Uhlmann & Zacher

CX2162/66

Clex private
Compact electronic knob cylinder

Operating and assembly manual

Imprint

Operating and assembly manual
Compact Knob Cylinder CX2162/66

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Table of contents

1 About this document

This operating and assembly manual describes the Clex private electronic knob cylinder (in short: CX216x). It is part of the product and contains important information that is necessary for proper operation and maintenance.

This operating and assembly manual is valid for all versions of CX216x and is intended for technicians responsible for assembling and disassembling, as well as for end customers.

- Read this operating and assembly manual carefully for smooth and safe operation and follow the instructions given in it before operating the door handle.
- Keep the operating and assembly manual in a safe place.
- After the installation, hand over the manual to the end customer and make sure that the customer familiar with its use.

Uhlmann & Zacher GmbH does not assume any responsibility for disruptions or hazards such as non-access to injured personnel, malfunctions, property damage or other damages resulting from non-compliance with this operating and assembly manual or incorrectly configured knob cylinders.

- If there are still any doubts after reading this operating and assembly manual, please contact your respective dealer or Uhlmann & Zacher GmbH directly.

1.1 Warnings

Warnings warn against hazards which may arise when using the door handle. There are two levels of warnings that can be identified based on the signal word:

Signal word	Meaning
CAUTION	Indicates a hazard with a low risk that can lead to mild or moderate injury if not avoided.
ATTENTION	Indicates a hazard that results in property damage.

1.2 Symbols

The following symbols may be used in this manual:

- This symbols indicates a usage instruction that must be followed by the user.
- This symbol indicates an entry in a list.

This symbol indicates useful and important information.

2 Security

2.1 Proper use

The electronic knob cylinder CX216x is intended for installation in building doors and for locking and unlocking doors. They need to be equipped with a DIN lock for Euro profile cylinders. The CX216x locking cylinder can be used indoors as well as outdoors (depending on the product version).

The assembly should be carried out only by trained technicians. Only the components approved by Uhlmann & Zacher should be used for installation and maintenance.

Any other use is considered as improper and may result in damage to material or even in physical injury.

2.2 Improper use

The CX216x should not be used for locking up people or animals as well as supplies required in case of emergencies (for example defibrillator, emergency medication, fire extinguishers, etc.).

The CX216x should not be used in potentially explosive surroundings.

Specially approved versions that are intended for the purpose should be installed and used in fire, smoke resistant doors and emergency exit locks. The applicable regulations should be followed.

The CX216x should not be used if the housing or the electronics is damaged. Changes or retrofits to the product are not allowed. The knob module should not be used outside the given specifications.

The knob module should not be used in doors that do not open freely or in doors or lock cases that are damaged. The door should not be opened using the knob module. The knob module should not be used as a stopper against obstacles.

2.3 General safety instructions

Follow these basic safety instructions when using the knob cylinder:

- Installation and battery replacement should only be done by qualified technicians according to the instructions in this operating and assembly manual.
- Do not use the knob cylinder in potentially explosive areas.
- Do not make any kind of modifications to the knob cylinder, with the exception of those described in this operating and assembly manual.
- Do not apply paints or acids to the knob cylinder.
- Dot not heat the knob cylinder and battery beyond the specified storage temperature.
- Use only original spare parts and accessories from Uhlmann & Zacher to prevent malfunctions and damages.
- Only use batteries procured from Uhlmann & Zacher.

3 Product description

3.1 Functional description

The electronic locking cylinder CX216x is a product in the Clex private system. The reading unit, the communication electronics, the mechanical system and power supply, are integrated within the knob module.

Different transponder carriers can be used as key in the CX216x, for example, ISO card or key fob.

The CX216x has the following system properties:

- Up to 1,000 key/locking authorizations can be stored
- Up to 128 events can be recorded in the fitting*
- Up to 32 holidays can be configured*
- Automatic summer and winter time changeover*
- 15 weekly schedules can be programmed*
- Permanent engagement possible without additional power consumption
- Engagement time can be programmed from 1 to 15 seconds
- Can be connected to the IDS module CX6934
- Pre-configured by default for 868 MHz wireless networking
- No cabling required
- Can be combined with other systems (for example Clex prime)
- Version for MIFARE® transponder available
- Optional management via the CX2530 Keyng software

3.1.1 Battery management

The CX216x knob module comes with a battery management system, which indicates the need for battery replacement by means of a visible and audio signal, when the battery power reduces (capacity loss) during the final 1,000 operations of the battery (see chapter 7.2.1 Battery Replacement).

Signalling happens in three phases:

Phase 1 The battery needs to be changed soon.

If an authorized key is held in front of the knob module, the locking access right is issued. The engagement is accompanied by red flashing (5x) and 5 brief audible beeps.

Phase 2 The battery needs to be changed.

If an authorized key is held in front of the knob module, the knob module first flashes green for 5 seconds, then the knob module engages. The engagement is accompanied by red flashing (5x) and 5 brief audible beeps.

Phase 3 The battery needs to be changed immediately.

If an authorised key is held in front of the knob cylinder, the locking authorisation is no longer issued. The knob cylinder flashes 5 times in red accompanied by 5 short beeps.

The access data, the events log, the settings of the knob module and the time are stored on non-volatile memory and thus retained even when there is no power supply, for example, when changing the battery or if the battery goes completely flat. The time is written to the non-volatile memory once every 30 minutes. If the power supply remains off, then the clock comes to a standstill after a few seconds and starts running from the last stored value onwards after the power supply is restored.

* When CX2530 Keyng is used

Check the time after replacing the battery, and set the current time if necessary.

3.1.2 Event log[1]

The last 128 events of the knob module are stored in the event log.

Event logging can be enabled or disabled for each knob module individually, to be able to meet specific data privacy guidelines.

The event log can be read via the CX2530 Keyng.

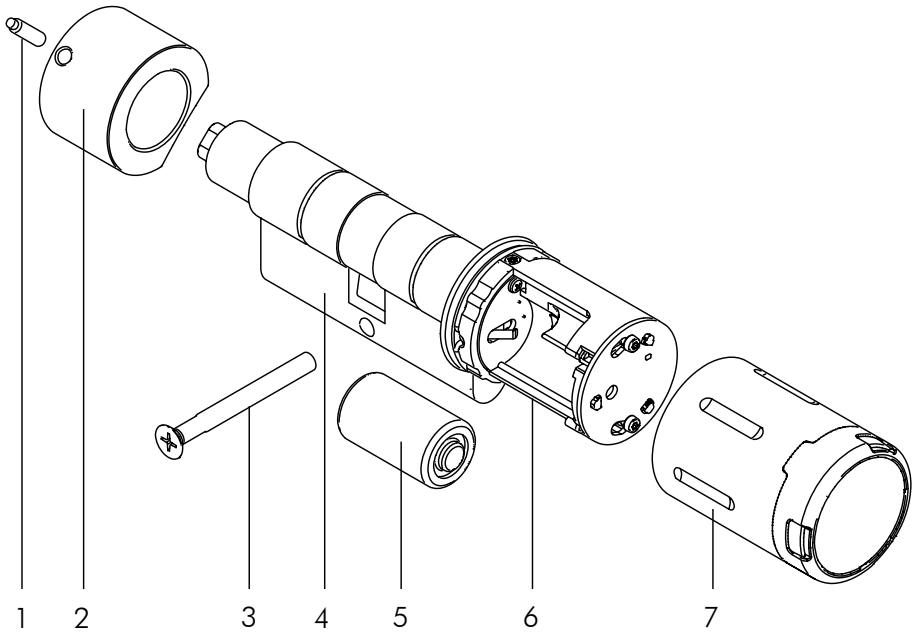
3.1.3 Locking time[1]

The locking time defines how long the knob module remains connected after scanning an authorised key. A value of 1 second to 15 seconds can be configured. The default value configured is 5 seconds.

The locking time can be changed using the CX2530 Keyng.

3.2 Construction and scope of supply

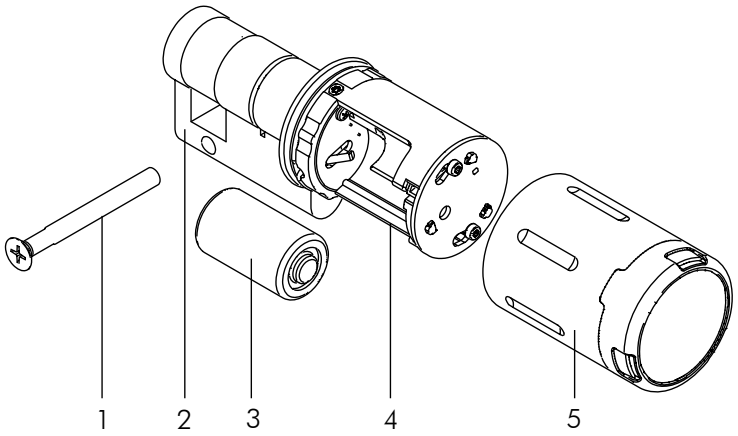
3.2.1 CX2162



1	Grub screw	5	Battery
2	Mechanical knob	6	Electronic knob
3	Fixing screw	7	Knob cover
4	Cylinder casing		

[1] When CX2530 Keyng is used

3.2.2 CX2126



1	Fixing screw	4	Electronic knob
2	Half cylinder casing	5	Knob cover
3	Battery		

3.3 Versions

Different versions of the electronic locking cylinder are available for selection:

- For indoor or outdoor use
- Various cylinder casing lengths

3.4 Technical data

3.4.1 General technical data

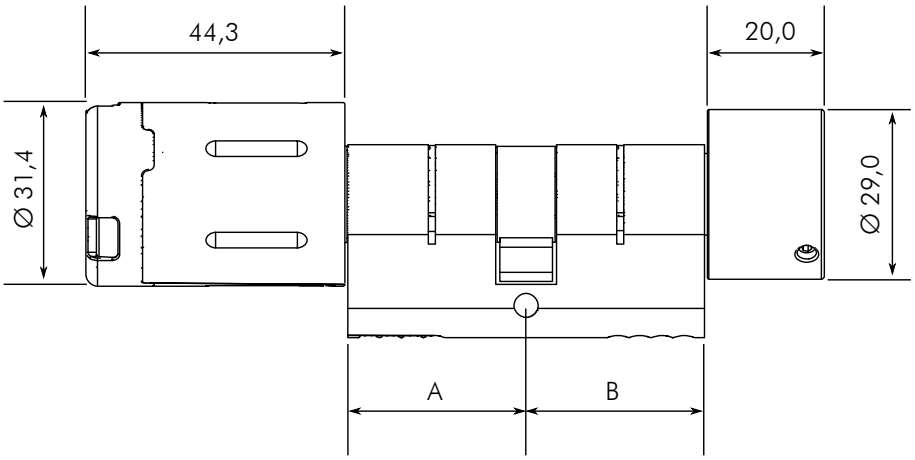
Name	Value
Dimensions of the cylinder	For Europrofile locks conforming to DIN 18252
Cylinder lengths CX2162	From 26/26 mm or 30/30 mm to 200/200 mm in 5 mm steps; over-sizes available upon request
Cylinder lengths CX2166	From 30/10 mm 200/10 mm in 5-mm steps; over-sizes available upon request
Length of the electronic knob	44.3 mm
Diameter of the electronic knob	31.4mm
Length of the mechanical knob	20.0 mm
Diameter of the mechanical knob	29.0mm
Transponder	**Version 1: MIFARE®** MIFARE® Classic, MIFARE® DESFire®, Active transponder (868MHz) **Version 2: LEGIC®** LEGIC® prime, LEGIC® advant, MIFARE® DESFire®, Active transponder (868 MHz)
Power supply, Nominal voltage	Battery CR2 3V (1 piece), 3 volt
Battery life	MIFARE®: up to 60,000 actuations or 5.7 years LEGIC®: up to 50,000 operations or 8.6 years

3.4.2 Ambient conditions

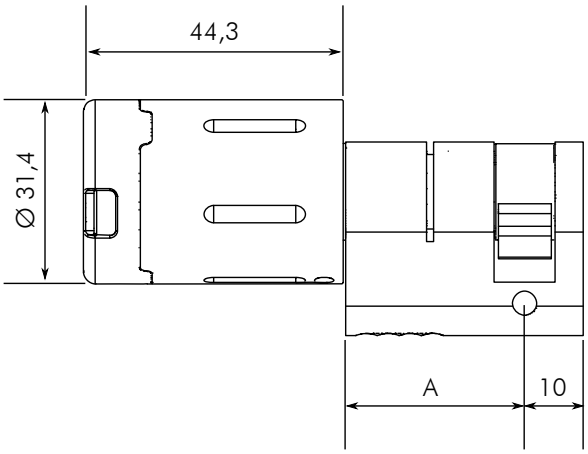
Name	Value
Operating temperature	+5°C to +55°C (indoor version) -25°C to +65°C (outdoor version)
Storage temperature	-40°C to +65°C
Installation location	Indoor or outdoor (depending on the product model)
Protection class	IP55 (indoor version) IP66 (outdoor version)

3.4.3 Dimensions

CX2162



CX2166



3.5 Standards

The CX216x knob module conforms to the following standards:

- EN 15684:2013 (being prepared)
- EN 60529:2014 (being prepared)

3.6 Management accessories

3.6.1 CX2530 Keyng

The CX2530 Keyng management software helps easy management of the electronic locking system Clex private via the PC. The software, in comparison to the learning / clearing system, offers an extended function range.

The communication between the locking units and the management software takes place via a USB wireless stick or a programming station.

3.6.2 CX6522 wireless stick

The Clex wireless stick is required for the basic operation of the Keyng software.

3.6.3 CX6520 Programming station

The Clex programming station is optional addition to the Keyng software and helps conveniently read the key.

3.6.4 Service key

Using the service key, a user identifies himself as an administrator of the locking system. If the service key is held in front of a component of the locking system, then the respective component goes into programming mode. It is then possible, for example, to authorize keys, adjust settings or read the event log.

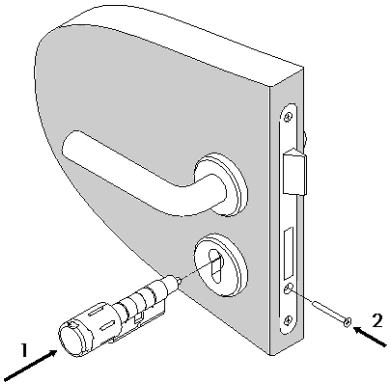
4 Assembly

4.1 General assembly instructions

- Before assembling the CX216x knob cylinder in a fire/smoke-resistant door, please check the fire certification to ensure conformity.
- Carry out the assembly necessarily with the door open.
- Ensure that the latches or seals fitted to the door do not hinder the proper operation of the CX216x.
- Ensure that the knob cylinder does not protrude and prevent the door from swinging freely.
- Before assembling the knob cylinder, always check if the components can move freely.
- After assembly, check the function with the door open.

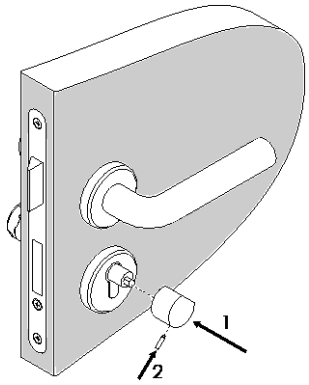
4.2 Assembly

▶ Insert the cylinder housing along with the electronic knob into the lock. Tighten the fixing screw by hand, do not use a battery-operated screwdriver with a high torque.



The cylinder body must not project outside its enclosing fitting by more than 1 to 3 mm, but it should not also be installed sunk in the upholstery.

▶ The mechanical knob is assembled to the end of the cylinder housing and secured using the grub screw. In the process, ensure that the axis of rotation, as well as the seating of the knob have a flat surface, both of which need to be flush with each other.



5 Commissioning

Basically, there are two ways to manage a Clex private locking system and thereby programming the CX216x knob module:

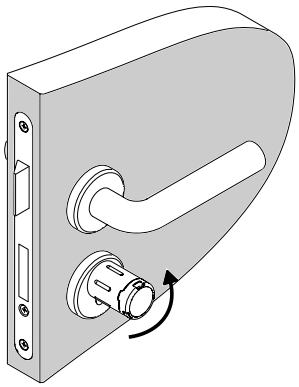
- Management as programming / clearing system
- Management using the CX2530 Keyng software and wireless stick / programming station

5.1 Initial commissioning

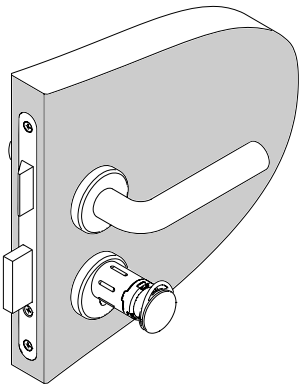
To protect the battery from discharging during transport, the CX6162/66 is kept in transport mode till the initial commissioning. There are two options of changing over to the normal operating mode.

Option 1)

- Turn the knob a few times to wake up the reading unit, till an LED starts glowing.



- Hold up the key in front of the reading unit only after this.



Option 2)

- Remove the battery for at least 10 seconds and insert it again (see chapter 7.2.1Replacing the battery, page 18).

From now on you can continue with chapter 5.2 Programming the service key.

5.2 Programming the service key

In its original condition (delivery status), the service key has not been memorized by the knob module.

- Waking the electronic cylinder by holding a key in front of the reader unit or by turning the electronic knob module into the lock cylinder a few times. Upon success, the electronic locking cylinder responds with three long audible signals.
- Within the next 15 seconds, the service key can now be programmed by holding it in front of the electronic knob module. Once the service key has been programmed successfully, the locking cylinder indicates this with two short and one long audible signal.

After memorizing, the knob module enters the programming mode when the service key is presented.

5.3 Management as programming / clearing system

5.3.1 Programming the key

- Hold the service key in front of the reading unit of the knob module. The knob module enters the programming mode.
- Hold the key to be programmed in front of the reading unit until two short audible signals indicate the success.
- Optionally, program additional keys as described in the previous step.
- Hold the service key in front of the reading unit or wait 15 seconds to exit the programming mode.

To create a key with toggle authorisation, hold the key for 3 seconds in front of the reading unit during the programming process until the success is indicated by 3 short audible signals.

5.3.2 Delete key

- Hold the service key in front of the reading unit of the knob module. The knob module enters the programming mode.
- Hold the key to be deleted in front of the reading unit until two long audible signals indicate success.
- Optionally, delete additional keys as described in the previous step.
- Hold the service key in front of the reading unit or wait 15 seconds to exit the programming mode.

5.3.3 Delete all keys

- Hold the service key in front of the reading unit of the knob module. The knob module enters the programming mode.
- Hold the service key until the knob module exits the programming mode.
- Within 60 seconds, return the knob module to the programming mode and hold the service key in front of the reading unit. In the meantime, the knob module indicates success using short audible signals.
- Once the programming mode is exited after 15 seconds, all the keys would have been deleted.

5.4 Management with Keyng CX2530

The CX2530 Keyng software enables convenient and easy management of the electronic locking system.

You will find more detailed information in the CX2530 Keyng documentation.

5.5 Changing the settings

The following settings can be adjusted using the CX2530 Keyng software:

- Time
- Enable/disable the event log
- Locking time (defines how long the knob module remains connected after scanning an authorised key).
- Wake-up sensitivity
- Radio response of the knob module (wake-on-radio mode)

6 Operation

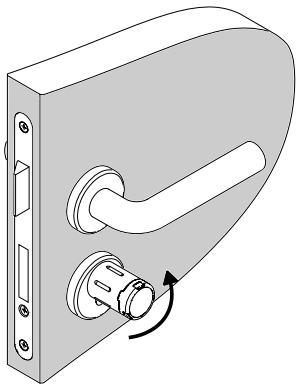
6.1 Automatic wake up

The knob module is in sleep mode as long as it is not used. To check the authorisation of a key, it needs to be woken up from the sleep mode. This normally happens automatically when a key is held in front of the reader unit.

If, however, the knob module has been woken up 24 times (for example by metallic objects in the surroundings) without reading a key, then automatic wake up is disabled.

In this case the knob module has to be woken up manually.

- Turn the knob module few times to wake up the reading unit, till an LED starts glowing.



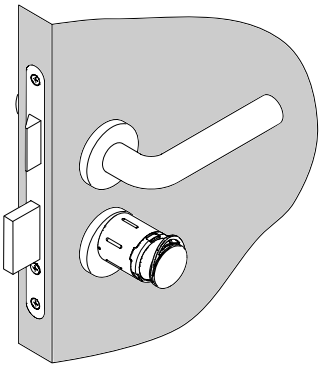
- Hold up the key in front of the reading unit only after this.

The automatic activation is reactivated when an authorized key is scanned.

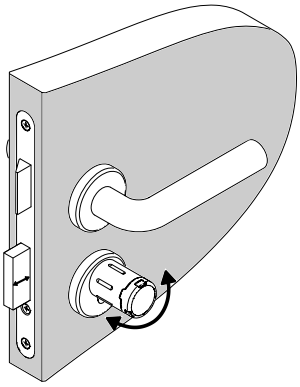
The wake up sensitivity (that is the number of times the knob module needs to be turned to wake up the reading unit) can also be configured.

6.2 Opening and locking the door.

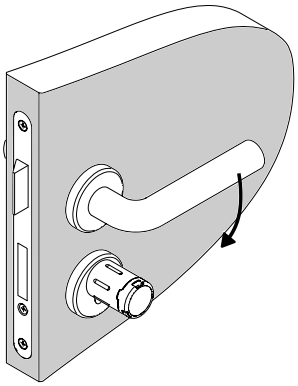
- Hold the authorised key in front of the reading unit till the green LED starts glowing.



- The knob module is now engaged, the door can be locked and unlocked by turning the electronic knob module.



- The door can be opened using the door handle in the unlocked state.



The time duration for which the knob cylinder remains engaged can be configured (1 to 15 seconds, the default value is 5 seconds). After successful authorization (engaging) at the knob, the engagement time countdown starts.

6.3 Toggling the knob module

- Hold the key with toggle authorisation for two locking cycles in front of the reading unit.

Depending on the initial state, the knob module either engages or disengages permanently.

6.4 Signals

Function	Signal (audible and visible) and explanation
Rest mode	No audible or visible signal
Programming mode start	– • Long beep followed by a short beep
Programming mode end	• – Short beep followed by a long beep
Key programmed	• •  2 short beeps, LEDs glow green
Key cleared	– –  2 long beeps, LEDs glow red
Read mode (after waking)	 Red LEDs start flashing
Key not authorised	–  Long low beep, red LEDs start glowing
Key authorised	 Green LEDs start glowing
Timer circuit / toggling On	–  Long loud beep, green LEDs start glowing
Timer circuit / toggling Off	–  Long loud beep, red LEDs start glowing
Reset	–   Long low beep, all the LEDs are switched on briefly one after the other
Battery warning Phase 1:	• • • • •  5 short beeps, red LEDs flash 5 times simultaneously
Battery warning Phase 2:	• • • • •  5 s  5 short beeps, red LEDs flash 5 times simultaneously, then 5 seconds engagement delay, green LEDs start flashing at the same time
Battery warning Phase 3:	• • • • •  5 brief audible signals, red LEDs flash 5 times simultaneously, no connection but change battery position
Delete all keys	• • • • •  15 s 15 seconds short beeps, green LEDs flash simultaneously

7 Cleaning and maintenance

7.1 Cleaning

- Clean the knob cylinder with a dry or slightly damp cloth. Use only commercially available household cleaners.
- Do not use any abrasive or caustic cleaning agents.

7.2 Maintenance

7.2.1 Replacing the battery

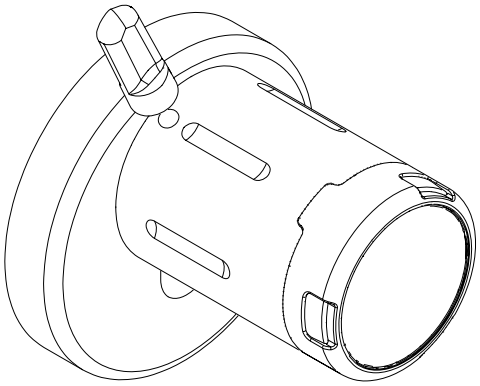
⚠CAUTION

Danger of injury caused by improper use

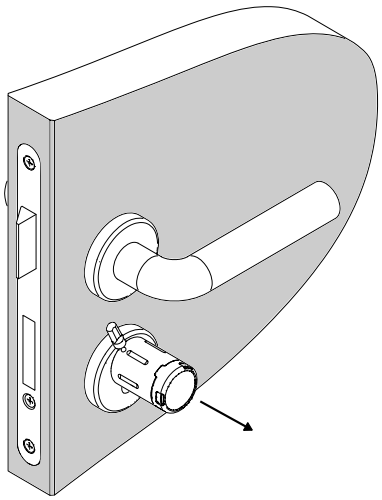
- Do not charge, open or heat the battery.
- Always replace discharged batteries with new batteries.
- Pay attention to the correct polarity when inserting the batteries.

Change the battery only with the door open. As long as the battery is removed, the knob cylinder cannot engage/disengage and thus cannot open/lock the door.

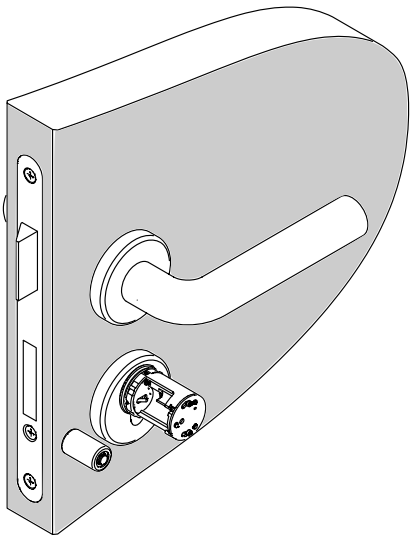
- Insert the battery removal tool in the spot marked on the knob cover.



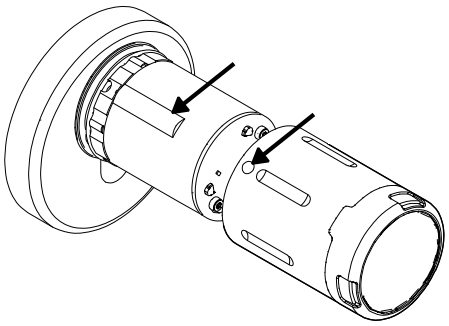
- With the battery removal tool in place, remove the knob cover.



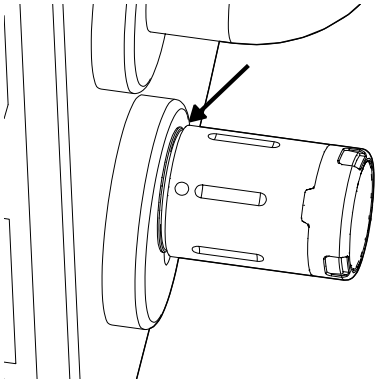
- Remove the used battery and insert the new battery, paying attention to the polarity.



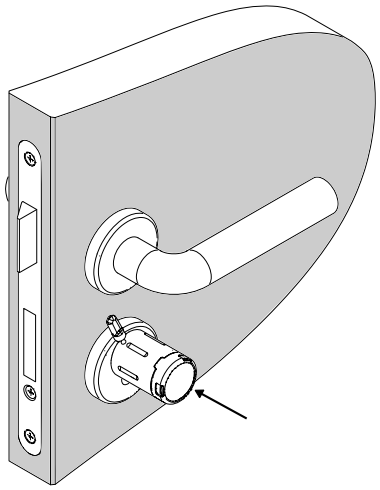
- Push the knob cover as far as it goes onto the knob, so that the marked spot on the knob cover aligns with the protruding plastic part on the knob.



- The knob cover has to be inserted such that only the rubber seal is visible. If this is not the case, hold the knob and turn the knob cover back and forth till the knob cover can be inserted up to the rubber ring.



- Insert the battery removal tool at the marking on the knob cover and push it together onto the knob as far as it goes. Remove the battery removal tool from the knob cover and check whether it is seated firmly on the knob by pulling the knob cover.



- Check the time of the knob cylinder using the service unit CX6510 or ClexTouch CX6522 and adjust if necessary.

7.2.2 Replacing the sealing ring

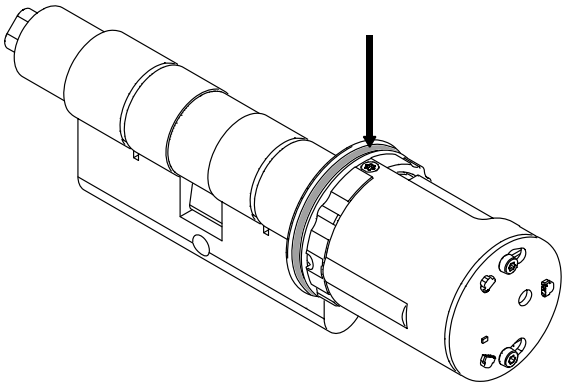
CAUTION

Damage to the sealing ring caused by improper handling

- Do not use any sharp objects and do not stretch the sealing ring more than what is required for mounting.

Precondition: Knob cover is removed (see chapter 7.2.1Replacing the battery , Page 18)

- The sealing ring is visible once the knob cover is removed. It is located on the side facing the door.



- To remove the sealing ring, hold down the sealing ring on one side with the thumb and slide the finger nail of the middle finger on the opposite side. The sealing ring can now be grasped by the index finger.
- Insert a new sealing ring, which has to completely sit in the groove.

8 Faults during operation

8.1 Fault indications

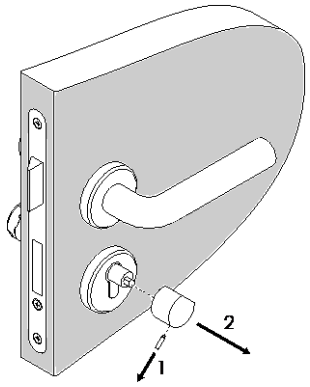
Function	Audible signal	Explanation
Memory fault / configuration fault	— — — — — •	5 long beeps, 1 short beep
Coupling error	— — — — — • •	5 long beeps, 2 short beeps
RTC fault (clock)	— — — — — • • •	5 long beeps, 3 short beeps
Internal error (unhandled interrupt)	— — — — — • • • •	5 long beeps, 4 short beeps
Internal error (bus conflict)	— — — — — • • • • •	5 long beeps, 5 short beeps
Internal error (bus conflict)	— — — — — • • • • • •	5 long beeps, 6 short beeps
Internal error (bus conflict)	— — — — — • • • • • • •	5 long beeps, 7 short beeps

- If the faults mentioned above occur repeatedly, then please contact the concerned dealer.

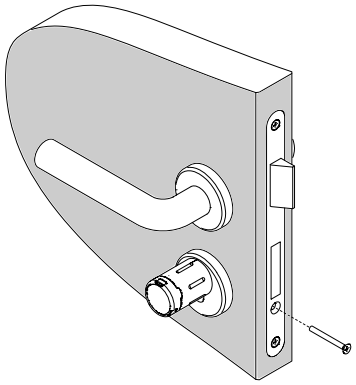
9 Disassembly and Disposal

9.1 Disassembly

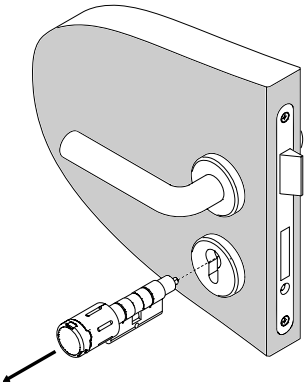
- Loosen the Allen screw of the mechanical knob and remove the mechanical knob from the cylinder.



- Remove the fixing screw.



- Remove the cylinder body and electronic knob from the lock.



9.2 Disposal

- Do not dispose of the knob cylinder with domestic waste. Disposal should be in accordance with the European Directive 2002/96/EC at a collection point for electrical waste.
- Defective or used batteries should be recycled in accordance with the European Directive 2006/66/EC.
- Follow the local regulations on separate disposal of batteries.
- Recycle the packaging in an eco-friendly manner.

10 Glossary

Definition	Description
IDS	Intrusion Detection System (IDS)
Keyng	Software for managing a locking system
MIFARE®	Technology for contactless transfer of identification data
Key	Data carrier that contains the authorization information. This can, for example, be an ISO card or a chip. The key is sometimes also known as transponder.
Service unit	Data can be exchanged between a PC having the Keyvi management software and the knob cylinder using the service device.
Service key	A special key with which you can identify yourself as the administrator of the locking system.
Toggling	Permanently engaging a knob module, so that the door can be opened without a key.
Transponder	See key
WoR	Wake-on-radio (radio response of a knob module)