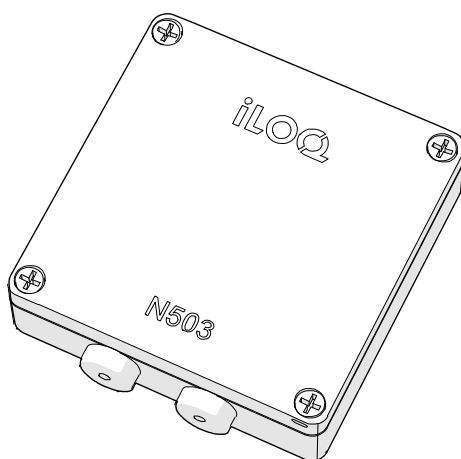




iLOQ 5 Series

iLOQ N503 Offline Door Module

Installation and deployment



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support.iloq.com

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1. Safety information

1.1 Safety signs

Sign	Description
	Electrical hazard. Indicates the presence of a hazard which could result in personal injury. Before working on any equipment, be aware of the hazards involved with electrical circuitry, and get familiar with standard practices for preventing accidents.
	General warning sign. Indicates the presence of a hazard which could result in personal injury, equipment damage, or loss of data.
	General notice sign. Indicates particularly important information about the installation and deployment.
	Read these instructions carefully before installation. This information is to ensure your safety and the long lifetime of the products installed.
	Use protective gloves.

1.2 General warnings

	<p>Make sure that the power supply to the installation site is disconnected during installation. Do not switch on the power supply until the installation is complete.</p>
	<p>Do not use excessive force when installing or using the devices.</p>
	<p>Do not modify the products in any way, except in accordance with these instructions.</p>
	<p>Installation must only be performed by a qualified technician.</p>
	<p>Use protective gloves during installation to avoid personal injury.</p>

2. Important

2.1 This document

This document contains installation and deployment instructions for the iLOQ N503 Offline Door Module. The iLOQ N503 is a standalone door module that is installed near a door. The iLOQ N503 has no connection to the iLOQ Cloud and the programming can only be done via the iLOQ P55S Programming Key. The iLOQ N503 controls the devices installed in the door, such as lock cylinders, NFC readers, electronic locks, electric strike plates, magnetic locks, etc.



WARNING! The door module is intended to be installed in dry indoor conditions.

For more information about the iLOQ 5 Series Online System, please visit support.ilq.com.

2.2 Before installation

iLOQ does not sell or provide products that require installation by an official electrician. Installation should still be performed by a qualified installer to avoid personal injury and product damage. Before proceeding with installation, read and understand the **safety information** thoroughly.



Read these instructions carefully before installation. This information is to ensure your safety and the long lifetime of the installed products. After use, make sure that these instructions are passed on from the installer to the user.

2.3 Licenses

The iLOQ N503 Offline Door Module uses one lock license and it does not require a separate online license. More detailed information on licenses is available in the iLOQ Partner Portal and in the iLOQ 5 Series product price list.

2.4 Warranty

The warranty only covers defects in the product that occur during the first two (2) years from the start of the warranty period, but no later than three (3) years from the supplier's original delivery date.

- Two (2) years from the start date
- Three (3) years from the Supplier's (iLOQ) original delivery date

These conditions are not valid for the iLOQ S10 and the iLOQ 5 Series management software, and mobile software, which have separate conditions.

As a rule, all of the supplier's warranty obligations shall be fulfilled through a supplier's authorized partner. In all warranty-related matters, the customer must contact the supplier's partner from which they have purchased the warranted product. If the customer has purchased the product directly from the supplier, they can also contact the supplier directly in all warranty-related matters.

The supplier shall not be responsible for any damage that a fault or defect in the product may have caused to other property, nor shall the supplier be responsible for any other direct or indirect damage

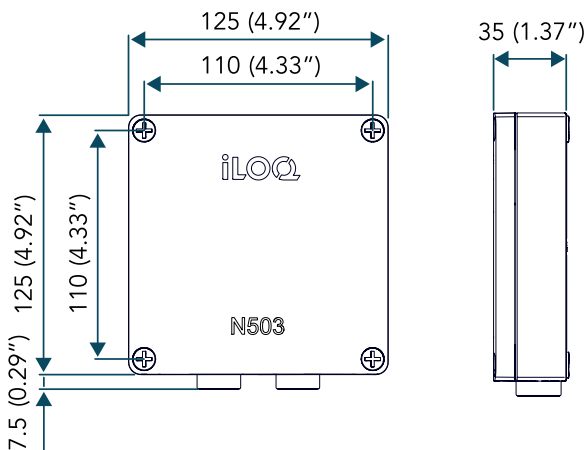
The following faults or damage shall not be compensated for under the supplier's warranty:

- Faults in the product caused by failure to observe the operating instructions when using the product, by neglecting maintenance or by making changes to the product
- Products broken when subjected to vandalism or violence
- Products which have been installed incorrectly
- Products which have been exposed to strong chemical agents or exceptional corrosion or oxidation or normal mechanical wear in the product

3. Installation of the devices

3.1 Device dimensions

iLOQ N503 Offline Door Module



3.2 Overview of the iLOQ N503 Offline Door Module

The iLOQ N503 Offline Door Module is a lock with two relays, and is part of the iLOQ 5 Series Online product family. The features of the iLOQ N503 are limited when compared to other Online products. Time profiles, monitored doors, calendar controls, external tags, key PIN-codes and code access **cannot be used**. The iLOQ N503 is at its best in remote and hard to reach locations where only a simple key-relay control is needed.

The iLOQ N503 is installed in a secure interior space. The iLOQ N503 is located near a door, and it controls the devices installed on the door environment, such as iLOQ C5 Lock Cylinders, iLOQ NFC Readers, electric locks, and door automation.

The iLOQ N503 has an RS-485 reader bus for connecting NFC Readers. The iLOQ N503 has two potential free relays, which, based on the selected operation mode, can be controlled by placing a valid iLOQ key to a connected NFC Reader or C5 Cylinder Lock. From a system point of view, the iLOQ N503 is a lock that needs to be programmed to operate as a lock. Initial programming is done via a connected NFC Reader using the iLOQ Manager software and the iLOQ P55S Programming Key.



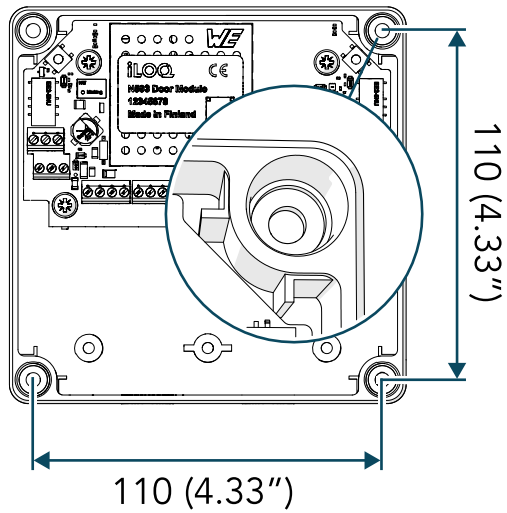
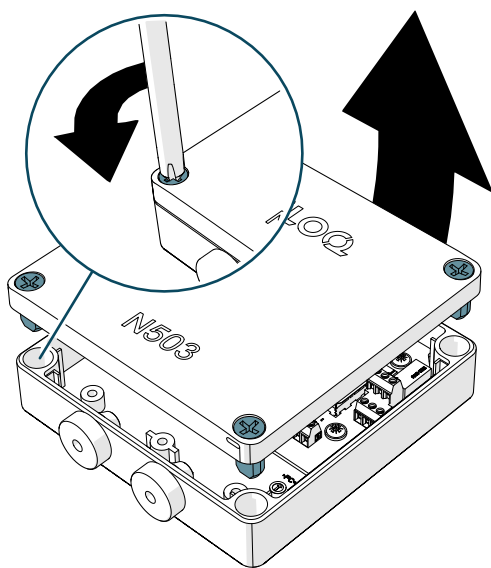
NOTE! The keypad of the connected iLOQ NFC Readers will be automatically disabled by the iLOQ N503 Offline Door Module.

3.3 Installing the iLOQ N503 Offline Door Module



WARNING! The door module is intended for installation in dry indoor air conditions.

1. Open the plastic fixing screws to open the enclosure cover
2. Use the fixing points at the bottom of the screw channel to attach the enclosure to the wall.



3. Close the enclosure cover with the plastic fixing screws, after finalizing the setup and programming.

4. Wiring the system



WARNING! Risk of a short circuit. Make sure that the wiring is performed properly with the power switched off and according to the instructions.



NOTE! Use twisted pair and shielded cables when possible. Recommended cable types and lengths can be found in the iLOQ 5 Series Online System Planning Guide.

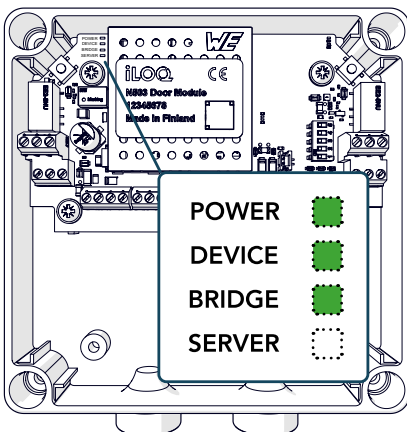
4.1 N503 connection points and additional information

- RS-485 IN: 24V DC Power supply to + and – connections. A / B not used
- RS-485 OUT: A / B, DC – Reserved for firmware update
- Cylinders: cylinder connections for 2 cylinders. (Cylinders can be connected only when the iLOQ N503 is not programmed)
- Inputs - IN 1/IN 2: Inputs have varying functions according to the selected operation mode
- Input 3: not in use
- Inputs - EXT: a potential-free contact information for conditional access right
- Reader RS-485: for connecting an iLOQ NFC Reader
- Relay K1/K2: relay outputs for controlling an external device
- TE/TEST button: short press termination of the main bus ON / OFF and Long press (2 s.) setup process
- Reset button: short press to reset the iLOQ N503

- Operation modes (remember to perform the setup after changing the DIPs)
 - Operation mode 1 - DIP S1 ON other OFF
 - Basic relays 1 x 2
 - Valid key will activate relays K1 & K2 according to times defined in the Manager
 - Input 1 will activate the relays the same as a valid Key
 - Input 2 is not active
 - Configurable relays 1 x 2
 - A valid key can activate one or two relays at once based on the selected Access right – Relay matrix. See chapter 7.1 for more details.
 - Relay modes available: Impulse, Switch and Key hold.
 - Inputs will activate the relays based on the relay mode defined in the iLOQ manager during programming.
 - Input 1 will activate relay K1
 - Input 2 will activate relay K2
 - Operation mode 2 - DIP S2 ON other OFF
 - Key usage on the NFC Reader is similar to above in Operation mode 1.
 - Input 1 and 2 will activate the iLOQ NFC Reader LED A (see chapter 4.3)

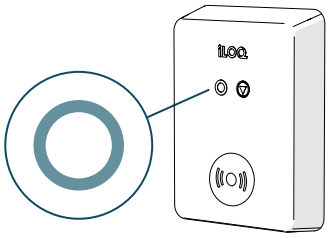
4.2 iLOQ N503 Offline Door Module light indicators

- Programmed LED is ON only when the iLOQ N503 Offline Door Module is programmed
- Error LED
 - 3 x RTC time lost
 - 4 x DIP changes without setup
 - 8 x setup incorrect
- Light indicators
 - Power - the iLOQ N503 has power
 - Device - the iLOQ N503 has power and the boot sequence is ready
 - Bridge - ON if setup has been successfully done and devices found OFF when 0 devices or wrong devices
 - Server - RTC time is OK

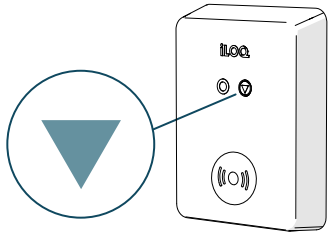


5. LED functions of the iLOQ NFC Reader

Connection status

	<ul style="list-style-type: none"> • Amber light 	The iLOQ N503 Offline Door Module does not have the correct time (RTC)
	<ul style="list-style-type: none"> • Red light 	Indicates that the setup was not done correctly. Wrong device in the bus
	<ul style="list-style-type: none"> • Green light 	The iLOQ N503 has the correct time (RTC)

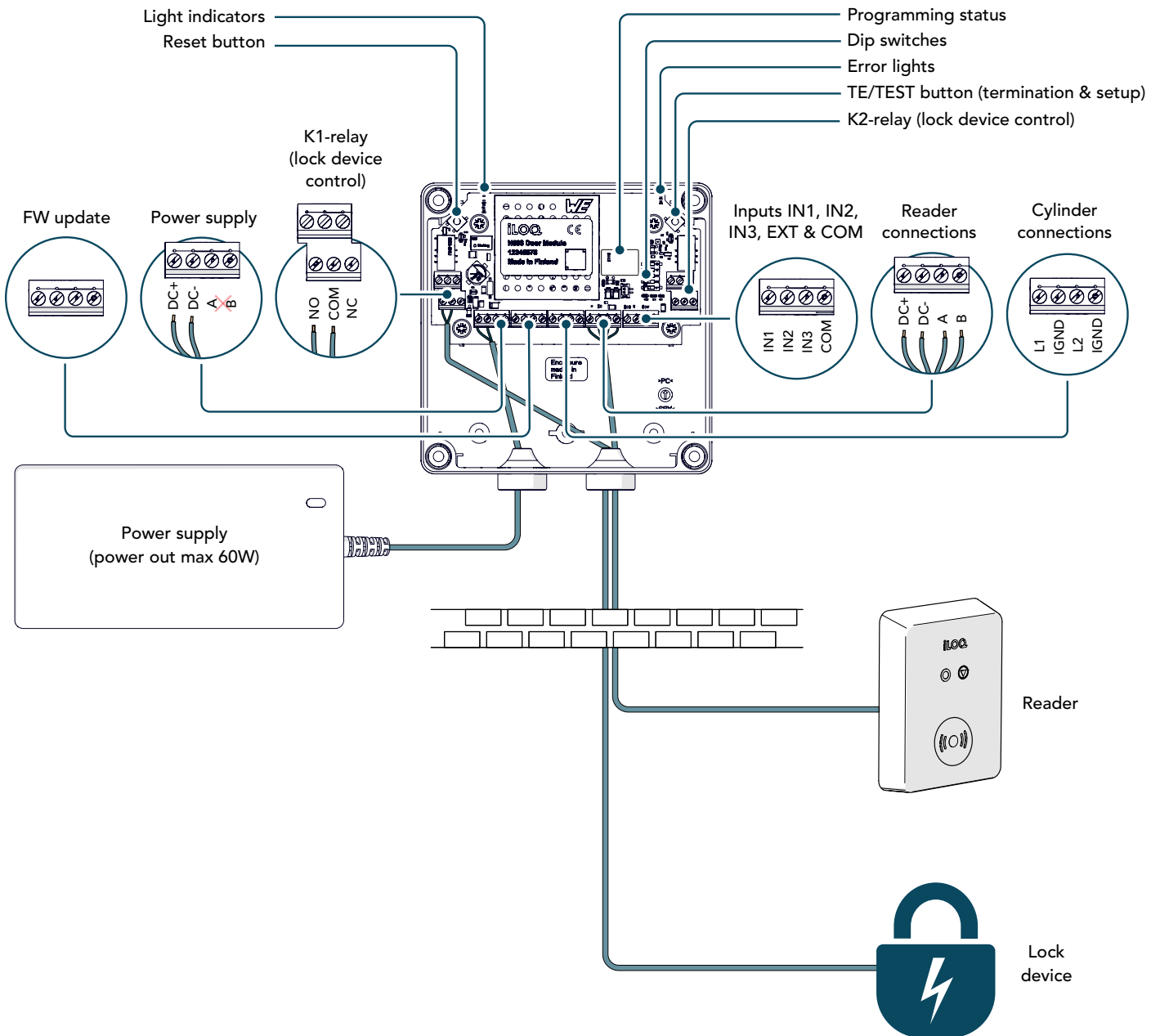
Key communication status

	<ul style="list-style-type: none"> • Amber light 	Key communication has started
	<ul style="list-style-type: none"> • Red light 	The key did not have a valid access right
	<ul style="list-style-type: none"> • Green light 	Key communication was successful and the key had a valid access right
	<ul style="list-style-type: none"> • Purple light 	A phone key was presented

LED - A (Operation mode 5)

	<ul style="list-style-type: none"> • Amber light 	Input 1 and 2 are active
	<ul style="list-style-type: none"> • Red light 	Input 2 is active
	<ul style="list-style-type: none"> • Green light 	Input 1 is active

5.1 Example of wiring for the iLOQ N503 Offline Door Module



6. The setup process

Install and connect the iLOQ N503 Offline Door Module and its bus devices according to chapters 3 and 4. All devices must be successfully connected before performing the setup.

6.1 Setting up the devices

This chapter describes how to prepare the iLOQ N503 Offline Door Module and connected bus devices for programming by performing the setup. The setup is to find the physical devices in the RS485 bus and has does not include programming (see chapter: Programming). The setup has to be performed whenever sub-devices are added to or deleted from the bus. In the case of the iLOQ N503, the bus device can be any iLOQ NFC Reader or C5S.x cylinders.

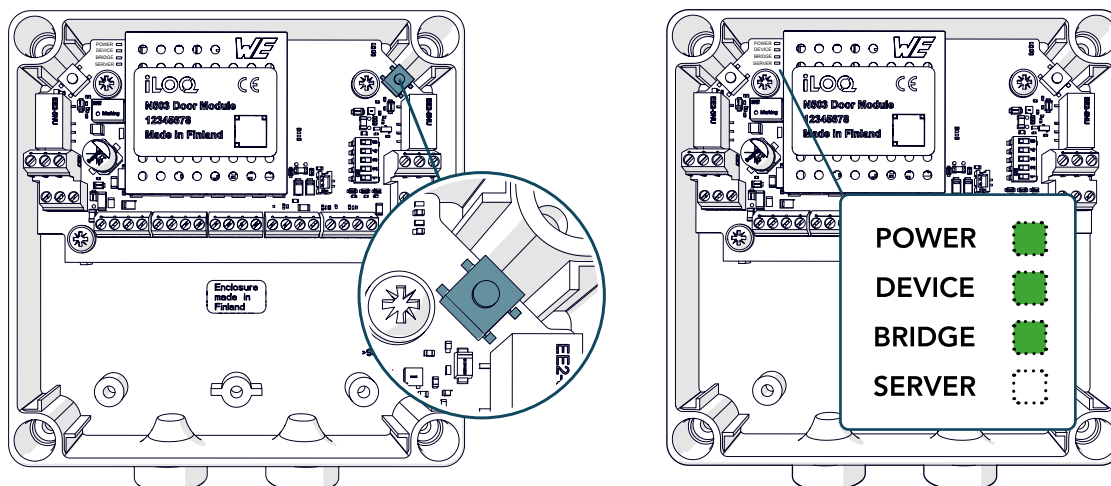
Initializing the setup procedure will reset the addresses of the bus and the connected devices. After that, it will search for new devices by pinging the bus. Whenever a new device is found, it is given a unique address. When new devices are no longer found, the setup process is finished.

Setup process is initiated with the TE/TEST button:

1. Power up the iLOQ N503.
2. Press the TE/TEST button for 2 seconds - the device LED will start blinking fast for 2 seconds.
→ After a successful setup process, the light indicators should be as depicted in the second picture



NOTE! If the devices have not been used before, the setup process is initiated automatically during the first startup.



6.2 Troubleshooting the setup process

In case the setup process does not find all the devices:

- Bad luck (rare)
 - Perform the setup again
- Bad connection of the wires
 - Fix and perform the setup again
 - Notice! Can cause problems to the entire bus and other devices of the bus
- Bad cable / Cable that is not twisted
 - Fix and perform the setup again
 - Notice! Can cause problems to the entire bus and other devices of the bus
- Broken N503/N504/N505/~~N506~~
 - Find the broken device by process of elimination, then change the broken device and perform the setup again
 - Notice! Can cause problems to the entire bus and other devices of the bus

7. iLOQ Manager

This chapter describes the most important features and settings that must be performed for the iLOQ N503 Offline Door Module, both during the deployment and when maintaining the system. Please notice that unlike typical Online product family products, the iLOQ N503 does not support all of the settings, like time profiles, ext tags, codes, calendars or monitored doors. More detailed instructions can be found at support.iloq.com.



NOTE! Enable audit trail fetch state on the iLOQ P55S Programming Key before programming the iLOQ N503 Offline Door Module.

7.1 Adding the iLOQ N503 Offline Door Module as a lock

From the system point of view, the iLOQ N503 Offline Door Module is a lock that needs to be added to the system and programmed.

1. Select "Add Lock" > the Wizard will open.
2. Insert basic information including the iLOQ N503 serial number.

* Placement	N503 Test
Approach direction	
* Locking target	Test door
* Lock cylinder	N503
* Zone	+
* Lock type	S5
N503 serial number	123456789

3. Choose Basic **or** Configurable relay settings.

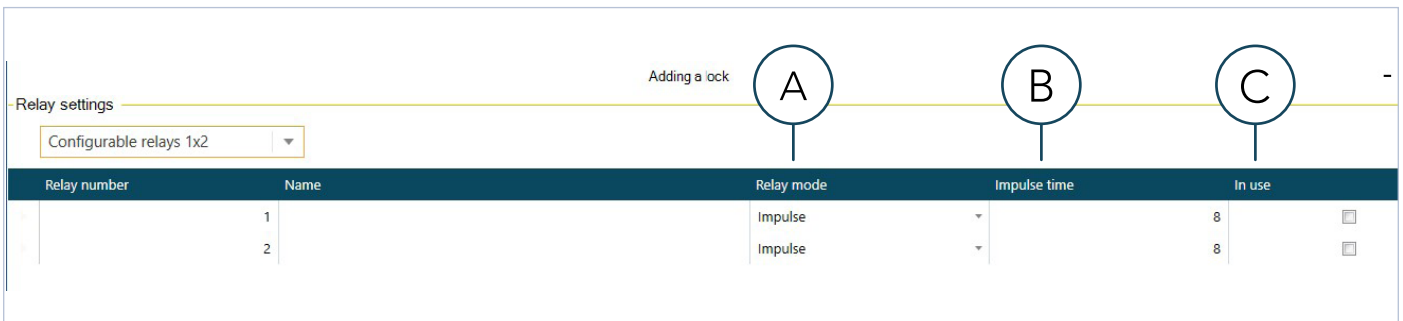
→ **Basic relay settings:** Any valid key will activate the relays, that remain active for the duration of the defined impulse time. Factory defaults can be used **(A)** - K1 3 sec & K2 30 sec, or the times can be defined **(B)**.

Relay settings

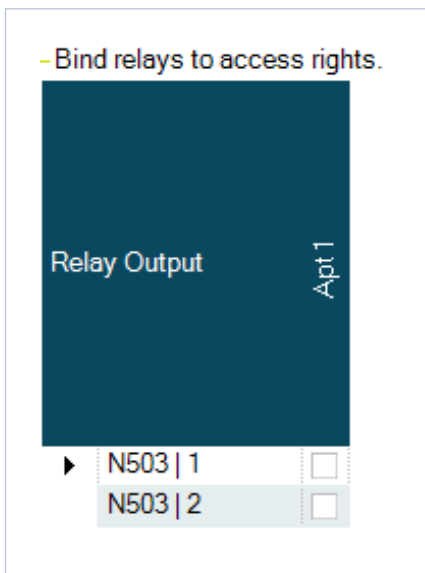
Basic relays 1x2	(A)	
K1 relay operating time	<input checked="" type="checkbox"/> Use factory default	
K2 relay operating time	<input type="checkbox"/> Use factory default	(B)
		__30 ^ v s (0 - 65534)

→ **Configurable relay settings:** A valid key can activate one or two relays at once based on the selected. Access right – Relay matrix. This also allows for the use of different relay modes.

1. Choose the relay mode **(A)**.
 - Impulse (Relay) – Delay adjustable
 - Switch – A valid key switches the relay status to ON or OFF
 - Key Hold – Relay remains active as long as a valid key is present in the reader.
2. Choose the impulse delay for each relay **(B)**.
 - Adjusts the relay operating time after a valid key is used in the reader.
 - Only for relay mode Impulse
3. Select the relays for use **(C)**.
 - If a relay is not selected, it will not be visible in the Access right - Relay selection



4. Attach the preferred access right(s) to the relay(s) by selecting the correct tick boxes in the Relay matrix.



5. Select Transfer to Programming Key. Disconnect the iLOQ P55S Programming Key and program the lock (see chapter: "Programming")

7.2 Editing the settings of a lock (N503 Offline Door Module)

Relay mode and Relay impulse time:

1. Browse Locks.
2. Right click a lock and choose "Edit key switch relay settings".
 - The relay settings can be edited, the mode can be changed and the impulse time can be adjusted

Access rights:

1. Browse Locks.
2. Right click a Lock and choose "Edit access rights".
3. Choose which access rights are needed to open the lock.

7.3 Audit trail fetch (100 latest events)

1. Enable the Audit trail fetch state on the iLOQ P55S Programming Key in the iLOQ Manager
2. Disconnect the iLOQ P55S and hold the iLOQ P55S to the NFC Reader
3. Wait few seconds for the audit trail to be loaded.
4. Connect the iLOQ P55S to iLOQ Manager to transfer the data to iLOQ cloud.

7.4 Blocklisting a lost key

Full blocklist can be transferred to the iLOQ N503 Offline Door Module with an S50 Phone Key. S5 keys will transfer blocklist increment packages from and to N503 Offline Door Module similarly as to S5 cylinders.

Note that blocklist transfer is always zone specific, meaning that the key will only transfer the blocklist of its main zone.

1. Add the lost key to a blocklist and order the blocklist.
2. Update the latest blocklist version to iLOQ S5 key (with a P55S.1 + MGR or iLOQ Online) or use a S50 Phone key.
3. Use the iLOQ key on the reader connected to N503.
4. Transfer blocklist information back to iLOQ cloud.
 - Use S5 key on a P55S.1 + MGR or iLOQ Online
 - Phone key - automatic

7.5 Updates

The device software of the iLOQ N503 Offline Door Module can only be updated by an iLOQ representative with special tools. The update is done via the RS-485 Main bus OUT connectors. If the iLOQ N503 box is installed in a hard to reach location, a separate cable should be installed for the use of iLOQ representatives.

8. Using the iLOQ N503 Offline Door Module unprogrammed

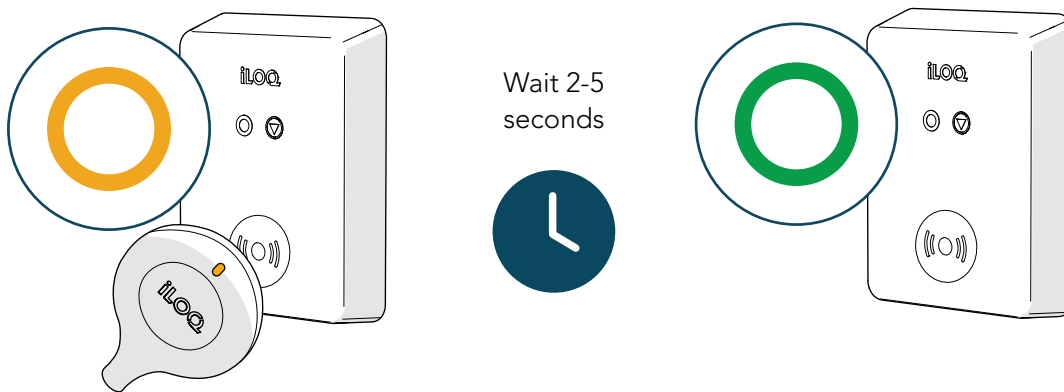
Connected C5S.x cylinders will control the Relays of the iLOQ N503 Offline Door Module.

- A valid key in the L1 connected cylinder will activate the K1 for 8 seconds
- A valid key in the L2 connected cylinder will activate the K2 for 30 seconds

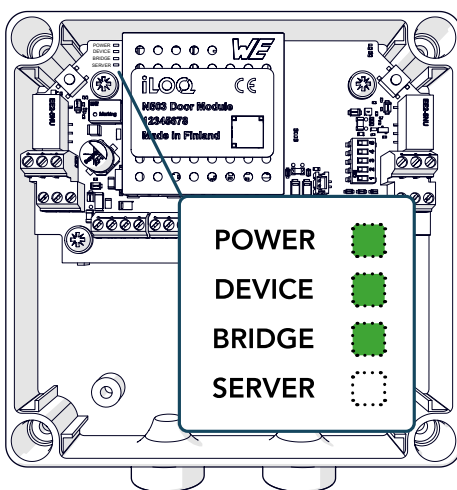
9. Programming

This chapter describes how to complete the device configuration of the iLOQ N503 Offline Door Module by programming it. To continue to programming, the previous steps have to be successfully done and the iLOQ N503 power has to be turned ON. Make sure that the devices are still connected, the setup has been completed and the iLOQ P55S Programming Key is disconnected and has the programming packet as described in the chapter "iLOQ Manager".

1. To start the deployment programming, disconnect the P55S from the PC and place it on the connected iLOQ NFC Reader.
 - At the start of the deployment programming, the reader's progress indicator and the P55S LED light are both orange
 - It takes approximately 2-5 seconds to upload the programming package from the P55S to the iLOQ N503 via the NFC Reader. When the programming is ready, the NFC Reader will beep and a green light will appear. A red light together with a beep indicates an error, try again.



2. Wait until all of the iLOQ N503 light indicators are green.
If they are all green, the deployment has been completed and the devices are ready for use.



10. Quick guide

Basic deployment:

1. Check the DIP switches
2. Connect an iLOQ NFC Reader (or other devices) and power up the devices
 - The setup is performed automatically during the first boot
 - If not performed automatically, press TE/TEST for 2 seconds to initiate the setup
3. Add a lock in the iLOQ Manager - lock type N503
4. Enable the Audit trail fetch state on the iLOQ P55S Programming Key
5. Transfer the programming task to the P55S, disconnect the P55S and hold the P55S to the NFC Reader

What to do when a key is blocklisted:

1. Add the lost key to a blocklist and order the blocklist.
2. Update the latest blocklist version to iLOQ S5 key and use it on the N503 or use a S50 Phone key.
 - Make sure that the key used to transfer the blocklist has the correct main zone defined

Replacing a broken iLOQ N503 with a new one:

1. Add a new lock in the iLOQ Manager.
2. Program the new lock and replace the broken device.
3. Perform the setup process.
4. If the broken lock cannot be deleted, hide the lock in the lock list.

Replacing a broken iLOQ NFC Reader N504/5/6 with a new one:

1. Replace the broken NFC Reader with a new one
2. Press TE/TEST for 2 seconds to initiate the setup.

Audit trail fetch - 100 latest events:

1. Enable the Audit trail fetch state on the iLOQ P55S Programming Key in the iLOQ Manager
2. Disconnect the P55S and hold the P55S to the NFC Reader
3. Wait few seconds for the audit trail to be loaded.
4. Connect the P55S to iLOQ Manager to transfer the data to iLOQ cloud.

Changing the operation mode:

1. Change DIP
2. Press TE/TEST for 2 seconds to initiate the setup.

RTC time is lost (Might happen if the iLOQ N503 is without power for more than 48 hours):

- Use iLOQ P55S Programming Key, K55S.X Key Fob or Phone key with the connected NFC Reader.



Updating the device software:

- The device software of the iLOQ N503 can only be updated by an iLOQ representative with special tools. The update is done via the RS-485 Main bus OUT connectors. If the iLOQ N503 box is installed in a hard to reach location, a separate cable should be installed for the use of iLOQ representatives.

11. Replacement and disposal

If a product is defective, replace it with a new one using the installation instructions. If you are not sure how to replace or discard a certain product, contact the device manufacturer. Contact information can be found at support.ilq.com.

11.1 Disposal of decommissioned products

	<p>Never discard an electrical appliance in household waste. Follow local laws and regulations for safe and environmentally friendly product disposal.</p>
	<p>Before discarding products, bear in mind that most iLOQ products are reusable. All programmable products can be reset to factory settings, after which they can be reused in another system.</p>

Recycling instructions of decommissioned products are depicted below.

Decommissioned product	Sorting
<p>Decommissioned iLOQ fittings, mounting accessories and thumb turn knobs can be recycled as scrap metal.</p>	
<p>Decommissioned iLOQ products containing electronics and circuit boards, such as iLOQ Cylinders, iLOQ Keys, net bridges, door modules, key and NFC Readers, and relay cards, must be recycled at an electrical and electronic equipment collection point.</p>	
<p>iLOQ products containing batteries and accumulators, such as key fobs, programming keys and clock circuits, should be recycled at a regional collection point for batteries and small accumulators.</p>	
<p>Most iLOQ packaging materials are suitable for cardboard and plastic recycling.</p>	

12. Compliance



iLOQ 5 Series

iLOQ N503 Offline Door Module

Installation and deployment

iLOQ

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