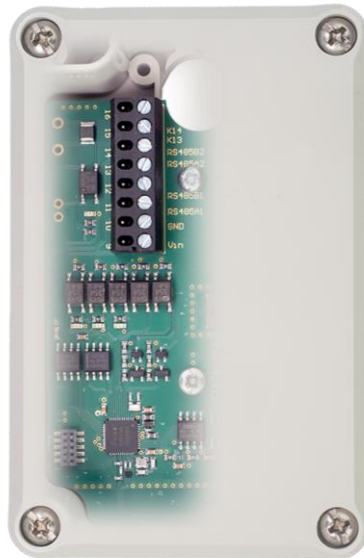


CX8936

Online module with
Bluetooth® Low Energy



Operating and
installation instructions

Legal Notice

Operating and installation instructions (Translation)
CX8936 Online module with Bluetooth® Low Energy

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1 About this document

These operating and installation instructions describe the CX8936 online module with Bluetooth® Low Energy. They are part of the product and contain important information required for correct operation and maintenance.

These operating and installation instructions apply for all versions of the CX8936 and are intended both for specialist personnel responsible for assembly and disassembly and for end customers.

- ▶ To ensure trouble-free and safe operation, read these operating and installation instructions carefully and observe the information contained there before putting the door handle into operation.
- ▶ Keep the operating and installation instructions.
- ▶ After installation, give the instructions to the end customer and familiarize them with operation.

Uhlmann & Zacher GmbH accepts no liability for malfunctions, such as impossible access to injured persons, operational malfunctions, damage to property or other damage resulting from non-observance of these operating and installation instructions or from incorrectly configured door handles.

- ▶ If you still have any questions after reading these operating and installation instructions, please contact your specialist dealer or Uhlmann & Zacher GmbH directly.

1.1 Warnings

Warning notices warn of hazards that may occur when using the product. There are two hazard levels, recognizable by the signal word:

Signal word	Meaning
CAUTION	Indicates a low-risk hazard that may result in minor or moderate injury if not avoided
ATTENTION	Indicates a hazard that results in damage to property

1.2 Symbols

The following symbols may appear in this manual:

- ▶ This symbol marks an instruction that has to be carried out by the user.
- This symbol marks an entry in a list.



This symbol indicates useful and important information.

2 Safety

2.1 Proper use

The product is intended for use solely with Bluetooth® -capable devices. It is determined for use in the system Clex public and can be operated with locking units from other systems by Uhlmann & Zacher.

The device is designed for the surface mounting in secured indoor areas. Only components approved by the Uhlmann & Zacher GmbH may be used for installation and maintenance.

Installation may only be carried out by trained specialist personnel.

Any other use is considered improper and may result in damage to property or even personal injury.

2.2 Improper use

- The product must not be used to lock up aids that are vital in an emergency (for example, defibrillators, emergency medication, fire extinguishers, etc.).
- The product must not be used in potentially explosive atmospheres.
- If the housing or the electronics are damaged, the product must not be operated any longer. Modifications or additions to the product are not permitted. Usage outside the stated specifications is not permitted.

2.3 General safety information

Observe the following basic safety instructions when handling the wall mounted reader:

- No modifications of any kind are permitted to the product, with the exception of those described in this manual.
- Installation may only be carried out by trained specialists in accordance with these instructions.
- The product must only be operated in the defined temperature range.
- There is an increased risk of injury (electric shock!) if the connecting cables are touched when the power supply is switched on. Only perform installation and maintenance work when the power supply is switched off. Observe VDE guidelines!
- These instructions should be passed on to the user by the person carrying out the installation.
- The product must not be brought into contact with paints or acids
- To avoid malfunctions and damage, only use original parts and accessories from Uhlmann & Zacher GmbH.

3 Product description

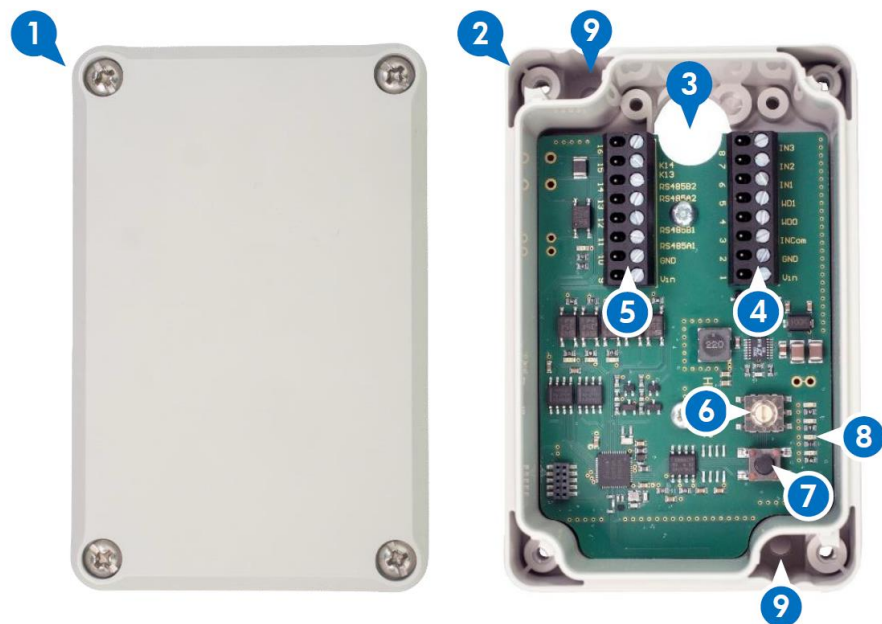
3.1 Functional description

The online module in Clex public system is the interface (2.4 GHz) between the Uhlmann & Zacher products and a third-party system. From the third-party system you can, for example, read transponder data or control Clex locking units via the online module. To this purpose up to 8 locking units are coupled with the online module depending on the device version.

No external antenna is required for the connection.

3.2 Layout and scope of delivery

Layout using the example of the grey housing version. Other housing versions similar:



1. Housing cover and screw(s)
1 screw for Part number 8936 0000 0000
4 screws for Part numbers 8936 0000 0004 and 8936 0000 0005
2. Housing bottom with electronics
3. Opening for cable feeding
4. Screw terminal for connection pins 1-8 (connection block pluggable)
5. Screw terminal for connection pins 9-16 (connection block pluggable)
6. Rotary switch
7. Button
8. LEDs
9. Mounting holes screws not included in the scope of delivery)

3.3 Versions

Configuration versions:

- For RS485 and Clex public protocol (phg_crypt)
- For RS485 and OSDP
- For Wiegand/clock data

Housing versions:

- Housing in grey
- Oval housing in white
- Rectangular housing in white

3.4 Technical data

3.4.1 General technical data

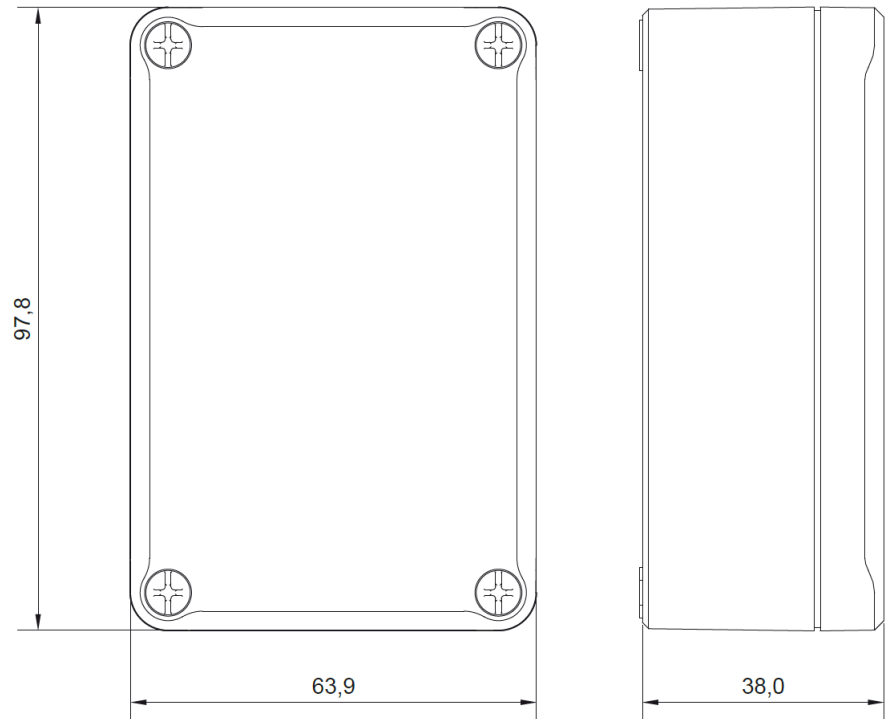
Designation	Value
Number of coupleable locking units (depending on versions)	<ul style="list-style-type: none"> • For data transfer via RS485: 8 • For Wiegand/clock data: 1
Frequency range	2402 to 2480 MHz
Power supply	Supply voltage 5-24 VDC
Power consumption	Max. 0.4 W

3.4.2 Ambient conditions

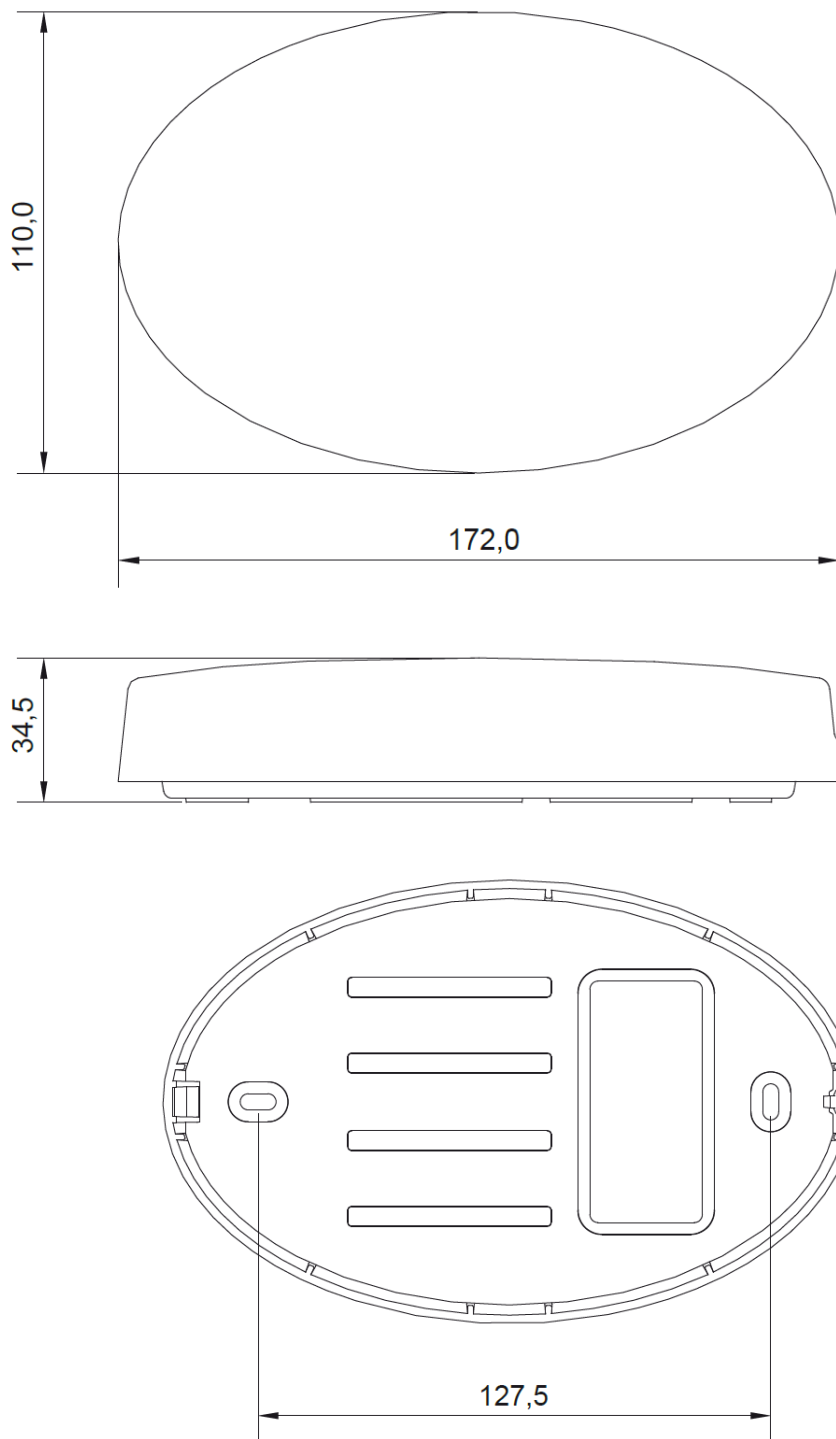
Designation	Value
Operating temperature	+10 °C to +55 °C
Storage temperature	-40 °C to +65 °C
Installation location	Indoors

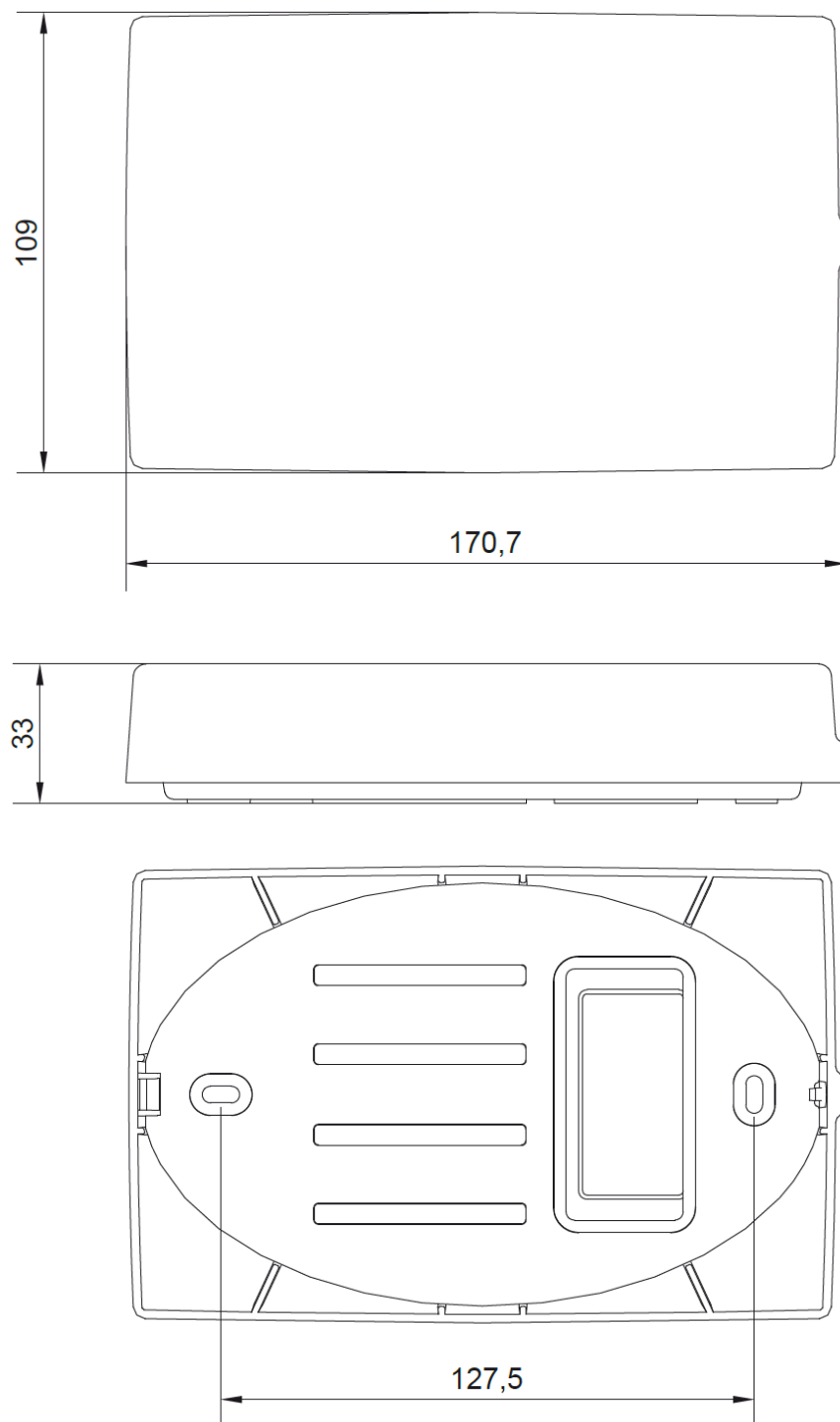
3.5 Dimensions

Grey housing



White oval housing



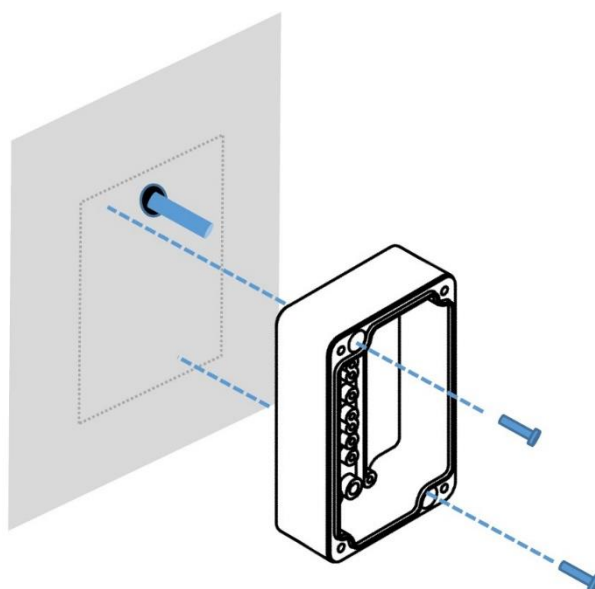
White rectangular housing

4 Installation

4.1 General installation information

- The valid national regulations for electronic installations (e.g. VDE regulations) must be observed.
- The connecting cables must be available and laid.
- Only operate the device at the correct operating voltage.
- If possible, disconnect the load and operating circuits.
- In the case of installation on metal surfaces or in direct proximity to metals, the range as well as the communication between product and connected locking units may be influenced negatively.
- Avoid direct exposure to strong electromagnetic fields
- Do not paint over, paste over or cover the online module.

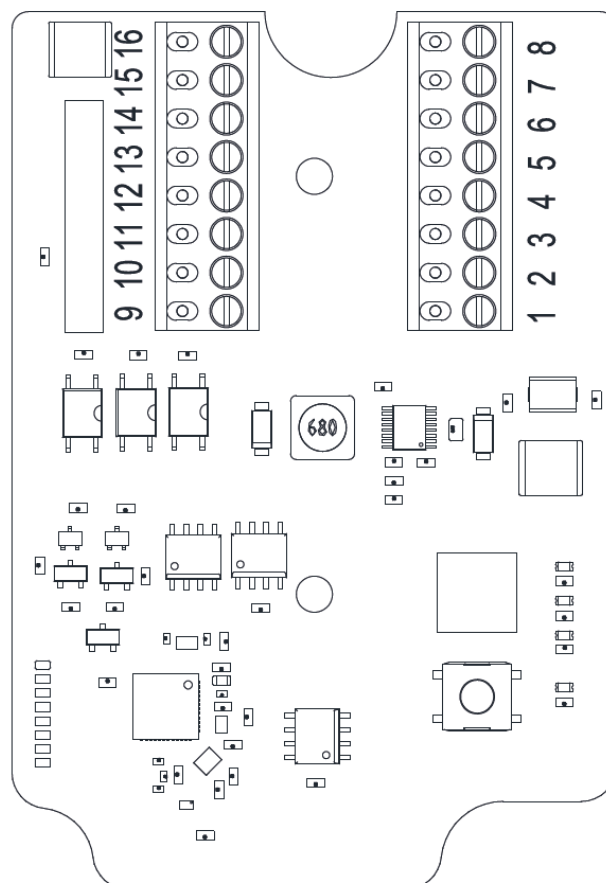
4.2 Installation



- ▶ Specify the mounting position. Ensure that the surface is smooth, dry and firm enough. Do not place the units close to each other to avoid radio interferences.
- ▶ Mark the fastening points through the bottom of the housing (No. 9 in layout diagram).
- ▶ If required, drill mounting holes into the mounting surface.
- ▶ Insert the connection cables through the opening on the bottom into the housing and cut and strip to a suitable length.
- ▶ Hand-tighten the lower part of the device at the intended location using suitable flat-head screws. Installation material is not included in the scope of delivery. In case of cable feeding from the side, use additional fitting rubber or plastic spacers. Ensure that the cable is not pinched.
- ▶ Wire cables according to the respective pin assignment specified in the next chapter. The two 8-pin connection blocks can be removed for easier installation.
- ▶ Perform commissioning (see the "Commissioning" chapter).
- ▶ Put on the housing cover and screw it tight.

4.3 Pin assignment

Contact number	Pin assignment
1	+ power supply 5-24 VDC
2	- power supply (ground)
3	Input ground (together with pin 6/7/8 insulated against ground connection)
4	Wiegand 0
5	Wiegand 1
6+7+8	Input (potential 5-24 V)
9	+ power supply 5-24 VDC (can be used alternatively to 1)
10	- power supply (ground) (can be used alternatively to 2)
11	RS485A
12	RS485B
13	RS485A (not used)
14	RS485B (not used)
15 + 16	Relay (DC max. 48 V/0.7 A – AC: max. 32 V/0.5 A) (not used)

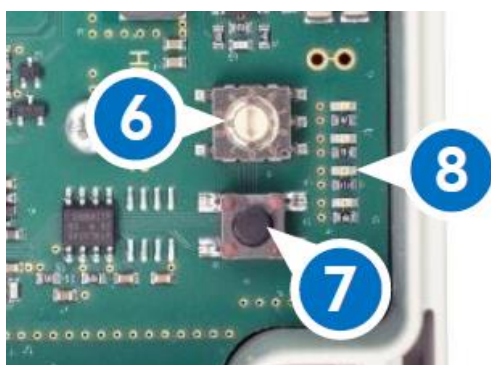


5 Commissioning and operation

5.1 Connecting locking units

To connect a locking unit with the online module, you have to perform the following steps:

- ▶ Bring the locking unit which you want to connect into the service mode by holding the service key in front of the locking unit.
- ▶ Use a screwdriver or a similar tool to turn the rotary switch (6) so that the arrowhead points to Position 8. Then briefly press the button (7) to switch to the pairing mode and teach in the locking unit within reach.



- 6) Rotary switch
- 7) Button
- 8) LEDs

If successful, the green LED lights up several times and the lock leaves the service mode directly. If not successful, the red LED lights up several times and the lock remains in the service mode.

The yellow LED flashes additionally to confirm the button input. The blue LED flashes to signal the BLE activity.

- ▶ Turn the rotary switch back to the home position.

Rotary switch position	Function
0	Home position For Wiegand: Sends a test sequence via Pins 4 and 5 when the button (7) is pressed.
4	Briefly press the button (7) to set the online module into the service mode.
5	Factory reset: Briefly press the button (7) to delete all the saved locking units and parameters.
8	Briefly press the button (7) to perform the pairing of the online module with the locking unit that is in reach and in service mode or to delete an existing paired locking unit.
9	Briefly press the button (7) to delete all the saved locking units.
Any	If you keep the button (7) pressed longer than 4 s and then release it, the online module switches to the service mode (as at Position 4).

5.2 Configuring the online module

The configuration of the online mode normally takes place through the connected third-party system and the corresponding function of the respective protocols. Individual parameters of the online module can also be set directly via a BLE connection or bus commands in the service mode.

- ▶ Use a screwdriver or a similar tool to turn the rotary switch (6) so that the arrowhead points to Position 4 (service mode). Then briefly press the button (7) to switch to the service mode.
- ▶ The active service mode is signaled by the green LED. In addition, the blue LED flashes to signal BLE activity. In the case of an existing BLE connection the blue LED lights up continuously.
- ▶ Carry out the settings (e.g. LAN/WLAN communication) by means of the associated software tool (details are available in the respective protocol description).
- ▶ You can end the service mode at any time by again pressing the button (7) or by changing the position of the rotary switch (6).

Versions Clex public
protocol (phg_crypt)/
Version Wiegand

The program "Clex UZReader Test Tool (ClexUzRdrTT)" as of Version 2.8.6.2 can be used to set up and test the connection via the Clex public UZ Reader protocol. The parameters for the Wiegand connection can also be set with this tool. Contact your Integration partner to purchase the software.

Version OSDP

The "ClexSer OSDP Test Tool (ClexOsdpTT)" program can be used to set up and test the OSDP connection. Contact your Integration partner to purchase the software.

5.3 Operation

If an authorized transponder is held in front of the connected locking unit, a BLE connection is established with the online module and, depending on the version, the authorization is requested via the corresponding protocol of the third-party system.

If no BLE connection can be established, for example in case of a power failure or a wireless attack, the electronics of the locking unit drops back into offline mode. In this mode the door can be opened with any transponder with offline authorization.

In this case the electronics of the locking unit warns the user, however, before opening with a distinctive visual and acoustic signaling.

When the locking unit is woken up, for example by a knob cylinder being turned or a door handle or knob module being actuated, a wireless connection is also established.

5.4 Resetting

Disconnect the device from the power supply.

5.5 Resetting the configuration (factory reset)

If you want to reset all the settings, proceed as follows:

Use a screwdriver or a similar tool to turn the rotary switch (6) so that the arrow-head points to Position 5. Briefly press the button (7) to delete all the saved locking units and parameters.

5.6 Firmware updates

To update the firmware you have the update tool "Clex FW Prog" available. Contact your respective Integration partner.

5.7 Signaling

LED	Meaning
Blue slow flashing	Device scans for paired locks
Blue flashing	BLE activity with connected locking units
Blue constant lighting up	All paired locking units are connected
Blue rapid flashing	Device tries to wake up a locking unit in the "wake on radio" mode (WOR)
Yellow	Button input
Red	Active online connection
Green	Received bus command
Red/green flashing alternately	Connected with the locking unit in service mode
Green constant lighting + blue flashing	Service mode
After reset: One-time all colors consecutively	Device has completed the initialization

5.8 Malfunctions during operation/error signaling

LED	Meaning
Red and yellow flash after a reset; after that service mode	Mode wrong for the available firmware: Perform a firmware update or set the mode manually.
Yellow lights constantly after a reset	Micro-controller of the device is in the boot loader. Perform a suitable firmware update.

6 Maintenance and cleaning

6.1 Maintenance

Since the device is not protected specially against dust, the product should be checked regularly for dust deposits. The frequency depends on the dust level at the operation site.

6.2 Cleaning

Clean the housing with a soft, lint-free and only slightly moistened cloth. When cleaning do not use corrosive liquids or liquids that decompose plastic such as benzine, turpentine, etc. Sharp detergents may damage or discolor the surface. Do not use any detergents which act on a mechanical basis (e.g. scouring milk, scouring sponge).

Free the electronics from dust with a suitable brush or by careful use of compressed air at a sufficient distance.

7 Disassembly and disposal

7.1 Disassembly

7.2 Disposal



- ▶ Do not dispose of the device with household waste, but at a municipal collection point for special electrical waste in accordance with European Directive 2002/96/EC.
- ▶ Dispose of packaging as environmentally friendly recycling.

8 Glossary

Term	Meaning
BLE	Bluetooth® Low Energy
VDE	German "Verband der Elektrotechnik" [Registered Association of the Electrical, Electronic and Information Technology]
phg_crypt	Standard protocol of the company phg Peter Hengstler GmbH + Co. KG, Deißlingen in Germany