

CX2122/24/26

Clex private
Electronic knob module



Operating and assembly manual

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Electronic knob module CX2122/24/26

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1 About this document

This operation and assembly manual describes the electronic knob module of the Clex private product family (in short: CX212x¹). 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 CX212x 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 knob module.
- ▶ 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 modules.

- ▶ 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 that may arise when using the knob modules. There are two levels of warnings that can be identified based on the signal word:

Signal word	Significance
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 symbol indicates an instruction that must be followed by the user.
- This symbol indicates an entry in a list.



This symbol indicates useful and important information.

¹ The name CX212x is used interchangeably for the products CX2120, CX2122, CX2124 and CX2126 in this manual.

2 Safety

2.1 Proper use

The CX212x is intended for the installation in building doors and is meant for locking and unlocking doors. They should be fitted with a corresponding lock and fitting.

Only the components approved by U&Z should be used for installation.

The CX212x is intended for installation in DIN locks with Europrofile cylinders or in locks with Swiss round profile, depending on the version.

2.2 Improper use

The CX212x must not be used for locking up supplies required in case of emergencies (for example defibrillator, emergency medication, fire extinguishers, etc.).

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.
- ▶ Do 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 door opener CX212x 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 CX212x, for example, ISO card or key fob.

The CX212x has the following system properties:

- Up to 1,000 key/locking authorizations can be stored
- Up to 128 events in the fitting can be recorded*
- 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 can be supplied
- Optional management via the CX2530 Keyng software

3.1.1 Battery management

The CX212x 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).

Signaling happens in 3 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 short acoustic signals.

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 short acoustic signals.

Phase 3 The battery needs to be changed immediately.

If an authorized key is held in front of the knob module, no locking access right is issued, but rather the knob module goes to the battery change position. In addition, the knob module flashes red 5x and gives 5 short acoustic signals.

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

After every change of battery, remember to check the time. If required, set the current time.

3.1.2 Event log²

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 comply with specific data privacy guidelines.

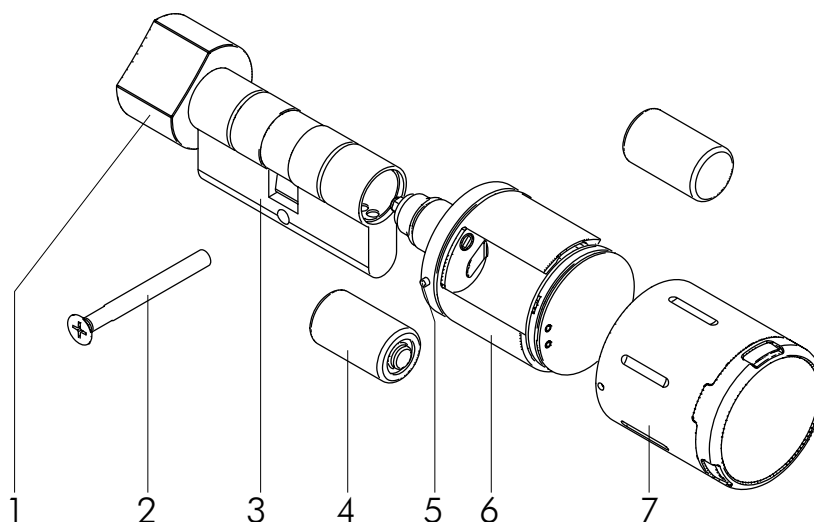
The event log can be read via the CX2530 Keyng.

3.1.3 Locking time *

The locking time defines how long the knob module remains connected after scanning an authorized key. It can be adjusted from 1 to 15 seconds. The set default value is 5 seconds.

3.2 Design and scope of supply

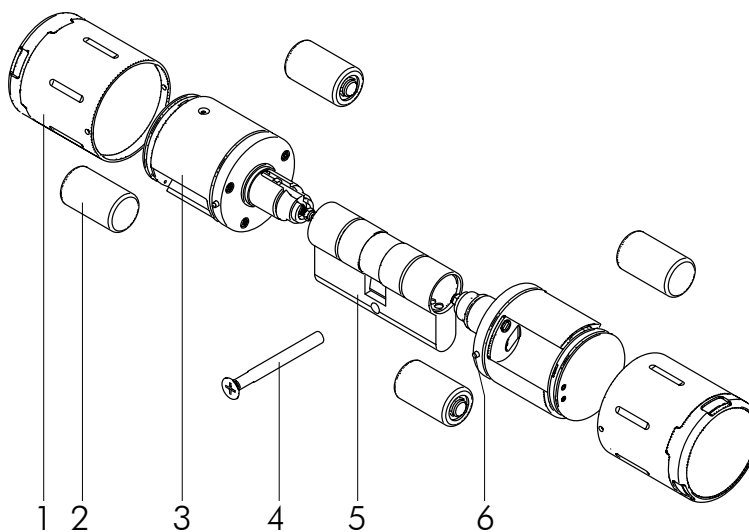
3.2.1 CX2122



1	Mechanical knob	5	Sleeve-locking pin
2	Fixing screw	6	Electronic knob
3	Cylinder casing	7	Knob sleeve
4	Battery		

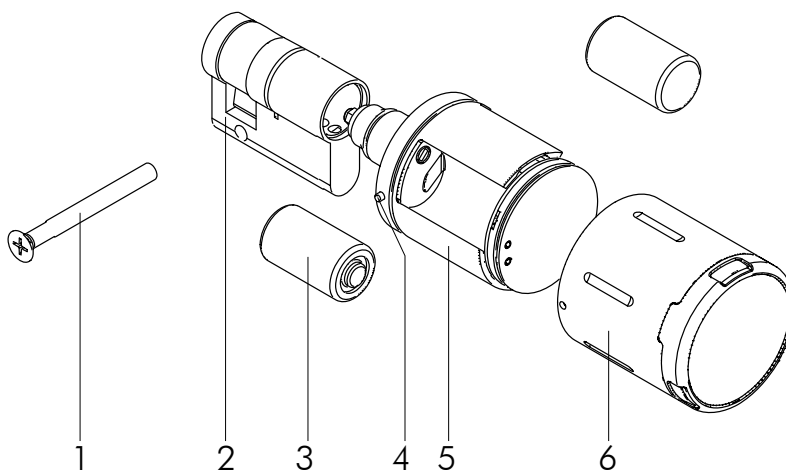
² * When CX2530 Keyng is used

3.2.2 CX2124



- | | | | |
|---|-----------------|---|--------------------|
| 1 | Knob sleeve | 4 | Fixing screw |
| 2 | Battery | 5 | Cylinder casing |
| 3 | Electronic knob | 6 | Sleeve-locking pin |

3.2.3 CX2126



- | | | | |
|---|-----------------|---|--------------------|
| 1 | Fixing screw | 4 | Sleeve-locking pin |
| 2 | Cylinder casing | 5 | Electronic knob |
| 3 | Battery | 6 | Knob sleeve |

3.3 Versions

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

- For inside or outside use
- Various cylinder casing lengths

3.4 Technical data

3.4.1 General technical data

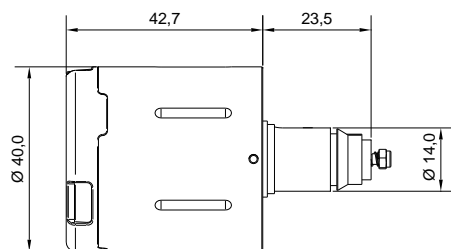
Description	Value
Dimensions of the cylinder	For Europrofil locks conforming to DIN 18252
Cylinder lengths CX2122	From 26/26 mm or 30/30 mm to 200/200 mm in 5-mm steps; over-sizes available upon request
Cylinder lengths CX2124	From 30/35 mm 200/200 mm in 5-mm steps; over-sizes available upon request
Cylinder lengths CX2126	From 26/10 mm or 30/10 mm to 200/10 mm in 5-mm steps; over-sizes available upon request
Length of the knob	42.7 mm (indoor version) 44.8 mm (outdoor version)
Diameter of the knob	40.0 mm (indoor version) 45.0 mm (outdoor version)
Transponder	MIFARE® Classic MIFARE® DESFire® active transponder (868 MHz)
Power supply	Battery CR2 3V (2 units)
Battery life	up to 74,500 operations or 10 years

3.4.2 Ambient conditions

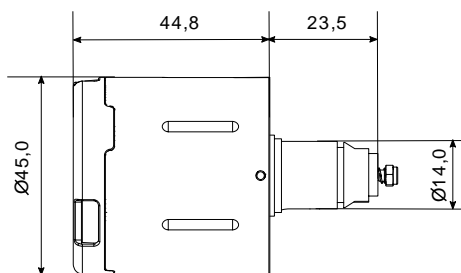
Description	Value
Operating temperature	-20°C to +65°C (indoor version) -25°C to +65°C (outdoor version)
Storage temperature	-40°C to +65°C
Installation location	Inside or outside (depending on the product model)
Protection class	IP65 (indoor version) IP66 (outdoor version)

3.4.3 Dimensions

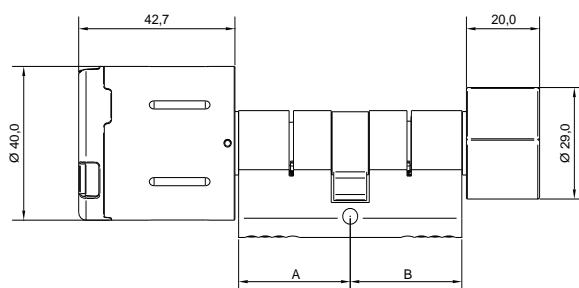
CX2120



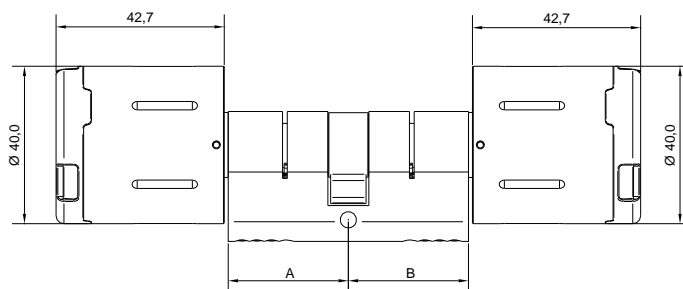
CX2120 IP66



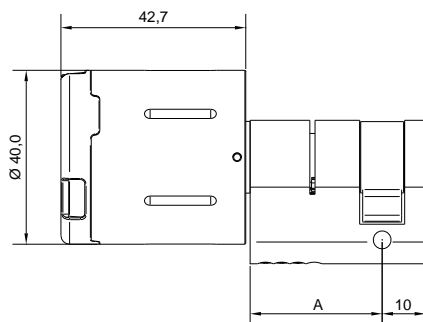
CX2122



CX2124



CX2126



3.5 Management accessories

3.5.1 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 radio stick or a programming station.

3.5.2 CX6522 radio stick

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

3.5.3 CX6520 Programming station

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

3.5.4 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.

3.5.5 Battery change card

If a battery change card is held in front of a knob module, the knob module goes into the battery change position. It is now possible to remove the knob sleeve to access the batteries.

3.5.6 Disassembly card

If a disassembly change card is held in front of a knob module, the knob module goes into the disassembly position. It is now possible to dismount the knob module.

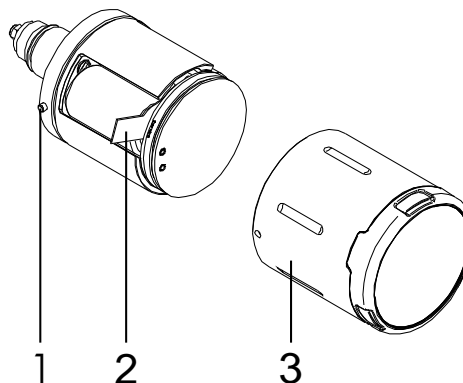
4 Assembly

4.1 Assembly instructions

4.1.1 General assembly instructions

- Before assembling the CX212x knob cylinder in a fire/smoke-resistant door, please recheck the fire certification to ensure conformity.
- Ensure that the sealing affixed on the door does not hamper proper operation of the CX212x.
- Ensure that the knob cylinder projections do not obstruct the free swing of the door.
- As electronic knob cylinders are supplied in a completely assembled state as standard, it may be necessary to perform the steps for disassembly, as described in chapter 4.3, before mounting.
- To activate the knob module, insert the batteries or remove the battery tag, if present, and close the casing (see chapter 7.2.1 Changing batteries)
- Before mounting the knob module, always check that all components move freely.
- Carry out the assembly with the door open.
- Only for cylinders supplied as single components: During initial installation, put in 1 to 2 drops (max. 0.1 ml) of a non-resinous oil in the cylinder body. It should not be sprayed directly into the cylinder body with a spray can.

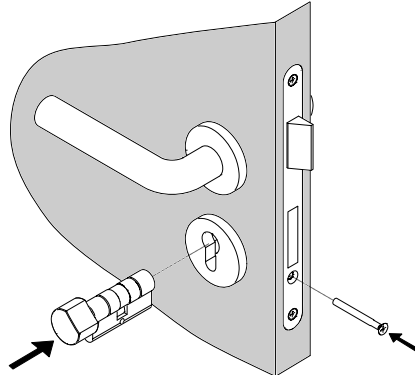
4.1.2 Removing the battery tab



- ▶ Remove the knob cover (3).
- ▶ Remove the battery tab (2).
- ▶ Press the cover locking pin in (1, the second battery locking pin is located on the opposite side of the knob module) and replace the knob cover (3). Please ensure that the locking pins are properly locked in the cover.

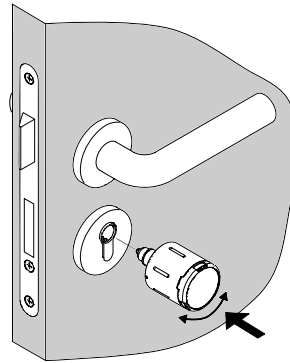
4.2 Assembly

- ▶ Remove the fixing screw of the cylinder existing and dismantle the present cylinder.
- ▶ Push in CX212x cylinder casing and fasten with fixing screw. 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 electronic knob is mounted into the cylinder casing by inserting and turning at the same time.



- ▶ Make sure that the knob cylinder operates easily and smoothly with the door open.

5 Commissioning

Basically, there are two ways to manage a Clex private locking system and thereby programming the CX212x knob module:

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

5.1 Memorize service key

In its original condition (delivery status), the service key has not been memorized by the knob module. To memorize the service key, the knob module is woken up by holding a key in front of the reading unit. Upon success, the knob module responds with three long audible signals. Within the next 15 seconds, the service key can be memorized by holding it in front of the reading unit. Once the service key has been memorized successfully, the knob module indicates this with two short and one long audible signals.

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

5.2 Management as learning / clearing system

5.2.1 Memorize battery change and disassembly card

After memorizing the service key, the battery change and the disassembly card also need to be memorized. To do this, first hold the service key in front of the knob module, followed by the battery change card and finally the disassembly card.

5.2.2 Memorize 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 memorized in front of the reading unit until two short audible signals indicate success.
- ▶ Optionally, memorize more 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 authorization, hold the key for 3 seconds in front of the reading unit during the memorize process until the success is indicated by 3 short audible signals.

5.2.3 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 more 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.

5.2.4 Delete all keys

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

5.3 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.

5.4 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 authorized key).
- Wakeup sensitivity
- Radio response of the knob module (wake-on-radio mode)

6 Operation

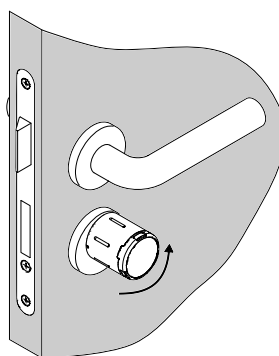
6.1 Automatic wake up

The knob module is in sleep mode as long as it is not used. To check the authorization 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, until an LED starts glowing.
- ▶ Hold up an authorized key in front of the reading unit only after this.

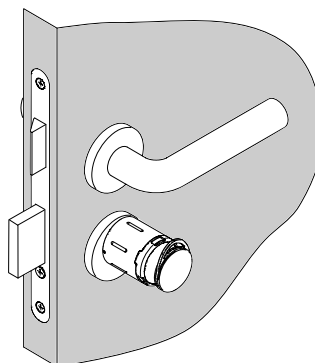


The automatic activation is reactivated when an authorized key is scanned.

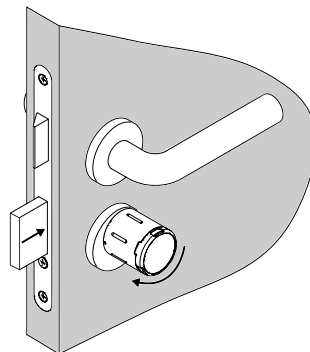
In addition, the wake up sensitivity (that is the number of times the knob module needs to be turned to wake up the reading unit) can be set.

6.2 Opening the door

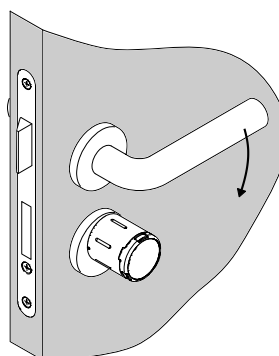
- ▶ Hold the authorized key in front of the reading unit until the green LED starts glowing.



- ▶ Rotate the knob module in the direction counter to the locking direction until it stops.



- ▶ The door can now be opened with the door handle.








6.3 Toggling the knob module

- ▶ Hold the key with toggle authorization for two cycles in front of the reading unit.

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

6.4 Indications

Operation	Signal (audible and visible) and explanation
Rest mode	No audible or visible signal
Start of service mode	— ● Long audible signal followed by a short audible signal
End of service mode	● — Short audible signal followed by a long audible signal
Key learned	● ● ● 2 short audible signals, green LEDs start glowing
Key deleted	— — ● 2 long audible signals, red LEDs start glowing
Read mode (after waking)	 Red LEDs are flashing
Key not authorized	— ● Long low audible signal, red LEDs start glowing
Key authorized	● Green LEDs start glowing
Time changeover / toggling On	— ● Long high audible signal, green LEDs start glowing
Time changeover / toggling Off	— ● Long high audible signal, red LEDs start glowing
Reset	— ● ● Long low audible signal, all the LEDs are switched on briefly one after the other
Battery warning Phase 1:	● ● ● ● ●  5 brief high audible signals, red LEDs flash 5 times simultaneously
Battery warning Phase 2:	● ● ● ● ●  5 s  5 brief high audible signals, 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 high audible signals, red LEDs flash 5 times simultaneously, no connection but change battery position

7 Cleaning and maintenance

7.1 Cleaning

- ▶ Clean the knob module only with a commercially available household cleaning agent and a damp cloth.
- ▶ 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

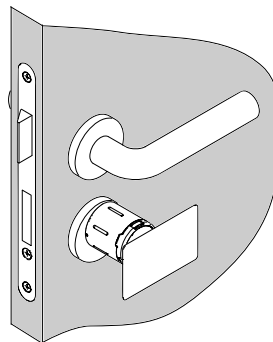
- ▶ Do not charge, open or heat the battery.
- ▶ Always replace discharged batteries with new batteries.
- ▶ Pay attention to the correct polarity when inserting the batteries.



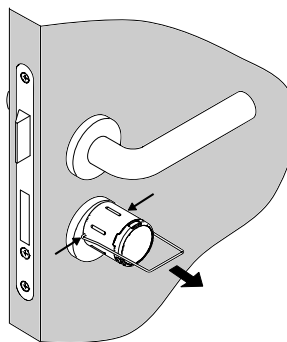
Change the battery only with the door open. As long as the battery is removed, the knob module cannot engage and thus cannot open the door.

Battery change in battery phases 0, 1, 2

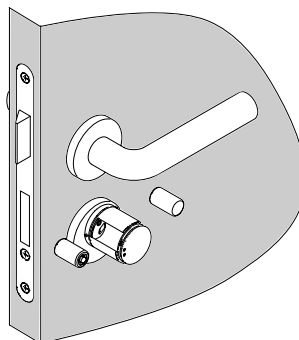
- ▶ Hold the battery change card in front of the knob module – the knob module enters the battery change position. Before this step, it may be necessary to 'wake up' the knob module by turning it.



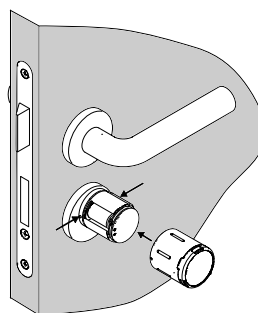
- ▶ Press in the now unlocked sleeve-locking pin of the knob module with the Battery change tool and simultaneously pull out the sleeve.



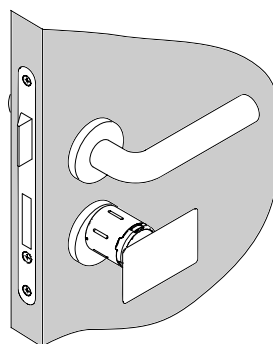
- ▶ Remove empty batteries and insert the new batteries, paying attention to the polarity.



- ▶ Press locking pins and again slide on the knob module sleeve. Ensure that the locking pin latches correctly in the sleeve.



- ▶ After the battery change, the knob module is still in the battery change position. By repeating the step 1 or by presenting an authorized key, the knob module returns to the home position.



- ▶ When managing the locking system using the Keyng software, check the knob module time, using Keyng CX2530 and adjust it if required.

Battery Change in Battery Phase 3

Perform the battery change as described in Chapter 7.2.1, beginning with step 2.

7.2.2 Replacing the sealing ring

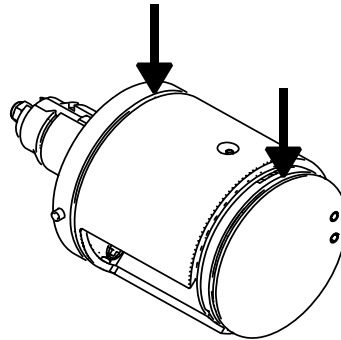
CAUTION

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.

Prerequisite: knob sleeve is removed (see chapter 7.2.1 Replacing the battery, page 19)

- ▶ If the knob sleeve is open, both sealing rings are visible. The smaller one is on the side away from the door.



- ▶ To remove the sealing rings, hold the respective sealing ring on one side with the thumb, while pushing on the opposite side with the fingernail of the middle finger. The sealing ring can now be grasped by the index finger.

In the case of CX2120 IP66, there is only one sealing ring on the side facing the door.

8 Faults during operation

8.1 Fault indications

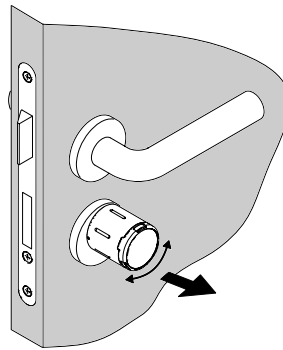
Operation	Audible signal	Explanation
Memory fault / configuration fault	-----●	5 long audible signals, 1 brief audible signal
Coupling error	-----●●	5 long audible signals, 2 brief audible signals
RTC fault (clock)	-----●●●	5 long audible signals, 3 brief audible signals
Internal fault (unhandled interrupt)	-----●●●●	5 long audible signals, 4 brief audible signals
Internal fault (Bus conflict)	-----●●●●●	5 long audible signals, 5 brief audible signals
Internal fault (Bus conflict)	-----●●●●●●	5 long audible signals, 6 brief audible signals
Internal fault (Bus conflict)	-----●●●●●●●	5 long audible signals, 7 brief audible signals

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

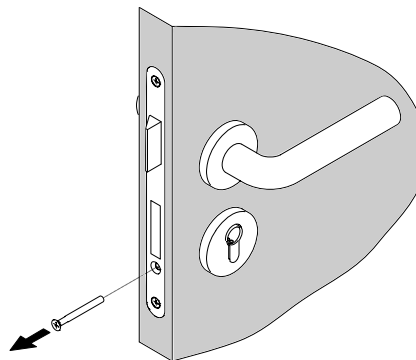
9 Disassembly and Disposal

9.1 Disassembly

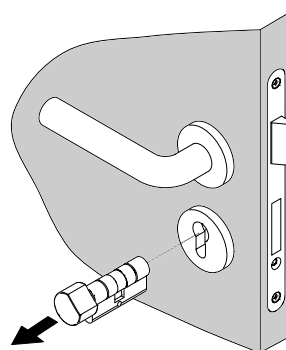
- ▶ Bring the knob module into the disassembly position by presenting the disassembly card or using Keyng CX2530.
- ▶ Turn the knob module by lightly pulling it until it can be removed from the cylinder. Disassembly is only possible in one position.



- ▶ Remove the fixing screw.



- ▶ Remove the cylinder body and mechanical knob from the lock.



9.2 Disposal



- ▶ Do not dispose of the knob module 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 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)