User Manual

CY21 Series

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English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.

For further details, please visit our Company's website www.zkteco.eu

About this manual and manufacturer information

These instructions will help you to securely assemble the digital cylinders CY21 system families in the Euro profile, Swiss round profile, Scandinavian round profile and Scandinavian oval profile variants. The CY21 digital cylinders are hereinafter referred to as ‘cylinders’ for short, provided that a distinction does not have to be made between the functions.

Keep the manual available

These instructions form an integral part of the cylinder.

- ▶ Keep these instructions with the cylinder.
- ▶ Ensure that the instructions are available for the assembly fitter / operator.
- ▶ Please include these instructions if you sell the cylinder or pass it on in any other way.

ⓘ These instructions can be found at www.zkteco.eu.

Text layout features

Various elements of these instructions are provided with defined design features. This makes it easy for you to distinguish between the following elements:

Normal text

- First-level list

▶ Action steps

ⓘ Tips contain additional information for assembly and operation.

Mutually applicable documents

The following document types are also applicable in particular:

- Data sheets
- Declarations of conformity or installation

▶ Observe and follow the information contained in the accompanying documents.

Warranty and liability

Our General Terms and Conditions apply as a matter of principle. Warranty and liability claims that are made if personal injury or property damage occurs are always excluded if they are attributable to one or more of the following causes:

- Improper use of the cylinder
- Failure to observe the notices in these instructions
- Improperly performed assembly
- Improperly performed repairs
- Disasters caused by external influences and force majeure.

Copyright

This documentation is updated at regular intervals. The publisher is always grateful to receive information about any errors or suggestions regarding this documentation.

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Safety and security

Intended use

The cylinders in the CY21 system families can be used in industrial, commercial and private applications.

They are used for access control at doors (e.g. wooden, metal, plastic and glass doors) in buildings. The system families are based on RFID (radio frequency identification) technology and differ in terms of the frequency used. CY21 use 13.56 MHz.

The cylinders can also be used on escape and rescue doors according to EN 179 and EN 1125. Functional reliability can only be guaranteed when the cylinders are installed in escape door systems that comply with the EN 179 (emergency exit locks) and EN 1125 (panic door locks) standards. Before installation, it is therefore imperative to check whether the cylinder in question is appropriately compatible with the lock being used. For compatibility, please refer to ZKTeco Europe, the lock manufacturer's compatibility list or the lock's relevant certificate. In case of doubt, the lock manufacturer's statement applies.

For VdS-compliant assembly, all variants of cylinders must be protected with a burglary-resistant Class B and C door plate. Such door plates comply with DIN 18257 Class ES2-ZA or ES3-ZA.

For installation in compliance with EN 15684, other necessary components may have to be adapted to ensure conformity with this European standard.

Before all variants of cylinders are assembled in a fire-proof / smoke-proof door, the fire certification must be checked to ensure conformity.

Proper use includes reading and understanding these instructions as well as observing and following all the information provided in these instructions, particularly the safety notices. Furthermore, all relevant standards must be observed and followed.

Any other use is expressly considered to be improper.

Ambient conditions

Ensure that the CY21 digital cylinders are only used under the following ambient conditions:

- Temperature range: –25 °C to +65 °C
- Air humidity: 20% to 99% (non-condensing)

Fundamental safety information

The cylinders are built according to the state of the art and the recognised safety regulations. When working with and on the cylinder, however, residual risks that can cause danger to life and limb remain. The following safety notices must therefore be observed and followed.

Avoid risks of explosion

The cylinders are not explosion-proof.

▶ Assemble and operate the cylinders and the padlock only in areas where there is no potentially explosive atmosphere.

Preventing risk of injury due to swallowing small parts

Children can become injured after swallowing small parts.

▶ Make sure that small parts e.g. locking media or screws are kept out of the reach of children.

Preventing crushing

Fingers may be crushed when assembling the cylinder.

- ▶ Always ensure that there is enough space between your fingers and the door frame.

Risk of injury when drilling holes or screwing

Risk of eye injuries due to flying drilling dust or chips.

- ▶ Wear safety goggles.
- ▶ Use a device to extract the drilling dust or chips.

Risk of finger or hand injuries caused by slipping during drilling or screwing work.

- ▶ Wear suitable safety gloves.
- ▶ Observe and follow the notices provided in the drilling machine documentation.

Risk of finger or hand injuries caused by slipping during screwing work.

- ▶ Wear suitable safety gloves.

Avoid property damage and functional problems

Preventing property damage caused by incorrect storage for an extended period of time

- ▶ Store the device and its components in their original packaging in a dry and dust-free place.

Preventing property damage caused by improper assembly and operation

- ▶ Read these instructions carefully before assembling and commissioning the device.
- ▶ Follow the instructions one step at a time.
- ▶ Secure the screws according to the information provided in these instructions.

Preventing property damage caused by improper use

- ▶ Never throw or drop the cylinder.
- ▶ Always use the door handle or lever handle, not the cylinder's electronic knob, to close the door.

Preventing property damage caused by stiff locks or jamming doors

- ▶ Maintain the worn locks; replace them with new ones if necessary.
- ▶ Maintain live doors (jamming doors).

Preventing property damage caused by incorrect maintenance

- ▶ Do not use oil, grease or acid on the cylinder.
- ▶ Ensure that no moisture gets into the cylinder during maintenance.

Preventing property damage caused by electrostatic discharge.

- ▶ Before dismantling / assembling the knob sleeve, prevent electrostatic charges or touch a conductive, earthed object (e.g. a water pipe or heater) to electrostatically discharge yourself.
- ▶ Never touch electronic components with your fingers.

The date and time may be lost once the batteries are changed.

The date and time being lost can interfere with / block correct use of permissions with schedules.

- ▶ After changing batteries, use the app or software to check whether the date and time are still up-to-date.
- ▶ Correct the date and time if necessary.

Reduced range possible due to metallic objects in the immediate vicinity of the cylinder or padlock.

- ▶ Ensure that there are no metallic objects in the immediate vicinity of the cylinder or padlock.

Malfunction caused by two readers influencing one another.

If the distance is too short, an authorised closing device can be delayed or remain undetected.

▶ Assemble the cylinders at least 50 cm apart from one another.

Malfunction caused by external systems being present.

External systems can emit interference fields. This can delay an authorised closing device or make it unrecognisable, in addition to hindering or preventing programming of the device.

▶ Ensure that external systems do not influence the cylinders and the padlock.

Malfunction caused by other manufacturers' products being used.

▶ When changing batteries, only use the manufacturer's batteries.

Qualification of the staff

People working on and with the cylinder must have basic manual skills and basic knowledge of how to use RFID systems to meet the following requirements:

- Capable of safely drilling holes and screw connections,
- Capable of understanding how the cylinder works and how the individual components interact.

Layout features of warning notes

⚠ WARNING	
	Notices containing the word WARNING indicate a dangerous situation that could potentially result in death or serious injury.

⚠ CAUTION	
	Notices with the word CAUTION warn of a situation which can lead to light or moderate injuries.

Layout features of notes indicating property damage

NOTE!	
	These notes warn about situations that lead to property damage.

Description

Scope of delivery

Depending on the variant or order, the following may be included in the scope of delivery:

Euro profile:

Double cylinder that reads on one side

- Core pulling protection extension (8.5 mm), if necessary
- 1 × fixing screw
- Batteries (pre-assembled), 1 × pack of 2 CR2 batteries

Available accessories

The following accessories are available as options:

- Master card, programming card, RF wake-up card, RF online card, battery change card, service maintenance card, permanently open card, permanently closed card in the ISO credit card format
- Knob tool
- Fixing bracket
- Battery pack
- Special EE IM key
- TORX screwdriver (T6)
- TORX screwdriver (T10) for removing the padlock cover
- Transponders in various designs (tag, ISO card, clip tag, etc.)

Please refer to the current price list for other accessories.

Storing the cylinder

Proceed as follows to store the cylinder for an extended period of time before assembly or after use:

▶ Store the cylinder in its original packaging in a dry and dust-free place and at room temperature.

▶ Store the cylinder, and particularly its electronics, at least 15 cm away from metallic objects, transponder coils and card coils.

Assembling the cylinder

Preparing for assembly

Cylinder assembly differs depending on the variant. Proceed as follows in principle for assembly:

- ▶ Remove the cylinder from the packaging.
- ▶ Keep the original packaging so that you can store the cylinder in a protected state at any time or for a possible return.
- ▶ Check that all parts are complete and in perfect condition.
- ▶ If necessary, provide the required tool with additional material.
- ▶ Dismantle the existing cylinder if necessary and prepare the door for assembly.

For assembling the cylinder in a core pulling protection handle, security handle or rosette, prepare the handle or rosette so that the cylinder's coupling shaft fits through the handle's opening. Due to the large number of handles and rosettes available on the market, the individual handles and rosettes are not shown here, and dismantling is not explained. Please note whether the cylinder is used in a core pulling protection handle / rosette when ordering and order the cylinder in a CPPE design if necessary.

- ▶ Check that the cylinder is working properly.
- ▶ Ensure that the door is hinged properly.
- ▶ Ensure that the door is not warped.
- ▶ Ensure that the door is not under strain.
- ▶ Ensure that the door design allows the cylinder to be installed.
- ▶ Ensure that the door lock provides an appropriate profile perforation for the cylinder and screwing option. Replace the lock if necessary

Check the following points in particular:

- Is / are any drilling dust or chips produced cleanly removed during drilling?
- Has the cylinder perforation in the lock been neatly calibrated with the perforation in the door?

- ▶ If necessary, ensure that all these points are met by reworking.

You require the following tools:

- Knob tool for assembling the electronic outer knob if it is not pre-assembled and for loosening the electronic knob's knob sleeve for a battery change
- TORX screwdriver (T6) for assembling a mechanical inner knob

- If necessary, a fixing bracket for removing the inserted fixing bracket when dismantling an electronic knob
- Phillips screwdriver for the fixing screw
- TORX screwdriver (T10) for dismantling the padlock cover to change the batteries

The tools are not included in the scope of delivery unless explicitly described

ⓘ If you want to assemble a large number of digital cylinders, we recommend that you carry out the initialisation process before assembly (see page 110 onwards regarding this matter). If you want to program with a master card, programming card or software, you can also create programming and closing devices before assembling the cylinder.

ⓘ For cylinders that read on both sides, it is advisable to only initialise the knob electronics that have already been assembled. The second knob electronics should only be initialised once the entire cylinder has been assembled, since the outer knob electronics would have to be dismantled before assembly.

ⓘ Assembly of the cylinders in the Euro profile, Swiss round profile, Scandinavian round profile and Scandinavian oval profile variants is described in the sections below. Assembling Swiss round profile cylinders is the same as assembling Euro profile cylinders and is not described separately below.

Assembling the short / long (SL) cylinder that reads on one side

ⓘ The cylinder that reads on one side is usually assembled from the outside. If assembly from the inside is necessary, proceed in reverse order to assemble an electronic knob, as described in the section entitled *Double cylinder that reads on both sides* from page 45 onwards.

ⓘ Always assemble the cylinder with the door open so that you do not lock yourself out. The electronic knobs are engaged before initialisation when they are delivered and the cylinder's locking nose can thus be rotated.

ⓘ The following figures are schematic diagrams.

Proceed as follows to assemble the short / long cylinder:

- ▶ Measure the door's thickness with the handle.
- ▶ Ensure that the cylinder's basic length is adapted to the measured thickness. Note the division into outside (a) and inside (b) in this regard.

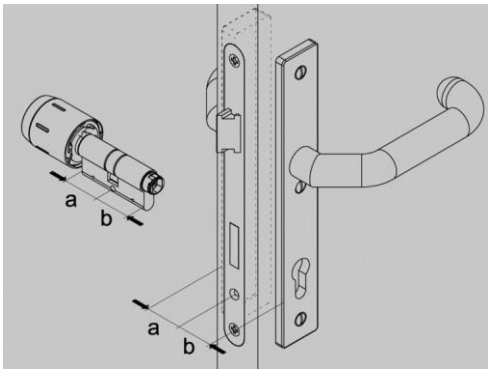

Fig. 52: Measuring the thickness

ATTENTION!	
	If the cylinder protrudes more than 3 mm from the handles and rosettes, burglary protection can no longer be guaranteed. ▶ Always ensure that the cylinder protrudes max. 3 mm from the handles and rosettes.

- ▶ Position the locking nose (3) so that it is flush with the cylinder body (2).
- ▶ Carefully slide the cylinder (1) through the handle, door and lock from the outside.

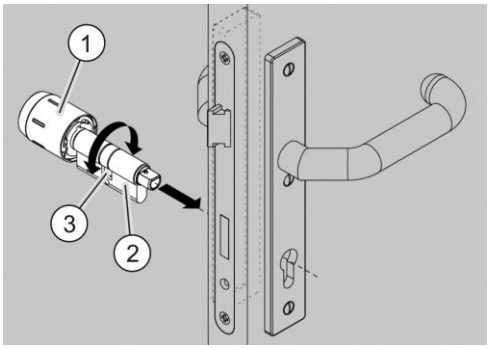

Fig. 53: Inserting the cylinder

ATTENTION!	
	Damage to the cylinder caused by tightening the fixing screw or lock with a cordless screwdriver without torque limitation. ▶ Tighten the fixing screw with a Phillips screwdriver only so that it is hand-tight.

- ▶ Turn the already assembled rotary knob or special key and pull the cylinder (1) forwards and backwards until you have felt the correct locking nose position to drive out the lock's bolt (5).
- ▶ Leave the bolt (5) extended until the fixing screw (4) is completely screwed into the cylinder.
- ▶ Secure the short / long cylinder with the fixing screw (4). Do not fully tighten the fixing screw (4) yet.

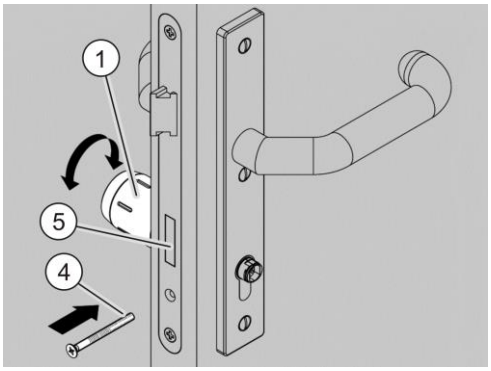

Fig. 54: Aligning the locking nose

- ▶ Precisely fit the inner knob (6) onto the cylinder's (1) coupling shaft as far as it will go. The inner knob (6) can only be fitted in one position.

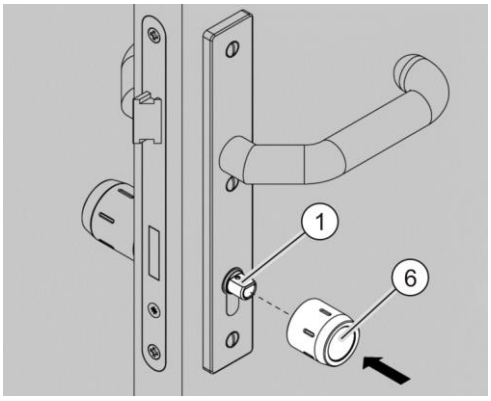

Fig. 55: Fitting the inner knob

- If necessary, turn the inner knob (5) with the coupling shaft so that the set screw (6) is easily accessible for the screwdriver.
- Tighten the M3 set screw (6) in a clockwise direction with a TORX screwdriver (T6) so that it is hand-tight (approx. 4 turns).
- Ensure that the inner knob and electronic knob can be turned freely without rubbing against the handle.
- Tighten the fixing screw (4) with a Phillips screwdriver so that it is hand-tight.

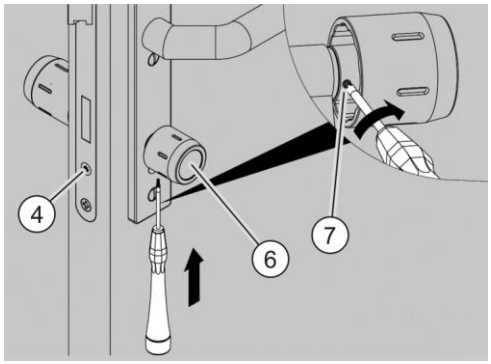

Fig. 56: Securing the inner knob

Putting the cylinder into operation

ⓘ The sections below describe the process of putting the cylinders into operation for the first time.

The cylinders in the CY21 system families can be initialised, i.e. assigned to an object or a system, shortly before installation or after assembly. Initial commissioning with a master card is described below. For more information about initialisation and operation, refer to the relevant instructions for the management product that you want to operate / manage the system with.

ⓘ You only need the master card to be able to put the cylinder into operation without using any software. You use it to create affiliation with the system. From this moment on, programming on the terminal device can only be carried out from this master card or from programming cards / software products authorised with this master card. Thus, only the owner of the master card decides on allocations and the assignment of permissions.

▶ Keep the master card in a safe place that only authorised people have access to.

The master card does not have a closing device function!

▶ Contact your dealer if the master card is lost.

Complex reprogramming of the cylinders by the manufacturer is necessary; this also requires proof of ownership for the cylinders.

ⓘ Programming with the master card and the programming card is carried out once at each reading knob. Only perform programming when the door is open, so that you do not lock yourself out.

Initialising the cylinder

Proceed as follows to initialise the cylinder:

▶ Briefly hold the master card in front of the respective electronic knob.

The yellow LEDs light up once for a long time. Then the electronic knob signals its initialisation by means of the short red, green, yellow and blue signal sequence and then by the long yellow signal sequence. The electronic knob restarts following successful initialisation. The electronic knob can then be programmed with the master card, programming card or software and app products.

If the double cylinder that reads on both sides is assembled, programming on each electronic knob is independent. The closing devices' permission can be programmed differently on both sides.

▶ If the cylinder reads from both sides, repeat the procedure on the other electronic knob.

Creating a transponder

The cylinder automatically detects transponders when they approach the electronic knob's reading field. In rare cases, environmental influences in the form of interference fields or the use of transponders that are not approved by ZKTeco can lead to transponders not being recognised.

The figure below shows the electronic knob's reading field (1).

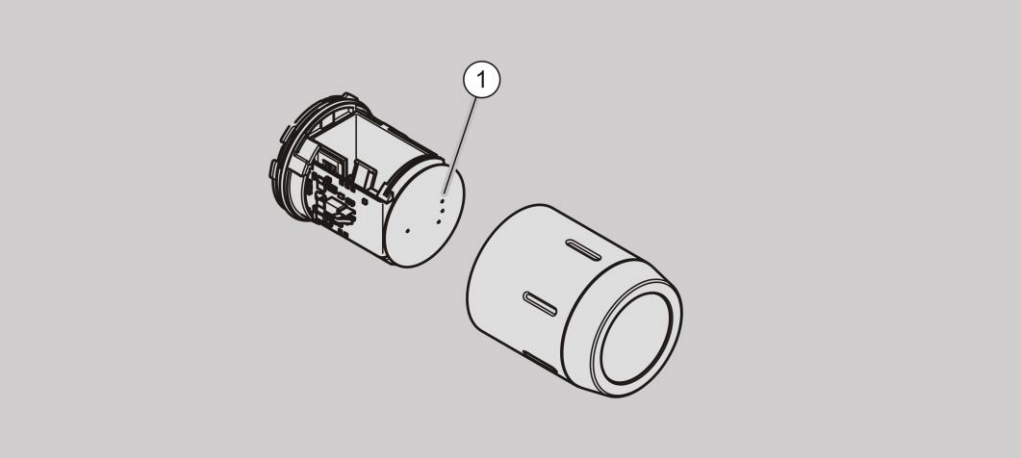

Fig. 156: The electronic knob's reading field

Proceed as follows to create the transponder:

▶ Hold the master card in front of the respective electronic knob.

The LEDs light up blue once for a long time.

▶ Hold the master card in front of the respective electronic knob again.

The LEDs briefly light up green. The master card is accepted.

▶ Briefly and individually hold each transponder directly in front of the respective electronic knob and wait for the signalisation.

The LEDs each briefly light up green. Addition of the transponder is signalled. Programming is completed after approx. five seconds (time-out) or by showing the master card (MID) again. The LEDs light up blue for a long time.

Deleting a transponder

Proceed as follows to delete the transponder:

▶ Hold the master card in front of the respective electronic knob.

One blue and two green LEDs light up once for a long time.

▶ Hold the master card in front of the respective electronic knob again.

Then one green and two red LEDs light up once for a long time.

▶ Finally, hold the master card in front of the respective electronic knob for the last time.

Then one red and blue red LEDs light up once for a long time.

The transponder has been successfully deleted.

Deleting master card

Proceed as follows to delete the master card:

▶ Hold the master card in front of the respective electronic knob.

One blue and two green LEDs light up once for a long time.

▶ Hold the master card in front of the respective electronic knob again.

Then one green and two red LEDs light up once for a long time.

▶ Finally, hold the master card in front of the respective electronic knob for about 10 seconds.

Then four green LEDs light up once for a long time.

The master card has been successfully deleted.

Maintaining the cylinder

Changing batteries

The power supply for the cylinder and the padlock is provided by a battery pack (pack of 2 CR2 batteries). The batteries need to be changed once the battery warning has been issued.

The power supply for the cylinder that reads on both sides is provided by two battery packs (pack of 2 CR2 batteries). A battery warning is issued on both sides independently of one another.

The cylinder is equipped with a three-level warning system.

Battery warning level 1

If the batteries will run flat soon, battery warning level 1 will be displayed as soon as you hold a transponder to the electronic knob. At battery warning level 1, all four LEDs light up as follows:

- All LEDs light up yellow for a long time
- All LEDs briefly light up red
- All LEDs briefly light up yellow
- All LEDs briefly light up red
- All LEDs briefly light up yellow
- All LEDs briefly light up red
- All LEDs light up yellow for a long time

Fig. 157: Indicators at battery warning level 1

The LEDs then briefly light up green one after the other. You can open the door or padlock and operate the electronic knob about 1,000 more times.

▶ Inform the responsible person that the cylinder's or padlock's batteries have to be replaced.

Battery warning level 2

If the batteries will run flat shortly, battery warning level 2 will be displayed as soon as you hold a transponder to the electronic knob. At battery warning level 2, all four LEDs light up as follows:

- All LEDs light up yellow for a long time
- All LEDs briefly light up red
- All LEDs briefly light up yellow
- All LEDs briefly light up red
- All LEDs briefly light up yellow
- All LEDs briefly light up red
- All LEDs light up yellow for a long time
- All the LEDs light up yellow for a long time for a second time

Fig. 158: Battery warning level 2 indicators

To be able to open the door or padlock, you must hold the transponder to the electronic knob a second time.

▶ Hold the transponder to the electronic knob.

The LEDs briefly light up green one after the other. You can open the door or padlock and operate the electronic knob about 500 more times.

▶ Inform the responsible person that the cylinder's or padlock's batteries have to be replaced.

Battery warning level 3

When the batteries are almost flat, battery warning level 3 will be displayed as soon as you hold a transponder to the electronic knob. At battery warning level 3, all four LEDs light up as follows:

- All LEDs light up yellow for a long time
- All LEDs briefly light up red
- All LEDs briefly light up yellow
- All LEDs briefly light up red
- All LEDs briefly light up yellow
- All LEDs briefly light up red
- All LEDs light up yellow for a long time three times

Fig. 159: Indicators at battery warning level 3

The door or padlock does not open.

▶ Ensure that the respective cylinder's or padlock's batteries are replaced as quickly as possible. In an emergency, the door or padlock can only be opened by holding the master card in front of it once.

Changing the cylinder's battery pack

Proceed as follows to change the cylinder's battery pack:

- ▶ To unlock the bayonet lock, place the pins of the knob tool (2) in the recesses of the bayonet disc (3) as shown below.
- ▶ Turn the bayonet disc (3) anti-clockwise with the knob tool (2).
- ▶ Carefully pull off the knob sleeve (1).

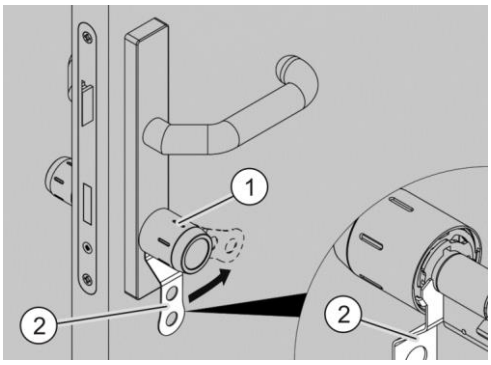

Fig. 160: Unlocking the bayonet lock

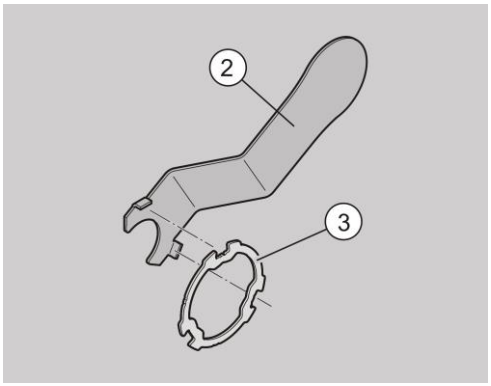

Fig. 161: Attaching the knob tool

⚠ CAUTION	
	Risk of injury due to short-circuiting when touching the electronics. ▶ Always hold the electronic knob by the battery pack.

ATTENTION!	
	Electrostatic discharge (sparks or flashover) can destroy electronic components. ▶ Therefore, before dismantling / assembling the knob sleeve, prevent electrostatic charges or touch a conductive, earthed object (e.g. a water pipe or heater) to electrostatically discharge yourself.

ATTENTION!	
	Incorrect pulling may damage the battery cables. ▶ Pull the plug and the cables at the same time.

- ▶ Pull the battery plug (4) out of the battery socket.
- ▶ Remove the used battery pack (5) in the direction of the arrow.

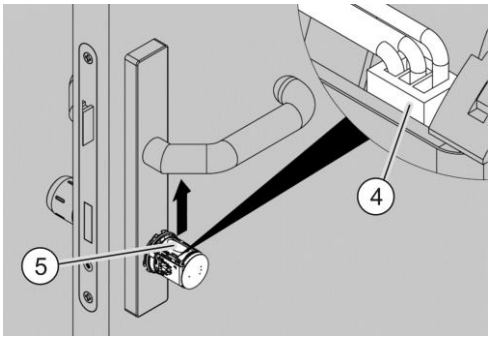

Fig. 162: Removing the battery pack

ⓘ The battery plug is designed to be torsion-proof by means of a guide nose.

- ▶ Insert a new battery pack into the battery socket (5).
- ▶ Insert the battery plug (4) as shown and push it until you hear it click into place. Then push the cables into the corresponding groove (not shown) below the plug.

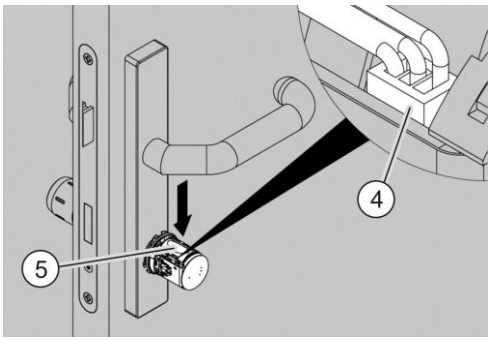

Fig. 163: Inserting the battery pack

The electronic knob performs a battery check if it was at a battery warning level before the battery change and then restarts. If there was no battery warning level, you can indicate the battery change to the electronic knob with the battery change card or the specialist dealer battery change card (without any reference to the system).

- Precisely slide the knob sleeve (1) over the electronic knob. The knob sleeve (1) can only be slid on in one position because the two driving cams on the electronic knob have different widths.
- Insert the pins of the knob tool (2) into the recesses of the bayonet disc (3).

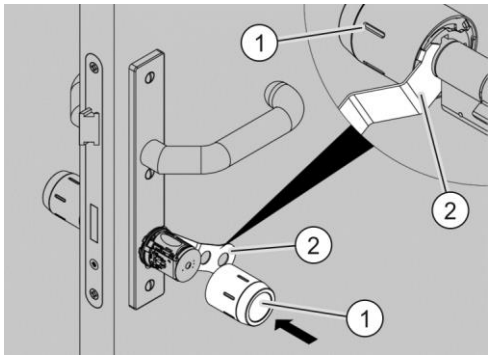

Fig. 164: Assembling the knob sleeve

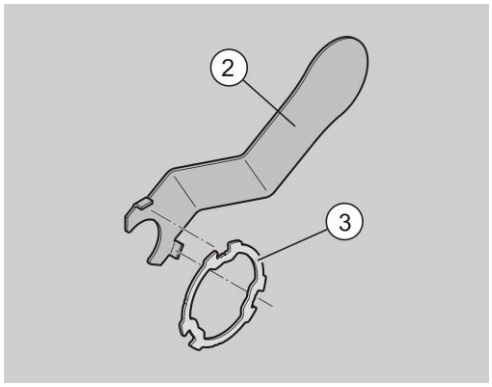

Fig. 165: Attaching the knob tool

- To lock the bayonet lock, turn the bayonet disc (3) clockwise with the knob tool (2).
- Check whether the cylinder is working properly once the batteries have been changed by holding an authorised transponder in front of it.

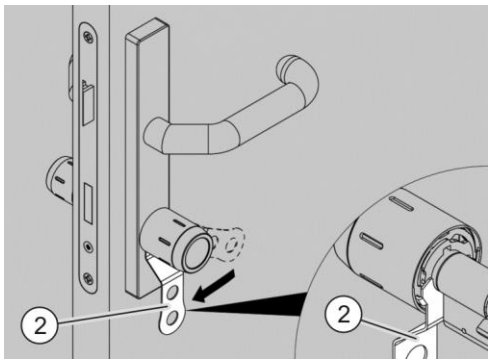

Fig. 166: Locking the bayonet lock

Changing the padlock's battery pack

Proceed as follows to change the padlock's battery pack:

- ▶ Loosen the screws (2) with the TORX screwdriver (T10) and remove the protective cap (1).

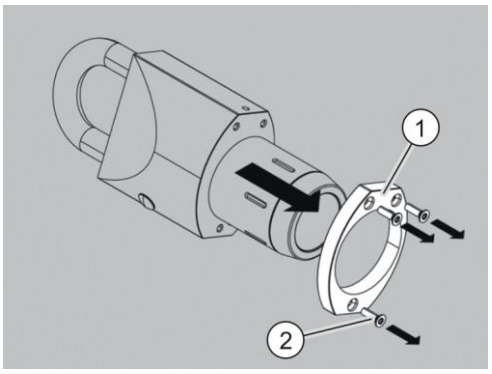

Fig. 168: Dismantling the protective cap

- ▶ Unlock the bayonet lock with the knob tool (4). Insert the pins of the knob tool (4) into the recesses of the bayonet disc (5) as shown below.
- ▶ Turn the bayonet disc (5) anti-clockwise with the knob tool (4).
- ▶ Carefully pull off the knob sleeve (3) in the direction of the arrow.

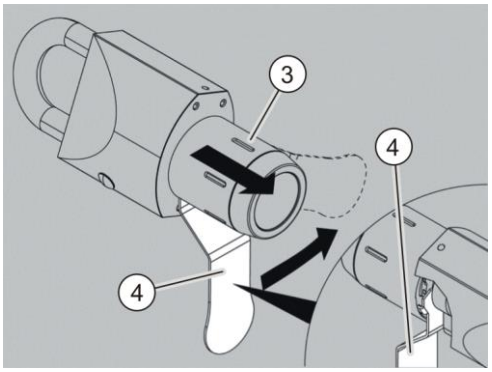

Fig. 169: Dismantling the knob sleeve

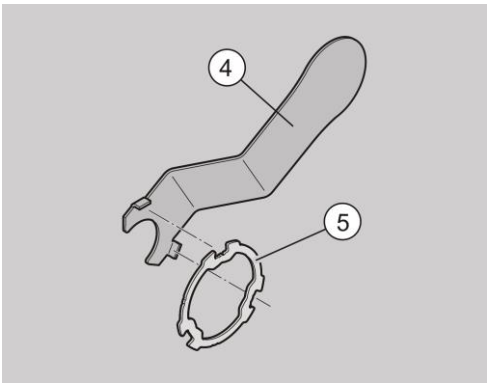

Fig. 170: Attaching the knob tool

Disposing of the cylinder

Once its service life has elapsed, you can return the cylinder to the manufacturer in its original packaging. The manufacturer will dispose of the cylinder and the batteries it contains in an environmentally friendly manner.

Alternatively, have an approved specialist disposal company dispose of the cylinder. Observe and follow the applicable regulations. In case of doubt, please contact your town/city or municipal administration.

The cylinder is mainly made of brass. It is also made of the following materials:

- Stainless steel
- Zamac
- Electronic components
- Batteries.

Contact

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