</b> <b>8 pin</b> Page 69
<b>Bolts</b>	Bolts for housing design CET 	Page 73
<b>Fixing material</b>	Mounting plates 	Page 74
	Safety screws for actuators	Page 76
<b>Miscellaneous accessories</b>	Lockout bar 	Page 77
	Mechanical key release 	
	Emergency unlocking 	
	Cover 	
	Double ramp 	
	Extension for escape release 	

**Dimension drawing**

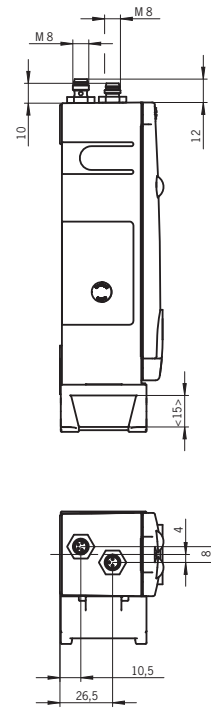
**M12**

**With plug connector M12**

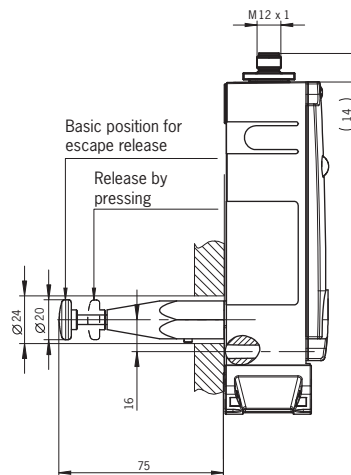


**2x M8**

**With two plug connectors M8**



**With escape release**



M12

8  
pin2x  
M83  
pin4  
pin

## Terminal assignment

A

B

M12 Wiring diagrams A and B

Pin	Designation	Function	M12	
			A	B
1	H1	Read head data line	●	●
2	H2	Read head data line	●	●
3	SH	Data line screen	●	●
4	LED 2	Freely configurable, 24 V	●	●
5	0V LED 2	0V LED 2	●	
	LED 1	Freely configurable, 24 V		●
6	UCM	Operating voltage of guard locking solenoid, DC 24 V	●	●
7	0 V/GND	Operating voltage of guard locking solenoid, DC 0 V	●	
		Operating voltage of guard locking solenoid and LED 1, DC 0 V		●
8	Housing	Housing	●	●

C

2x  
M8

Wiring diagram C

Pin	Designation	Function
X 1.1	H1	Read head data line
X 1.3	H2	Read head data line
X 1.4	SH	Data line screen
X 2.1	UCM	Operating voltage of guard locking solenoid, DC 24 V / LED 1
X 2.2	0V LED 2	0V LED 2
X 2.3	0 V/GND	Operating voltage of guard locking solenoid and LED 1, DC 0 V
X 2.4	LED 2	Freely configurable, 24 V





## “Key adapter CKS – safe entry into installations.”

---

- ▶ **Key inserted / key removed** states are reliably detected
- ▶ LED for status indication
- ▶ Varied use, e.g. as a lockout bar, authorization for selecting operating modes, key transfer system, etc.
- ▶ PL e/category 4 according to EN ISO 13849-1

Key  
Adapter

**CKS**



**CKS**

**Key adapter CKS**



- ▶ Key adapter with integrated CES read head
- ▶ LED indicator
- ▶ Simple connection via M8 plug connector
- ▶ High degree of protection IP 67
- ▶ Inserted key is held by spring clip

**Details**

**Combination options**

Connection to evaluation unit CES / CES-FD required. See actuator ordering table below.

**Important:** Key adapter CKS must not be used as a lockout bar in combination with multicode evaluation.

**Notice**

The key is not included with the key adapter and must be ordered separately.

**Further information**

- ▶ Dimension drawings see p. 61
- ▶ Accessories and spare parts see p. 60
- ▶ For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

**Ordering table**

**Key adapter**

Series	Version	Order no./item	
CKS-A-...	<b>M8</b> <b>3 pin</b>	<b>113130</b> CKS-A-L1B-SC-113130	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

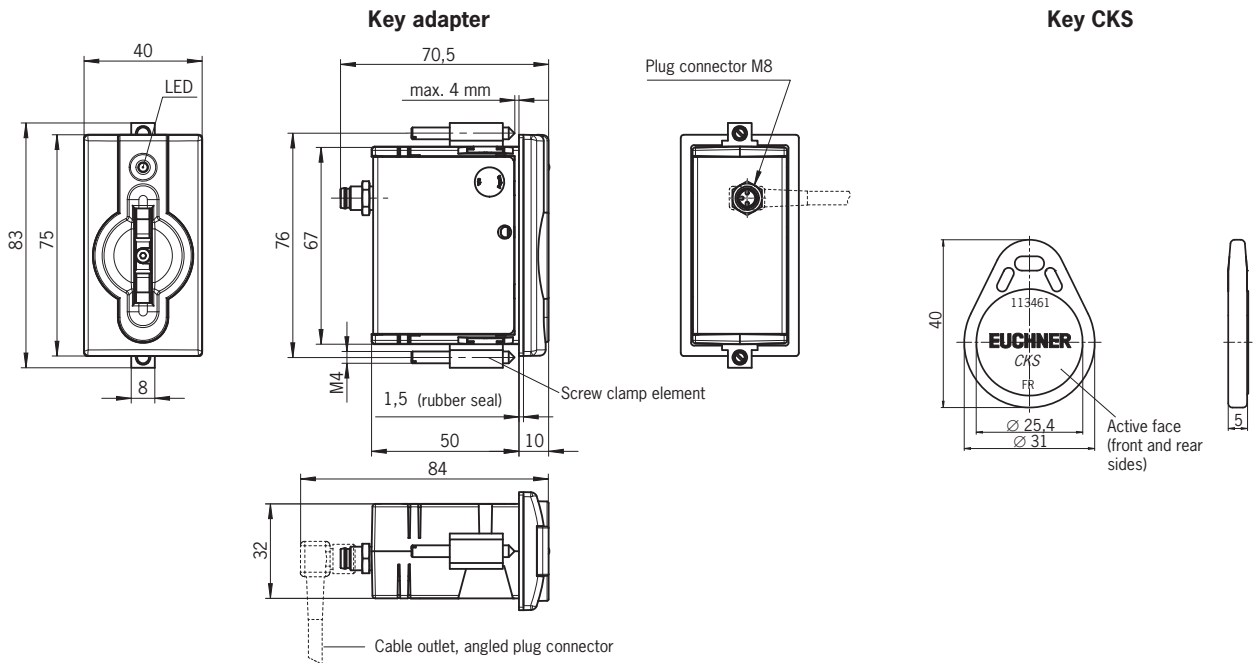
**Key**

Series	Design	Order no./item	
CKS-A-RD-113461		<b>113461</b> CKS-A-BK1-RD-113461	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

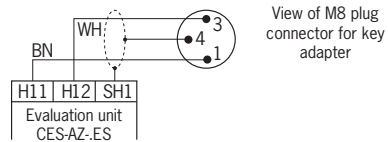
**Accessories**

Type	Version	
Connection material	Connecting cable with plug connector <b>M8</b> <b>3 pin</b>	Page 65

## Dimension drawing



## Terminal assignment



“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 – safe and easy installation for many installation situations.
- ▶ Bolts and bolt sets – door handle and mounting plate in one.  
Complete sets comprising bolt and read head as complete solution.
- ▶ Function expansions – increase the possible applications with additional functions such as releases, lockout bars, etc.

**Accessories**

**Connection material**

M5 4 pin PVC

**Connecting cables with plug connector**

For the connection of:

CES-A-LSP-..SB



Version		Order no./item	
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; border-radius: 5px; padding: 2px 5px; margin-bottom: 2px;">M5</div> <div style="border: 1px solid black; border-radius: 5px; padding: 2px 5px; margin-bottom: 2px;">4 pin</div> <div style="border: 1px solid black; border-radius: 5px; padding: 2px 5px;">PVC</div> </div> <div style="margin-top: 10px;"> </div>	5m	<p><b>105555</b> C-M05F04-02X014PV05,0-ES-105555</p>	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
	10m	<p><b>105556</b> C-M05F04-02X014PV10,0-ES-105556</p>	
	20m	<p><b>105559</b> C-M05F04-02X014PV20,0-ES-105559</p>	



## Connecting cables with plug connector

For the connection of:

CES-FD-AP...

CES-AL-...-SC

CEM-A-L...

CET-AX-...-SC

CKS-AL-...-SC



CES

CEM



Version		Order no./item	
<p><b>M8</b> <b>3 pin</b> <b>PVC</b></p> <p>Connecting cable with female plug, flying lead, 2 x 0.25 mm<sup>2</sup>, screened</p>	3m	<b>077935</b> C-M08F03-02X025PV03,0-ES-077935	<p>For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a>.</p>
	5m	<b>077793</b> C-M08F03-02X025PV05,0-ES-077793	
	10m	<b>077767</b> C-M08F03-02X025PV10,0-ES-077767	
	20m	<b>077716</b> C-M08F03-02X025PV20,0-ES-077716	
	25m	<b>077717</b> C-M08F03-02X025PV25,0-ES-077717	
<p>Connecting cable with female plug, flying lead, 2 x 0.25 mm<sup>2</sup>, screened</p>	10m	<b>084701</b> C-M08F03-02X025PV10,0-ES-084701	
	25m	<b>099998</b> C-M08F03-02X025PV25,0-ES-099998	
<p>Extension for read head cable</p>	0,4m	<b>115464</b> C-M08M03-02X025PU0,4-M08F03-115464	
	5m	<b>084762</b> C-M08F03-02X025PU05,0-ES-084762	
<p><b>M8</b> <b>3 pin</b> <b>PUR</b></p> <p>Connecting cable with female plug, flying lead, 2 x 0.25 mm<sup>2</sup>, screened</p>	10m	<b>084763</b> C-M08F03-02X025PU10,0-ES-084763	
	15m	<b>084764</b> C-M08F03-02X025PU15,0-ES-084764	
	20m	<b>084765</b> C-M08F03-02X025PU20,0-ES-084765	
	25m	<b>084766</b> C-M08F03-02X025PU25,0-ES-084766	
<p>Connecting cable with female plug, flying lead, 2 x 0.25 mm<sup>2</sup>, screened</p>	10m	<b>098590</b> C-M08F03-02X025PU10,0-ES-098590	
	25m	<b>120280</b> C-M08F03-02X025PU25,0-ES-120280	

**Connecting cables with plug connector**

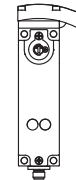
For solenoid operating voltage, read heads

For the connection of:

CEM-A-L...



CET-AX-...-SC



Version	Order no./item	
<p><b>M8</b> <b>4 pin</b> <b>PVC</b></p> <p>Connecting cable with female plug, flying lead, 4 x 0.25 mm<sup>2</sup></p>	2m	<b>088812</b> C-M08F04-04X025PV02,0-ES-088812
	5m	<b>088813</b> C-M08F04-04X025PV05,0-ES-088813
	10m	<b>088814</b> C-M08F04-04X025PV10,0-ES-088814
	15m	<b>088815</b> C-M08F04-04X025PV15,0-ES-088815
	25m	<b>095035</b> C-M08F04-04X025PV25,0-ES-095035
<p>Connecting cable with female plug, flying lead, 4 x 0.25 mm<sup>2</sup></p>	50m	<b>097100</b> C-M08F04-04X025PV50,0-ES-097100
	10m	<b>084703</b> C-M08F04-04X025PV10,0-ES-084703
<p><b>M8</b> <b>4 pin</b> <b>PUR</b></p> <p>Connecting cable with female plug, flying lead, 4 x 0.34 mm<sup>2</sup></p>	5m	<b>116049</b> C-M08F04-04X034PU05,0-ES-116049
	10m	<b>116050</b> C-M08F04-04X034PU10,0-ES-116050
	20m	<b>116051</b> C-M08F04-04X034PU20,0-ES-116051
	50m	<b>120241</b> C-M08F04-04X034PU50,0-ES-120241

For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

**Connecting cables with plug connector**

For LED indicator of read heads CEM

For the connection of:

CEM-A-LH10-...



Version		Order no./item	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>M8</p> <p>4 pin</p> <p>PVC</p> </div> <div> <p><b>Connecting cable with male plug, flying lead, 4 x 0.25 mm<sup>2</sup></b></p> </div> </div>	<b>2m</b>	<p><b>088841</b> C-M08M04-04X025PV02,0-ES-088841</p>	<p>For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a>.</p>
	<b>5m</b>	<p><b>088842</b> C-M08M04-04X025PV05,0-ES-088842</p>	
	<b>10m</b>	<p><b>088843</b> C-M08M04-04X025PV10,0-ES-088843</p>	
	<b>15m</b>	<p><b>088844</b> C-M08M04-04X025PV15,0-ES-088844</p>	

**Connecting cables with plug connector**

For the connection of:

CES-FD-AP...



Version	Order no./item	
<b>Connecting cable with female plug, flying lead, 5 x 0.34 mm<sup>2</sup>, screened</b> 	5m	<b>100183</b> C-M12F05-05X034PV05,0-MA-100183
	10m	<b>100184</b> C-M12F05-05X034PV10,0-MA-100184
	20m	<b>100185</b> C-M12F05-05X034PV20,0-MA-100185
	50m	<b>156064</b> C-M12F05-05X034PV50,0-MA-156064
<b>Extension, plug connectors at both ends</b> for connection to decentralized peripheral equipment 	5m	<b>100180</b> C-M12F05-05X034PV05,0-M12M05-100180
	10m	<b>100181</b> C-M12F05-05X034PV10,0-M12M05-100181
	20m	<b>100182</b> C-M12F05-05X034PV20,0-M12M05-100182
<b>Connecting cable with female plug, flying lead, 5 x 0.34 mm<sup>2</sup>, screened</b> 	5m	<b>113620</b> C-M12F05-05X034PU05,0-MA-113620
	10m	<b>113640</b> C-M12F05-05X034PU10,0-MA-113640
	20m	<b>113682</b> C-M12F05-05X034PU20,0-MA-113682
	30m	<b>122784</b> C-M12F05-05X034PU30,0-MA-113682
<b>Extension, plug connectors at both ends</b> for connection to decentralized peripheral equipment 	5m	<b>119932</b> C-M12F05-05X034PU05,0-M12M05-119932
	10m	<b>119947</b> C-M12F05-05X034PU10,0-M12M05-119947
	20m	<b>119971</b> C-M12F05-05X034PU20,0-M12M05-119971

For detailed information, enter the order number for the product in the search box at [www.euchner.com](http://www.euchner.com).

M12

5 pin

PVC

M12

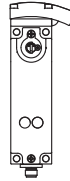
5 pin

PUR

## Connecting cables with plug connector

For the connection of:

CET.-AX-...-SA  
CET.-AX-...-SE  
CET.-AX-...-SF



Version		Order no./item	
<p>M12 8 pin PVC</p> <p>Connecting cable with female plug, flying lead, 7 x 0.25 mm<sup>2</sup>, screened <sup>1)</sup></p>	10m	<b>099633</b> C-M12F08-07X025PV10,0-MA-099633	<p>For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a>.</p>
	20m	<b>099634</b> C-M12F08-07X025PV20,0-MA-099634	
	25m	<b>103115</b> C-M12F08-07X025PV25,0-MA-103115	
<p>Connecting cable with female plug, flying lead, 7 x 0.25 mm<sup>2</sup>, screened <sup>1)</sup></p>	10m	<b>100456</b> C-M12F08-07X025PV10,0-MA-100456	
	20m	<b>105071</b> C-M12F08-07X025PV20,0-MA-105071	
<p>M12 8 pin PUR</p> <p>Connecting cable with female plug, flying lead, 7 x 0.25 mm<sup>2</sup>, screened <sup>1)</sup></p>	10m	<b>102218</b> C-M12F08-07X025PU10,0-MA-102218	
	25m	<b>103782</b> C-M12F08-07X025PU25,0-MA-103782	

1) Two wires in the cable are screened



**Cables with coupling socket/female plug**

Cables for extending the read head connecting cable

For the connection of:

CES-A-L...



CEM-A-L...



Version		Order no./item		
 + PE  	<b>Extension, female plug BS4C1851 at one end, flying lead, 2 x 0.25 mm<sup>2</sup>, screened</b> 	 <b>1,5m</b>	<b>103667</b> C-M18F04-02X025PV01,5-ES-103667	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
	<b>Extension, plug connectors at both ends, coupling socket KD4C1851/ cable socket M8 (3-pin), 2 x 0.25 mm<sup>2</sup>, screened</b> 	 <b>15m</b>	<b>103647</b> C-M08F03-02X025PV15,0-M18M04-103647	
		 <b>18m</b>	<b>128046</b> C-M08F03-02X025PV18,0-M18M04-128046	

**Coupling socket/female plug**

Plug connector for extending the read head connecting cable

For the connection of:

CES-A-L...



CEM-A-L...



Version	Comment	Order no.	
 + PE	<b>Coupling socket</b> 	Coupling socket for female plug BS4C1851 <b>077434</b> KD4C1851	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
	<b>Female plug</b> 	Female plug for coupling socket KD4C1851 <b>077435</b> BS4C1851	



**Inrush current limiting module PM-SCL**

Limits the switch-on current on CES evaluation units and in this way protects the switching contacts

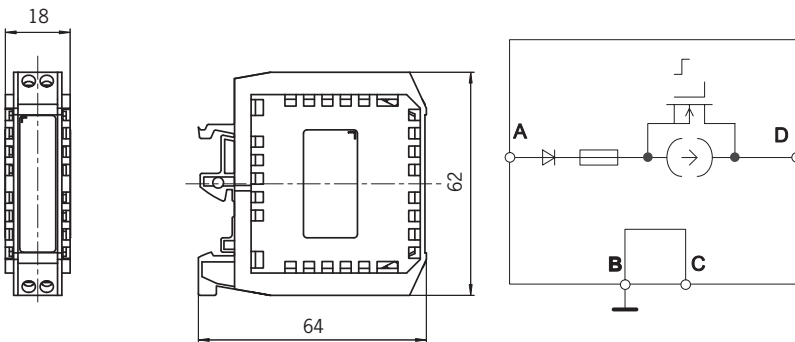
For the connection of:

CES-AZ-...



Version	Order no.	
Inrush current limiting module <b>PM-SCL</b>  For CES evaluation units	<b>096945</b> PM-SCL-096945	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .

**Dimension drawing and connection options**



**Bolts**



**Bolts for read heads CES**

**Notice:** On these bolts, the actuators are integrated into the bolt tongue and are included.

**For mounting:**

CES-ALNA...



Designation	Detent mechanism/ door gap	Material	Version	Order no.	
	<b>Bolt CES-A-A</b> Closed position: ball detent mechanism Open position: none/ door gap: 15 mm	Steel	For doors hinged on the right or left	<b>076487</b> BOLT CES-A-A	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
	<b>Bolt CES-A-A/F</b> Closed position: ball detent mechanism Open position: detent knob/ door gap: 15 mm	Steel	For doors hinged on the right or left, with lever for escape release from the danger area	<b>086173</b> BOLT CES-A-A/F	

**Bolts for read heads CEM**

**Notice:** The actuators are **not** included with these bolts.

**For mounting:**

CEM-A-LE05...



Designation	Detent mechanism/ door gap	Material	Version	Order no.	
	None/ door gap: 15 mm	Steel	For doors hinged on the right	<b>097955</b> BOLT CEM-A	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
			For doors hinged on the left	<b>097957</b> BOLT CEM-C	

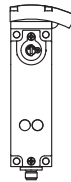



**Bolts for read head CET**

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

**For mounting:**

CET-AX-...






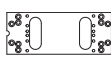







Designation	Detent mechanism/ door gap	Material	Version	Order no.	
<b>Bolt CET-A-C</b>	None/ door gap: 15 mm	Steel	For doors hinged on the right or left	<b>104309</b> BOLT CET-A-C	For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a> .
<b>Bolt CET-A-C/F</b>	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	<b>106172</b> BOLT CET-A-C/F	
<b>Bolt CET-A-C/F-C2282</b>	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	<b>106350</b> BOLT CET-A-C/F-C2282	
<b>Bolt CET-A-C-C2308</b>	None/ door gap: 15 mm	Steel	For doors hinged on the right or left. Bolt can be opened outward and inward (no end stop).	<b>109672</b> BOLT CET-A-C-C2308	



## Fixing material

## Mounting sets/mounting plates

Series	Use	Order no./item	
	<b>Mounting plate EMP-L-CEM05</b> 	For read head CEM-A-LE05...	<b>099425</b> EMP-L-CEM05
	<b>Mounting plate EMP-B-CEM05</b> 	For actuator CEM-A-BE05...	<b>100110</b> EMP-B-CEM05
	<b>Mounting plate EMP-L-CET</b> 	For read head CET-AX	<b>106695</b> EMP-L-CET
	<b>Mounting plate EMP-B-CET</b> 	For actuator CET	<b>106694</b> EMP-B-CET
	<b>Mounting plate EMP-B1</b> 	For actuator CET	<b>093457</b> EMP-B1
	<b>Mounting plate AM-P</b> 	For read head CET-AX	<b>126399</b> AM-P-126399
	<b>Mounting plate AM-P</b> 	For actuator CET	<b>126400</b> AM-P-126400
<b>Mounting plate with handle</b> 	Can be combined with mounting plates AM-P-126399 and AM-P-126400	<b>126398</b> AM-P-126398	<p>For detailed information, enter the order number for the product in the search box at <a href="http://www.euchner.com">www.euchner.com</a>.</p>

**Clamping pieces for aluminum profiles**



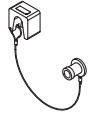


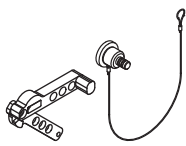







Fixing material	Version/usage	Packaging unit [qty.]	Order no.
Installation material for <b>Bosch profiles with 8-mm slot</b>	Read heads CES-A-LSP and actuators CES-A-BSP	Two screws + Two clamping pieces	<b>106633</b>
Installation material for <b>Bosch profiles with 10-mm slot</b>			<b>106634</b>
Installation material for <b>ITEM profiles with 8-mm slot</b>			<b>106635</b>

## Miscellaneous accessories

## Safety screws

Fixing material/screw size	Version/usage	Packaging unit [qty.]	Order no.
Safety screws, stainless steel <b>M4 x 14</b> (small head)	Read heads CES-ALN..., CES-ALC..., CES-ALQ... and actuators CES-ABB..., CES-ABCA, CES-ABQ...	20	<b>071863</b>
Safety screws, stainless steel <b>M4 x 14</b> (large head)	Field evaluation unit CES-FD-AP...	100	<b>086232</b>
Safety screws <b>M5 x 16</b>	Read heads CEM-A-LE... and actuators CET-A-BWK, CEM-A-B...	100	<b>073456</b>

## Miscellaneous accessories

Designation	Use	Version	Order no.
 <b>Lockout bar</b> 	For actuator CEM-A-BE05	Suitable for 3x shackle diameter 4 ... 9 mm	<b>122404</b> AE-L-BE05-R-122404
<b>Lockout bar</b> 	For actuator CET	Suitable for shackle diameter 5 ... 6 mm	<b>122609</b> AE-L-CET-122609
<b>Lockout bar</b> 	For actuator CET	Suitable for shackle diameter 5 mm - 9 mm	<b>156429</b> AE-L-CET-156429
<b>Holder for lockout bar</b> 	For lockout bar AE-L-CET-156420	Including wire rope and ring to hang the wire rope onto the lockout bar	<b>156338</b> AY-CHN-A1-156338
<b>Lockout bar + holder set</b> 	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.	<b>155865</b> AE-SET-LCHN-A1-155865
 <b>Mechanical key release</b> 	For read head CET-AX	Identical locking, including two keys	<b>098850</b>
<b>Replacement key</b>	For mechanical key release, identical locking	Two keys, identical locking	<b>099434</b>
<b>Emergency unlocking</b> 	For read head CET-AX	Latching in both positions	<b>103714</b>
<b>Lead seal kit</b>	For emergency unlocking	–	<b>087256</b>
<b>Cover</b> 	For read head CET-AX and actuator CET	Door hinge right	<b>098808</b>
		Door hinge left	<b>098807</b>
<b>Cover</b> 	For actuator CET	For horizontal and vertical fastening on the actuator (suitable for fixing screws M5 x 16)	<b>124979</b> AM-C-124979
<b>Double ramp</b> 	For read head CET-AX	–	<b>114091</b> CET-DR
<b>Extension for escape release</b> 	For read head CET-AX with escape release	Extension by 30/50/80 mm, pushbutton Ø 40 mm	<b>127377</b> AF-E-80-127377

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077717	C-M08F03-02X025PV25,0-ES-077717	65	100456	C-M12F08-07X025PV10,0-MA-100456	69
077767	C-M08F03-02X025PV10,0-ES-077767	65	102161	CET1-AX-LRA-00-50F-SA	53
077790	CES-A-LMN-SC	38	102218	C-M12F08-07X025PU10,0-MA-102218	69
077791	CES-A-BMB	38	102988	CET1-AX-LRA-00-50X-SC	53
077793	C-M08F03-02X025PV05,0-ES-077793	65	103115	C-M12F08-07X025PV25,0-MA-103115	69
077806	CES-A-LNA-05P	32	103444	CET1-AX-LDA-00-50X-SC	53
077807	CES-A-LNA-10P	32	103647	C-M08F03-02X025PV15,0-M18M04-103647	70
077935	C-M08F03-02X025PV03,0-ES-077935	65	103667	C-M18F04-02X025PV01,5-ES-103667	70
084682	CES-A-LNA-15P	32	103714		77
084701	C-M08F03-02X025PV10,0-ES-084701	65	103750	CET1-AX-LDA-00-50F-SA	53
084703	C-M08F04-04X025PV10,0-ES-084703	66	103782	C-M12F08-07X025PU25,0-MA-103782	69
084762	C-M08F03-02X025PU05,0-ES-084762	65	104051	CET1-AX-LRA-00-50X-SF	53
084763	C-M08F03-02X025PU10,0-ES-084763	65	104062	CET1-AX-LRA-00-50L-SA	53
084764	C-M08F03-02X025PU15,0-ES-084764	65	104309	RIEGEL CET-A-C	73
084765	C-M08F03-02X025PU20,0-ES-084765	65	104606	CEM-A-LE05H-S2	46
084766	C-M08F03-02X025PU25,0-ES-084766	65	104730	CES-A-BDN-06-104730	30
086173	RIEGEL CES-AA\F	72	104756	CES-EA-TC-AK04-104756	18
086232		76	104770	CES-AZ-AES-01B	18
087256		77	104771	CES-EA-TC-AK06-104771	20
088785	CES-A-LCA-10V	32	104775	CES-AZ-AES-02B	20
088786	CES-A-BCA	33	104966	CES-A-LSP-05V-104966	36
088812	C-M08F04-04X025PV02,0-ES-088812	66	104967	CES-A-LSP-10V-104967	36
088813	C-M08F04-04X025PV05,0-ES-088813	66	104969	CES-A-LSP-SB-104969	36
088814	C-M08F04-04X025PV10,0-ES-088814	66	104970	CES-A-BSP-104970	36
088815	C-M08F04-04X025PV15,0-ES-088815	66	105071	C-M12F08-07X025PV20,0-MA-105071	69
088841	C-M08M04-04X025PV02,0-ES-088841	67	105139	CES-AZ-UES-01B	18
088842	C-M08M04-04X025PV05,0-ES-088842	67	105140	CES-AZ-UES-02B	20
088843	C-M08M04-04X025PV10,0-ES-088843	67	105555	C-M05F04-02X014PV05,0-ES-105555	64
088844	C-M08M04-04X025PV15,0-ES-088844	67	105556	C-M05F04-02X014PV10,0-ES-105556	64
093457	EMP-B1	74	105559	C-M05F04-02X014PV20,0-ES-105559	64
094800	CEM-A-LE05K-S2	42	106039	CET2-AX-LRA-00-50X-SA	53
094805	CEM-A-BE05	42	106172	RIEGEL CET-A-C/F	73
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095035	C-M08F04-04X025PV25,0-ES-095035	66	106600	CES-A-BBN-106600	30
095170	CEM-A-LH10K-S3	48	106601	CES-A-LNN-SC-106601	30
095175	CEM-A-BH10	48	106602	CES-A-LNN-05V-106602	30
095650	CES-A-LQA-SC	34	106633		75
095735	CET1-AX-LRA-00-50X-SA	53	106634		75
095792	CEM-A-LE05R-S2	42	106635		75
095793	CEM-A-LH10R-S3	48	106694	EMP-B-CET	74
096327	CET-A-BWK-50X	54	106695	EMP-L-CET	74
096945	PM-SCL-096945	71	109672	RIEGEL CET-A-C-C2308	73
097100	C-M08F04-04X025PV50,0-ES-097100	66	109755	CEM-A-ME05K-S1-109755	42
097955	RIEGEL CEM-A	72	109932	CET2-AX-LRA-00-50X-SC	53
097957	RIEGEL CEM-C	72	112630	CES-EA-TC-KK06-112630	20
098108	CES-A-BQA	34	112631	CES-EA-TC-KK04-112631	18
098590	C-M08F03-02X025PU10,0-ES-098590	65	113130	CKS-A-L1B-SC-113130	60
098807		77	113294	CES-A-LNN-10V-113294	30
098808		77	113461	CKS-A-BK1-RD-113461	60
098850		77	113620	C-M12F05-05X034PU05,0-MA-113620	68
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