# Transponder-coded safety systems

with external evaluation





# 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



# Transponder-coded safety systems with external evaluation



WILL CALCITIAL CVALACION			
	General Selection criteria Evaluation units Read heads Function expansion	<b>4</b> 5 9 10 13	
	Evaluation unit CES-AZES-01B Evaluation unit CES-AZES-02B Evaluation unit CES-AZES-04B	16 18 20 22	AZ
	Field evaluation unit FD Field evaluation unit CES-FD-AP	<b>24</b> 26	FD
	Read heads CES Read head CES-A-LNN Read head CES-A-LCA / CES-A-LNA Read head CES-A-LQA Read head CES-A-LSP Read head CES-A-LMN	28 30 32 34 36 38	CES
	Read head CEM Read head CEM-A-LE05 Read head CEM-A-LE05H-S2 Read head CEM-A-LH10	<b>40</b> 42 46 48	CEM
	Read head CETAX	<b>50</b> 52	CET
	Key adapter CKS Key adapter CKS	<b>58</b> 60	CKS
	Accessories Connection material Bolts Fixing material Miscellaneous accessories	<b>62</b> 64 72 74 76	
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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.

# 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.



## 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

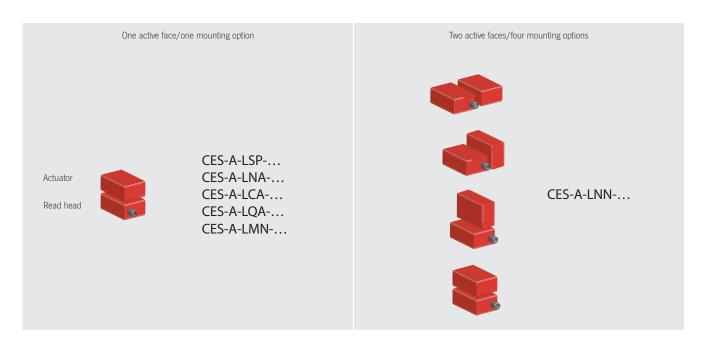
The operating distances indicate the distance between the actuator and sensor from which a switching process is triggered. The active faces on the actuator and read head define these distances. The faces must be parallel to each other on approach.

#### **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 sao

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 sar

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

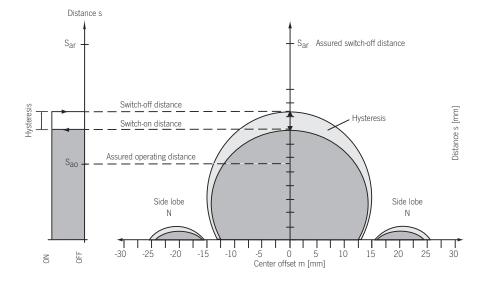
The device detects if the actuator wanders out of the operating distance and indicates that the actuator is in the limit range by flashing the STATE LED. This allows the safety door to be readjusted in time.

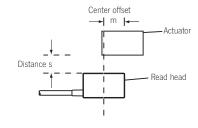
#### Side Johes

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.

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.

#### **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 fastening situations. You can find suitable accessories for your device very simply at www.euchner.com.







"Evaluation and safety relay in one device – costeffective solution for up to four safety doors."

- 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







#### **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**

ST Input for self-test

O1 Monitoring output (semiconduc-

tor)

**DIA** Diagnostics output **Y1, Y2** Feedback loop

Start button connection (monitoring of the falling edge)

#### Notice

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

#### (i) 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.

#### Ordering table

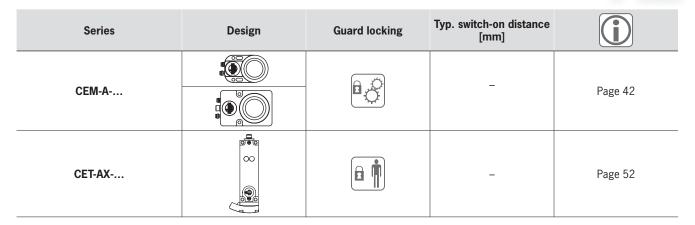
#### **Evaluation unit**

Series	Version	Order no./item	
CES-AZ-AES-01B Unicode		<b>104770</b> CES-AZ-AES-01B	
CES-AZ-UES-01B Multicode  Connection kits for evaluation unit CES-AZ01B	p-switching	<b>105139</b> CES-AZ-UES-01B	For detailed information, enter the
	Plug-in screw terminals	<b>104756</b> CES-EA-TC-AK04-104756	order number for the product in the search box at www.euchner.com.
	Plug-in spring terminals	<b>112631</b> CES-EA-TC-KK04-112631	

#### Read heads

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CES-A-LNN		_	15	Page 30
CES-A-LIVIV	<b>8</b> 8	_	15	rage 30
CES-A-LNA	( ) = ( ) = ( ) = ( ) = ( )	_	15	Page 32
CES-A-LNA		_	15	r age 32
CES-A-LCA		-	15	Page 32
CES-A-LQA		-	23	Page 34
CES-A-LSP		-	20	Page 36
CES-A-LMN		-	5	Page 38
CKS-A		-	-	Page 60

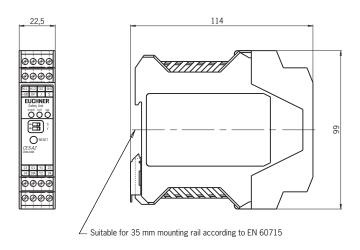




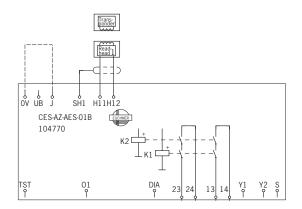
#### **Accessories**

Туре	Version	
PM-SCL 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**

**IST** Input for self-test

**01, 02** Monitoring outputs (semicon-

ductor)

**DIA** Diagnostic output **Y1, Y2** Feedback loop

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. 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.

#### Ordering table

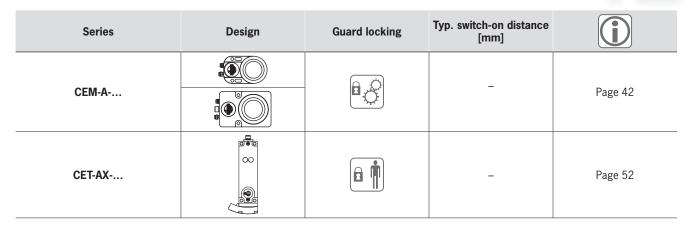
#### **Evaluation unit**

Series	Version	Order no./item	
CES-AZ-AES-02B Unicode		<b>104775</b> CES-AZ-AES-02B	
CES-AZ-UES-02B Multicode  Connection kits for evaluation unit CES-AZ02B	p-switching	<b>105140</b> CES-AZ-UES-02B	For detailed information, enter the
	Plug-in screw terminals	<b>104771</b> CES-EA-TC-AK06-104771	order number for the product in the search box at www.euchner.com.
	Plug-in spring terminals	<b>112630</b> CES-EA-TC-KK06-112630	

#### Read heads

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CES-A-LNN		-	15	Page 30
CES-A-LINIV	<b>8</b> 8	_	15	rage 30
CES-A-LNA	( ) = ( ) = ( ) = ( ) = ( )	_	15	Page 32
CES-A-LNA		_	15	rage 32
CES-A-LCA		-	15	Page 32
CES-A-LQA		-	23	Page 34
CES-A-LSP		-	20	Page 36
CES-A-LMN		-	5	Page 38
CKS-A	d O	-	-	Page 60

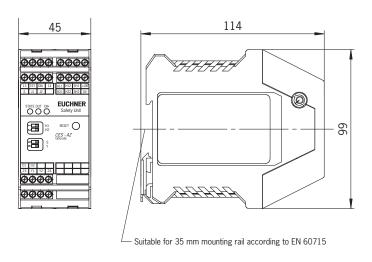




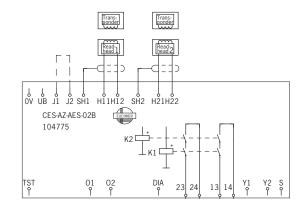
#### **Accessories**

Туре	Version	
PM-SCL Inrush current limiting module	For CES evaluation units	Page 71

# Dimension drawing



# 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 Diagnostics LED DIA **OUT** Safety output status

#### **Additional connections**

Input for self-test

01...04 Monitoring outputs (semicon-

ductor)

DIA Diagnostic output Y1, Y2 Feedback loop

Start button connection

(monitoring of the falling edge)

#### Notice

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

#### (i) 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.

# Ordering table

#### **Evaluation unit**

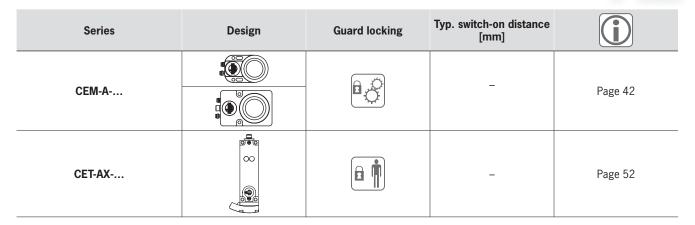
Evaluation unit					
Series	Version		Series Version Order no./item		
CES-AZ-AES-04B Unicode		Monitoring outputs p-switching	<b>104780</b> CES-AZ-AES-04B		
CES-AZ-ALS-04B Unicode		Monitoring outputs n-switching	<b>113090</b> <sup>1)</sup> CES-AZ-ALS-04B		
CES-AZ-UES-04B Multicode	14	Monitoring outputs p-switching	<b>105141</b> CES-AZ-UES-04B	For detailed information, enter the order number for the product in the search box at www.euchner.com.	
Connection kits	Plug-ir	n screw terminals	<b>104776</b> CES-EA-TC-AK08-104776	Scarcii box at www.caciiici.com.	
for evaluation unit CES-AZ04B	Plug-ir	n spring terminals	<b>112629</b> CES-EA-TC-KK08-112629		

<sup>1)</sup> No UL or German Social Accident Insurance approval

#### **Read heads**

Series	Design	Guard locking	Typ. switch-on distance [mm]	
CES-A-LNN		_	15	Page 30
CES-A-LIVIV	<b>3</b> 6	_	15	rage 50
CES-A-LNA	0	_	15	Dogo 22
CES-A-LNA	0	_	15	Page 32
CES-A-LCA		-	15	Page 32
CES-A-LQA		-	23	Page 34
CES-A-LSP		_	20	Page 36
CES-A-LMN		-	5	Page 38
CKS-A	4	-	-	Page 60

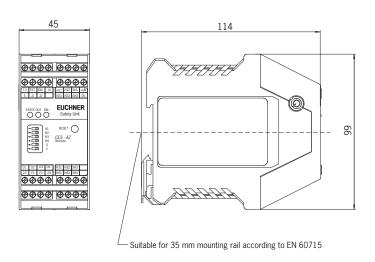




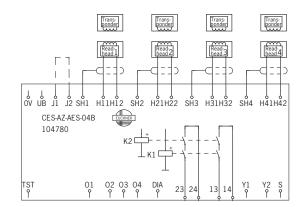
#### **Accessories**

Туре	Version	
PM-SCL 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







## 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 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.

# Ordering table

#### Field evaluation unit

Series	Version		Order no./item	
CES-FD-AP-U-01 Unicode	A B M8	Pin 5 not used	119865 CES-FD-AP-U-01-USI-119865	For detailed information, enter the order number for
CES-FD-AP-M-01 Multicode	5 pin Spin	Pin 5 not used	<b>115534</b> CES-FD-AP-M-01-USI-115534	the product in the search box at www.euchner.com.

#### **Read heads**

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

#### **Accessories**

Туре	Version		
	Connecting cable with plug connector	M12 5 pin	Page 68
Connection material	Extension for read head connection	M8 3 pin	Page 65



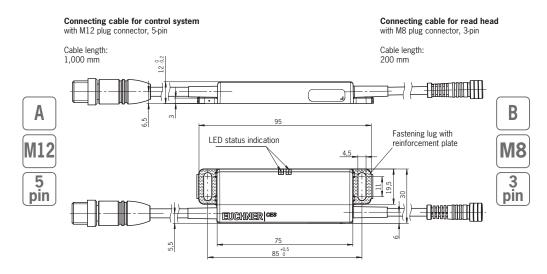








# Dimension drawing



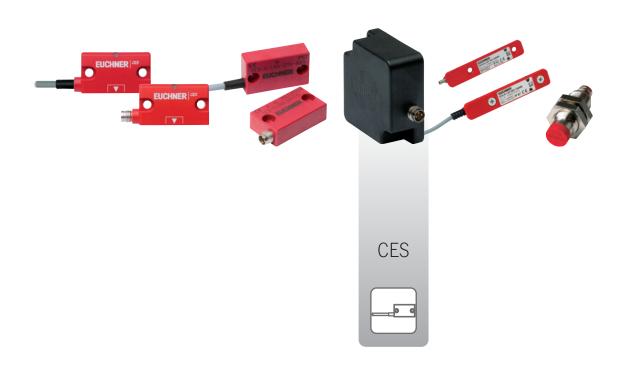
# Terminal assignment

A M12 5 pin	Pin Without monitoring output (pin 5 not used)	Designation	Function	Wire color
Coding lug	1	UB	Power supply DC 24 V	BN
2	2	FO1A	Safety output, channel 1	WH
2	3	OV	Ground DC 0 V	BU
3	4	FO1B	Safety output, channel 2	BK
4	_	_	-	GY

B 3 pin	Pin	-	Function	Wire color
	1	H1	Data line	BN
3	2	H2	Data line	WH
1 4	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-...







Cube-shaped design 42 x 25 mm Attachment compatible with series

LED for the indication of the door

#### 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.

# Ordering table

CES-A-LNA/LCA

position Two active faces

#### Read head

Troug Troug						
Series	Version			Order no./item		
				5m	<b>106602</b> CES-A-LNN-05V-106602	
CES-A-LNN	<b>_</b>	42 x 25	PVC	10m	<b>113294</b> CES-A-LNN-10V-113294	For detailed information, enter the order number for the product in the search box at www.euchner.com.
			• • •   (	25m	<b>115107</b> CES-A-LNN-25V-115107	
	# S C	42 x 25	M8	3 pin	<b>106601</b> CES-A-LNN-SC-106601	

#### Actuator

Series	Design		Typ. switch-on distance [mm]	Order no./item	
CES-A-BBN	<b>3</b>	42 x 25	15	<b>106600</b> CES-A-BBN-106600	For detailed information, enter the order number
CES-A-BDN	<b>∷</b> લાભાવો	Ø6 x 26	19	<b>104730</b> CES-A-BDN-06-104730	for the product in the search box at www.euchner.com.

#### **Accessories**

Туре	Version		
Connection material	Connecting cable with plug connector	$M8$ $\begin{bmatrix} 3 \\ pin \end{bmatrix}$	Page 65
Fixing material	Safety screws		Page 76



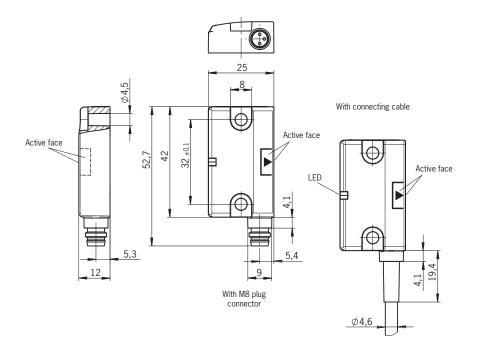




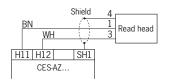




# Dimension drawing



# Terminal assignment





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







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

#### 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.

## Ordering table

One active face

#### Read head

Read head				
Series	Version		Order no./item	
CES-A-LCA	42 x 25  Material: PE-HD <sup>1)</sup>	PVC 10m	<b>088785</b> CES-A-LCA-10V	
		5m	<b>071845</b> CES-A-LNA-05V	
		10m	<b>071846</b> CES-A-LNA-10V	
		PVC 15m	<b>071847</b> CES-A-LNA-15V	For detailed information, enter the order number
CES-A-LNA	42 x 25	25m	<b>071975</b> CES-A-LNA-25V	for the product in the search box at www.euchner.com.
		5m	<b>077806</b> CES-A-LNA-05P	
		PUR 10m	<b>077807</b> CES-A-LNA-10P	
		15m	<b>084682</b> CES-A-LNA-15P	
	<b>42 x 25</b>	M8 3 pin	<b>077715</b> CES-A-LNA-SC	

<sup>1)</sup> Suitable for use in aggressive media (e.g. acids, alkalines)













#### 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
CES-A-BBA	<b>◎</b> 42 x 25		<b>071840</b> CES-A-BBA	information, enter the order number
CES-A-BDA	<b>⊕</b> Ø20	16	<b>084720</b> CES-A-BDA-20	for the product in the search box at www.euchner.com.
CES-A-BDA-18	<b>©</b> Ø18	16	<b>156935</b> CES-A-BDA-18	www.cuciiiici.com.

<sup>1)</sup> Suitable for use in aggressive media (e.g. acids, alkalines)

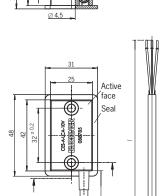
#### Accessories

Туре	Version		
Connection material	Connecting cable with plug connector	$M8$ $\begin{bmatrix} 3 \\ pin \end{bmatrix}$	Page 65
Bolts	Bolts for read head CES-A-LNA		Page 72
Fixing material	Safety screws		Page 76

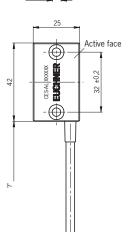
# Dimension drawing



Active face

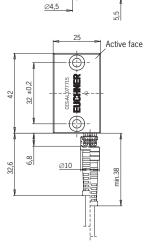


#### CES-A-LNA-...

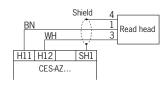


#### **CES-A-LNA-SC**

Active



# Terminal assignment





# Read head CES-A-LQA-...





Cube-shaped design 50 x 50 mm M8 plug connector (snap-action and

Large tolerance for center offset

#### 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.

# Ordering table

screw terminals)

One active face

#### Read head

Series	Version			Order no./item	
CES-A-LQA		50 x 50	M8 3 pin	<b>095650</b> CES-A-LQA-SC	For detailed information, enter the order number for the product in the search box at www.euchner.com.

#### Actuator

Series			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
CES-A-BBA	0==0	42 x 25	15	<b>071840</b> CES-A-BBA	for the product in the search box at www.euchner.com.

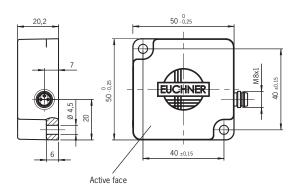
#### **Accessories**

Туре	Version		
Connection material	Connecting cable with plug connector		Page 65
Fixing material	Safety screws		Page 76

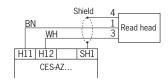




# Dimension drawing



# Terminal assignment





# Read head CES-A-LSP-...





Optimized for aluminum profile

LED for the indication of the door

#### 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.

# Ordering table

mounting

position One active face

#### Read head

Series	Version			Order no./item	
		97 x 18	<b>5m</b>	<b>104966</b> CES-A-LSP-05V-104966	For detailed
CES-A-LSP		97 X 10	PVC 10m	<b>104967</b> CES-A-LSP-10V-104967	information, enter the order number for the product in the search box at
		97 x 18	M5 4 pin	<b>104969</b> CES-A-LSP-SB-104969	www.euchner.com.

#### Actuator

Series	Design		Typ. switch-on distance [mm]	Order no./item	
CES-A-BSP	<b>© 0</b>	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 www.euchner.com.

#### **Accessories**

Туре	Version		
Connection material	Connecting cable with plug connector	M5 4 pin	Page 64
Installation material	Clamping pieces for mounting on aluminum profiles		Page 75





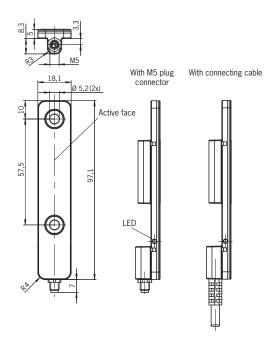


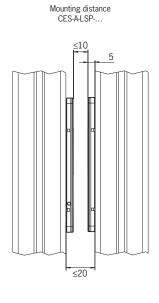




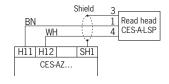


#### Dimension drawing





#### Terminal assignment



Cylindrical design M12

screw terminals)
One active face



#### Read head CES-A-LMN-...







M8 plug connector (snap-action and

#### 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.

#### Ordering table

#### Read head

Series	Version			Order no./item	
CES-A-LMN		M12 x 1	M8 3 pin	<b>077790</b> CES-A-LMN-SC	For detailed information, enter the order number for the product in the search box at www.euchner.com.

#### 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 www.euchner.com.

#### **Accessories**

Туре	Version	
Connection material	Connecting cable with plug connector  M8  pin	Page 65

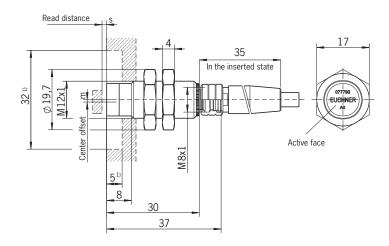






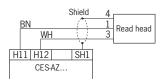
# CES

#### 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-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  $\boldsymbol{U}_{\!\scriptscriptstyle B}$  must always be applied.

#### **(i)** 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.

#### Ordering table

#### Read head

Series	Version		Order no./item		
CEM-A-LE05		50 v 90	With remanence	<b>094800</b> CEM-A-LE05K-S2	For detailed information, enter the order number
	50 x 80	Without remanence	<b>095792</b> CEM-A-LE05R-S2	for the product in the search box at www.euchner.com.	

#### **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 www.euchner.com.

#### Solenoid (without read head)

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



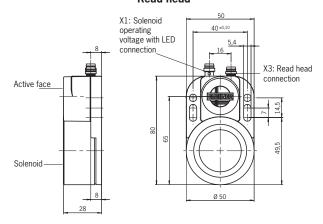
# CEM

#### Accessories

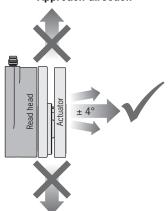
Туре	Version		
Connection material	Connecting cable with plug connector	M8 3 pin	Page 65
		M8 4 pin	Page 66
Bolts	Bolts for read heads CEM	Page 72	
Fixing material	Mounting plates		Page 74
	Safety screws for actuators		Page 76
Miscellaneous accessories	Lockout bar CEM (mounting on the actuator CEM-A-BE05)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

#### Dimension drawing

#### Read head



#### Approach direction





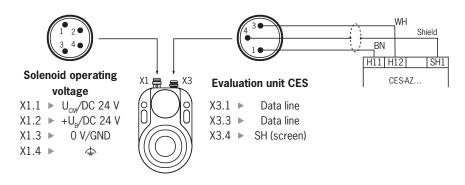


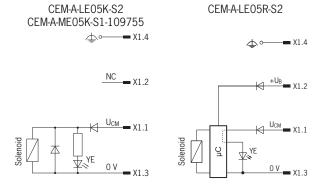






#### Terminal assignment





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,  $110 \, \text{N}$  (factory setting) or  $150 \, \text{N}$ .

#### (i) 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.

#### 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
CEM-A-ZPS-110013	Programming adapter for setting the adhesive force		<b>110013</b> CEM-A-ZPS-110013	for the product in the search box at www.euchner.com.	

#### 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 www.euchner.com.

#### **Accessories**

Туре	Version		
Connection material	Connecting cable with plug connector	M8 3 pin	Page 65
Connection material	Control of the contro	M8 4 pin	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



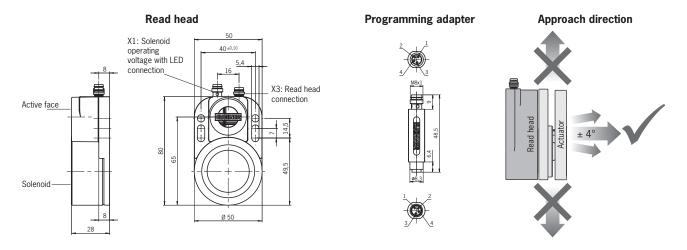




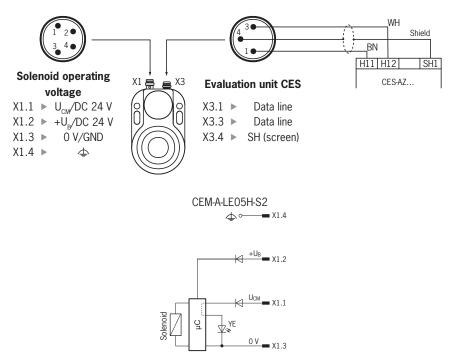




#### Dimension drawing



#### Terminal assignment



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  $\boldsymbol{U}_{\!\scriptscriptstyle B}$  must always be applied.

#### **(i)** 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.

#### Ordering table

#### Read head

Series	Version			Order no./item	
CEM-A-LH10		65 05	With remanence	<b>095170</b> CEM-A-LH10K-S3	For detailed information, enter the order number
	65 x 95	Without remanence	<b>095793</b> CEM-A-LH10R-S3	for the product in the search box at www.euchner.com.	

#### Actuator

Series	Des	sign	Order no./item	
CEM-A-BH10	00000	65 x 95	<b>095175</b> CEM-A-BH10	For detailed information, enter the order number for the product in the search box at www.euchner.com.

#### **Accessories**

Туре	Version		
	Connecting cable with plug connector	$\boxed{\mathbf{M8}} \boxed{\overset{3}{pin}}$	Page 65
Connection material		M8 4 pin	Page 66
	Connecting cable with male plug for LED indicator	M8 4 pin	Page 67
Fixing material	Safety screws for actuators		Page 76





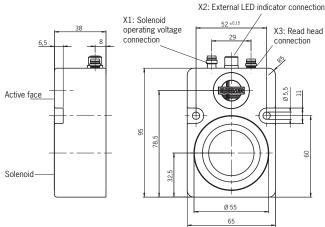




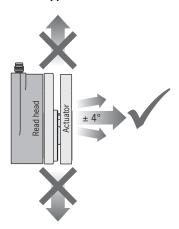


#### Dimension drawing





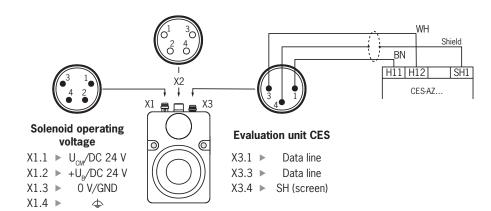
#### **Approach direction**

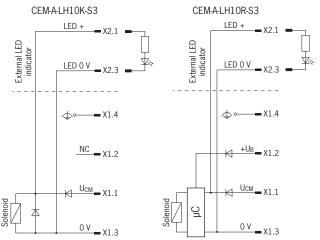


#### Terminal assignment

#### **External LED indicator connection**

X2.1 ► LED + X2.3 ► LED 0 V X2.2 ► - 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.-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
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	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)

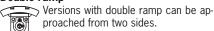
Some devices have an escape release (see ordering table).

The escape release can be extended by 30/50/80 mm when the accessory AF-E-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



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

#### (i) 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.



#### Ordering table

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

M12 8 pin Order no./item	Ramp	Escape release	<b>Two LEDs</b> (one freely configurable)	<b>Two LEDs</b> (two freely configurable)	For wiring diagram see page 56
<b>CET1</b> Closed-circuit current principle					
<b>095735</b> CET1-AX-LRA-00-50X-SA			•		
<b>102161</b> CET1-AX-LRA-00-50F-SA		75 mm	•		<b>A</b>
<b>104051</b> <sup>1)</sup> CET1-AX-LRA-00-50X-SF			•		
<b>104062</b> CET1-AX-LRA-00-50L-SA				•	В
<b>100399</b> CET1-AX-LDA-00-50X-SE			•		
<b>103750</b> CET1-AX-LDA-00-50F-SA		75 mm	•		A
<b>CET2</b> Open-circuit current principle					
<b>106039</b> <sup>2)</sup> CET2-AX-LRA-00-50X-SA			•		A

<sup>1)</sup> Plug connector can be rotated by 360°

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

OL 1. AX OO with two plug confliction					
2x 3 4 pin Order no./item	Ramp	Escape release	<b>Two LEDs</b> (one freely configurable)	<b>Two LEDs</b> (two freely configurable)	For wiring diagram see page 56
CET1 Closed-circuit current principle					
<b>102988</b> CET1-AX-LRA-00-50X-SC			•		
<b>103444</b> CET1-AX-LDA-00-50X-SC			•		
CET2 Open-circuit current principle					
<b>109932</b> <sup>1)</sup> CET2-AX-LRA-00-50X-SC			•		C

<sup>1)</sup> No German Social Accident Insurance or UL approval

<sup>2)</sup> No German Social Accident Insurance or UL approval



#### Actuator

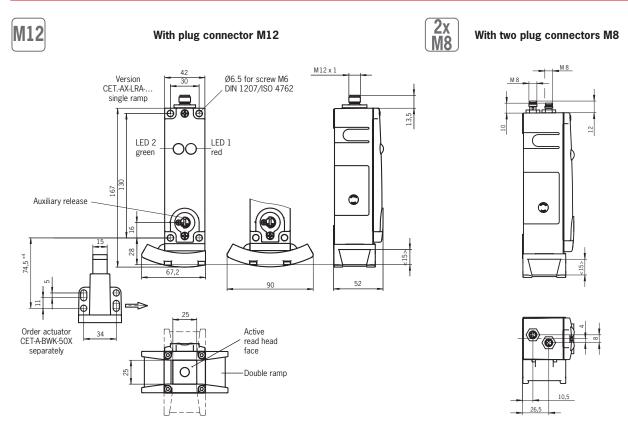
Series	Design	Order no./item	
CET-A-BWK-50X		<b>096327</b> CET-A-BWK-50X	For detailed information, enter the order number for the product in the search box at www.euchner.com.

#### **Accessories**

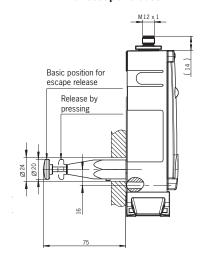
Туре	Version		
	Connecting cable with plug connector	M8 3 pin	Page 65
Connection material		M8 4 pin	Page 66
	Connecting cable with plug connector	M12 8 pin	Page 69
Bolts	Bolts for housing design CET		Page 73
Fixing material	Mounting plates	8 0 08	Page 74
	Safety screws for actuators		Page 76
	Lockout bar		
	Mechanical key release		
Miscellaneous accessories	Emergency unlocking		Page 77
	Cover		
	Double ramp		
	Extension for escape release	6200	



#### Dimension drawing



#### With escape release













#### Terminal assignment

## M12 Wiring diagrams A and B

Pin	Designation	Function		12 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		•
	0V LED 2	OV LED 2		
5 LED 1 Freely configurable, 24 V		Freely configurable, 24 V		•
6	UCM	Operating voltage of guard locking solenoid, DC 24 V		•
7 0.V/GND	O V/CND	Operating voltage of guard locking solenoid, DC 0 V	•	
/	0 V/GND	Operating voltage of guard locking solenoid and LED 1, DC 0 V		•
8	Housing	Housing		•

## 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	OV 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**



- 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.

#### Ordering table

#### Key adapter

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

#### 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 www.euchner.com.

#### **Accessories**

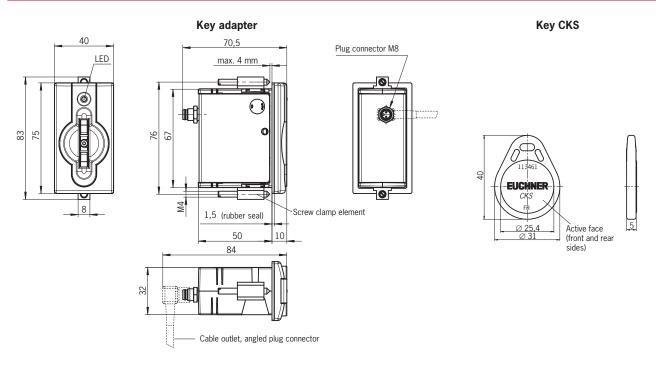
Туре	Version	
Connection material	Connecting cable with plug connector  M8 3 pin	Page 65



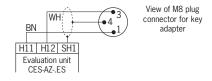




#### Dimension drawing



#### 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**







#### Connecting cables with plug connector

For the	connection	of:

CES-A-LSP-..**SB** 

	Version		Order no./item	
<b>M5</b>	Connecting cable with female plug,	<b>5</b> m	<b>105555</b> C-M05F04-02X014PV05,0-ES-105555	
4 pin	flying lead, 2 x 0.14 mm², screened	10m	<b>105556</b> C-M05F04-02X014PV10,0-ES-105556	For detailed information, enter the order number for the product in the search box at www.euchner.com.
PVC		20m	<b>105559</b> C-M05F04-02X014PV20,0-ES-105559	





#### Connecting cables with plug connector



	Version		Order no./item		
	— Connecting cable with female plug, flying lead,	3m	<b>077935</b> C-M08F03-02X025PV03,0-ES-077935		
		5m	<b>077793</b> C-M08F03-02X025PV05,0-ES-077793	For detailed information,	
M8	2 x 0.25 mm <sup>2</sup> , screened	10m	<b>077767</b> C-M08F03-02X025PV10,0-ES-077767		
3 pin	/	20m	<b>077716</b> C-M08F03-02X025PV20,0-ES-077716		
PVC	_	25m	<b>077717</b> C-M08F03-02X025PV25,0-ES-077717		
	Connecting cable with female plug, flying lead, 2 x 0.25 mm², screened	10m	<b>084701</b> C-M08F03-02X025PV10,0-ES-084701		
		<b>25m</b>	<b>099998</b> C-M08F03-02X025PV25,0-ES-099998		
	Extension for read head cable	0,4m	<b>115464</b> C-M08M03-02X025PU0,4-M08F03-115464	enter the order number for the product in the search box at	
	Connecting cable with female plug,	<b>5m</b>	<b>084762</b> C-M08F03-02X025PU05,0-ES-084762	www.euchner.com.	
		10m	<b>084763</b> C-M08F03-02X025PU10,0-ES-084763		
M8 gin PUR	2 x 0.25 mm², screened	15m	<b>084764</b> C-M08F03-02X025PU15,0-ES-084764		
	<u> </u>	20m	<b>084765</b> C-M08F03-02X025PU20,0-ES-084765		
		<b>25m</b>	<b>084766</b> C-M08F03-02X025PU25,0-ES-084766		
	Connecting cable with female plug, flying lead, 2 x 0.25 mm²,	10m	<b>098590</b> C-M08F03-02X025PU10,0-ES-098590	-	
	screened Signal Control Contro	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:



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









# Connecting cables with plug connector For LED indicator of read heads CEM

For the connection of:

CEM-A-LH10-...



	Version		Order no./item	
		<b>2m</b>	<b>088841</b> C-M08M04-04X025PV02,0-ES-088841	
M8 4	Connecting cable with male plug, flying lead, 4 x 0.25 mm <sup>2</sup>	<b>5</b> m	<b>088842</b> C-M08M04-04X025PV05,0-ES-088842	For detailed information, enter the order number for the
pin PVC		10m	<b>088843</b> C-M08M04-04X025PV10,0-ES-088843	product in the search box at www.euchner.com.
		15m	<b>088844</b> C-M08M04-04X025PV15,0-ES-088844	





Connecting cables with plug connector For the connection of: CES-FD-AP-... Version Order no./item 100183 5m C-M12F05-05X034PV05,0-MA-100183 Connecting cable with female plug, 100184 10m flying lead, C-M12F05-05X034PV10,0-MA-100184 5 x 0.34 mm<sup>2</sup>, screened 100185 20m C-M12F05-05X034PV20,0-MA-100185 5 pin 156064 50m C-M12F05-05X034PV50,0-MA-156064 100180 5<sub>m</sub> C-M12F05-05X034PV05,0-M12M05-100180 Extension, plug connectors at both ends for connection to decentralized peripheral 100181 equipment 10m C-M12F05-05X034PV10,0-M12M05-100181 100182 20m C-M12F05-05X034PV20,0-M12M05-100182 For detailed information, enter the order number for the product in the search box at www.euchner.com. 113620 5m C-M12F05-05X034PU05,0-MA-113620 Connecting cable with female plug, 113640 10m flying lead, C-M12F05-05X034PU10,0-MA-113640 5 x 0.34 mm<sup>2</sup>, screened 20m 113682 C-M12F05-05X034PU20,0-MA-113682 M12 5 122784 30m pin C-M12F05-05X034PU30,0-MA-113682 119932 5m C-M12F05-05X034PU05,0-M12M05-119932 Extension, plug connectors at both ends for connection to decentralized peripheral 119947 10m equipment C-M12F05-05X034PU10,0-M12M05-119947 20m 119971 C-M12F05-05X034PU20,0-M12M05-119971





#### Connecting cables with plug connector

#### For the connection of:



	Version		Order no./item	
M12 8 pin PVC	Connecting cable with female plug, flying lead, 7 x 0.25 mm², screened 1)	10m	<b>099633</b> C-M12F08-07X025PV10,0-MA-099633	
		<b>20m</b>	<b>099634</b> C-M12F08-07X025PV20,0-MA-099634	
		<b>25m</b>	103115 C-M12F08-07X025PV25,0-MA-103115	
	Connecting cable with female plug, flying lead, 7 x 0.25 mm², screened 1)	10m	<b>100456</b> C-M12F08-07X025PV10,0-MA-100456	For detailed information, enter the order number for the product in the search box at www.euchner.com.
		20m	<b>105071</b> C-M12F08-07X025PV20,0-MA-105071	
M12 8		10m	<b>102218</b> C-M12F08-07X025PU10,0-MA-102218	
8 pin PUR		<b>25m</b>	103782 C-M12F08-07X025PU25,0-MA-103782	

<sup>1)</sup> 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:



	Version			Order no./item	
3 pin	Extension, female plug BS4C1851 at one end, flying lead, 2 x 0.25 mm², screened		1,5m	<b>103667</b> C-M18F04-02X025PV01,5-ES-103667	For detailed information, enter
PVC	Extension, plug connectors at both ends, coupling socket KD4C1851/ cable socket M8 (3-pin), 2 x 0.25 mm²,	M8	15m	<b>103647</b> C-M08F03-02X025PV15,0- M18M04-103647	the order number for the product in the search box at www.euchner.com.
	screened	3 pin	18m	<b>128046</b> C-M08F03-02X025PV18,0- M18M04-128064	

#### Coupling socket/female plug

Plug connector for extending the read head connecting cable

For the connection of:

CES-A-L-...
CEM-A-L-...
CEM

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





#### Inrush current limiting module PM-SCL

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

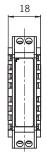
#### For the connection of:

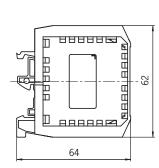


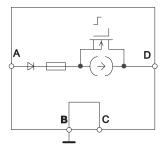


,	Version	Order no.		
Inrush current limiting module PM-SCL		For CES evaluation units	<b>096945</b> PM-SCL-096945	For detailed information, enter the order number for the product in the search box at www.euchner.com.

#### 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:



Design	nation	Detent mechanism/ door gap	Material	Version	Order no.	
CEC	Bolt CES-A-A	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
	Bolt CES-A-A/F	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	for the product in the search box at www.euchner.com.

#### Bolts for read heads CEM

Notice: The actuators are not included with these bolts.

#### For mounting:

CEM-A-LE05-...



Designa	ation	Detent mechanism/ door gap	Material	Version	Order no.	
CEM O	Bolt CEM-A	None/	Ctool	For doors hinged on the right	<b>097955</b> BOLT CEM-A	For detailed information, enter the order number
CEIVI .	Bolt CEM-C	door gap: 15 mm	Steel	For doors hinged on the left	<b>097957</b> BOLT CEM-C	for the product in the search box at www.euchner.com.





# **Bolts for read head CET**

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

# For mounting:





Designation		Detent mechanism/ door gap	Material Version		Order no.		
	Bolt CET-A-C	None/ door gap: 15 mm	Staal		<b>104309</b> BOLT CET-A-C		
	Bolt 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 BOLT CET-A-C/		For detailed information, enter the order number for the product in the search box at www.euchner.com.	
CET	Bolt 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 BOLT CET-A-C/F-C22			
	Bolt 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 BOLT CET-A-C-C2308		



# Fixing material

# Mounting sets/mounting plates

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



# Clamping pieces for aluminum profiles

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



# 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-A-LN, CES-A-LC, CES-A-LQ and actuators CES-A- BB, CES-A-BCA, CES-A-BQ	20	071863
Safety screws, stainless steel <b>M4 x 14</b> (large head)	Field evaluation unit CES-FD-AP	100	086232
Safety screws <b>M5 x 16</b>	Read heads CEM-A-LE and actuators CET-A-BWK, CEM-A-B	100	073456



# Miscellaneous accessories

	Designation	Use	Version	Order no.	
	Lockout bar				
CEM		For actuator CEM-A-BE05	Suitable for 3x shackle diameter 4 9 mm	<b>122404</b> AE-L-BE05-R-122404	
	Lockout bar				
	9	For actuator CET	Suitable for shackle diameter 5 6 mm	<b>122609</b> AE-L-CET-122609	
	Lockout bar				
	En.	For actuator CET	Suitable for shackle diameter 5 mm - 9 mm	<b>156429</b> 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	<b>156338</b> AY-CHN-A1-156338	
	Lockout bar + holder				
	set	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	
	Mechanical key release				
CET		For read head CET-AX	ldentical locking, including two keys	098850	
	Replacement key	For mechanical key release, identical locking	Two keys, identical locking	099434	
	Emergency unlocking				
		For read head CET-AX	Latching in both positions	103714	
	Lead seal kit	For emergency unlocking	-	087256	
	Cover	For read head CET-AX	Door hinge right	098808	
		and actuator CET	Door hinge left	098807	
	Cover	For actuator CET	For horizontal and vertical fastening on the actuator (suitable for fixing screws M5 x 16)	<b>124979</b> AM-C-124979	
	Double ramp				
-		For read head CET-AX	-	<b>114091</b> CET-DR	
	Extension for escape release	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	



# Index by item designation

Item	Order no.	Page
AE-L-BE05-R-122404	122404	77
AE-L-CET-122609	122609	77
AE-L-CET-156429	156429	77
AE-SET-LCHN-A1-155865	155865	77
AF-E-80-127377	127377	77
AM-C-124979	124979	77
AM-P-126398	126398	74
AM-P-126399	126399	74
AM-P-126400	126400	74
AY-CHN-A1-156338	156338	77
BS4C1851	077435	70
C-M05F04-02X014PV05,0-ES-105555	105555	64
C-M05F04-02X014PV10,0-ES-105556	105556	64
C-M05F04-02X014PV20,0-ES-105559	105559	64
C-M08F03-02X025PU05,0-ES-084762	084762	65
C-M08F03-02X025PU10,0-ES-084763	084763	65
C-M08F03-02X025PU10,0-ES-098590	098590	65
C-M08F03-02X025PU15,0-ES-084764	084764	65
C-M08F03-02X025PU20,0-ES-084765	084765	65
C-M08F03-02X025PU25,0-ES-084766	084766	65
C-M08F03-02X025PU25,0-ES-120280	120280	65
C-M08F03-02X025PV03,0-ES-077935	077935	65
C-M08F03-02X025PV05,0-ES-077793	077793	65
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