

# iLOQ S10 ONLINE SYSTEM, N100, N102, N103, N104 AND N105

## General

iLOQ S10 Online expands the offline S10 locking system into a remote-controlled access management system. The S10 Online allows you to add remote controlled lock cylinders, RFID and PIN code readers and time-controlled electronic doors to the same system. The entire locking system can be administered easily and cost-efficiently using the same iLOQ S10 Manager software. The extension is made possible by integrating an RFID tag in the iLOQ key. iLOQ S10 Online based on digital authentication allows you to manage the flow of people in your properties as well as all access rights.

The main features of iLOQ S10 Online System are:

- Remote management of iLOQ lock cylinders
- Remote programming of iLOQ keys
- Remote management of doors equipped with electric locks and iLOQ lock cylinders. The doors can be opened by:
  - Key reader, in which case the key is also updated when the door is opened with the key
  - Key reader and a PIN code
  - RFID reader
  - RFID reader and a PIN code
  - Using a code. This option is meant to provide access for people, such as visitors, who do not and will not have a key.
  - Calendar controls
- Door status monitoring

iLOQ S10 Online System consists of the components below:

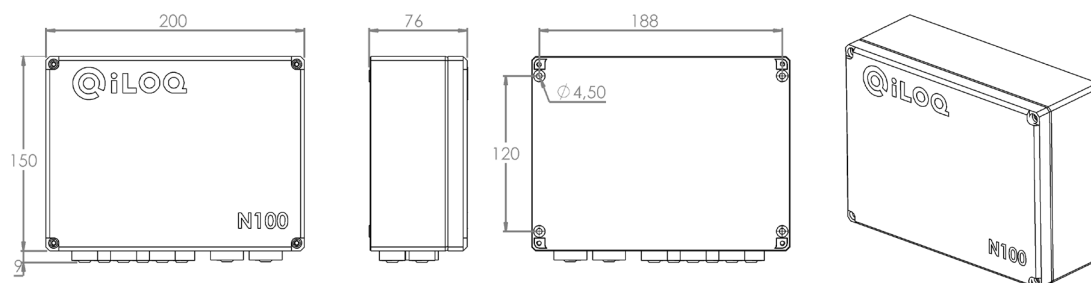
- Net Bridge. Net Bridge operates as a link between the iLOQ S10 server and the Door Modules and other devices on the bus
- Door Module. Door Module is a bus device located in the vicinity of a door, and it controls devices installed on the door, such as a lock cylinder, an electric lock, a key reader and an RFID reader
- Programming Hot Spot. Programming Hot Spot is a bus device used to update the key, and to download tasks for offline locks to the Programmer
- RFID reader. RFID reader is used to control an electric lock and it is always connected to a Door Module
- The system can consist of one or several Net Bridges, is possible to connect several bus devices to each Net Bridge

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## The S10 Online System complies with the standards below:

Standard type	Standard	Description
Generic	IEC/EN 61000-6-1:2007	Immunity for residential, commercial and light industrial environments
	IEC/EN 61000-6-3:2007/A1:2011/AC:2012	Emission standard for residential, commercial and light industrial environments
Applied	IEC/EN 61000-4-2	Electrostatic discharge (ESD)
	IEC/EN 61000-4-3	Radiated RF immunity
	IEC/EN 61000-4-4	Electrical fast transient/burst
	IEC/EN 61000-4-5	Surge immunity
	IEC/EN 61000-4-6	Conducted RF immunity
	IEC/EN 61000-4-8	Power frequency H-field immunity
	IEC/EN 61000-4-11	Voltage dips and interruptions
	IEC/EN 55011	Radiated E-field emissions, 30 - 2700 MHz
IEC/EN 55011	Conducted emissions, 0.15 - 20 MHz	

## N100 NET BRIDGE



### Connections

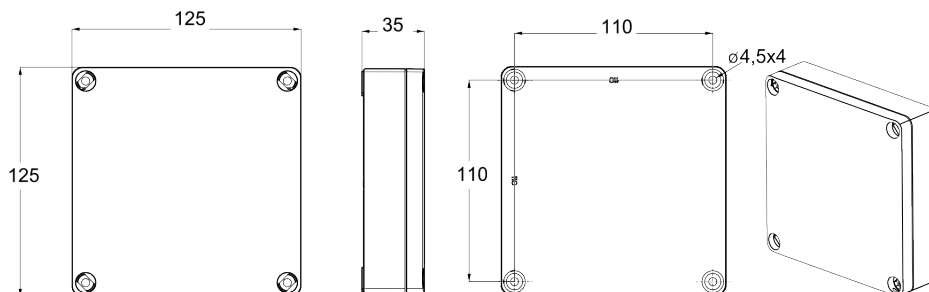
- ETHERNET / POE — Ethernet LAN connection with Power over Ethernet (PoE) support
- DC — Power input for an external power supply
- Net Bridge always requires an Ethernet connection and power supply. Power supply can be provided through an Ethernet switch supporting PoE, or by an external power supply
- If Net Bridge is powered by:
  - PoE, the available power for bus devices is 10 W
  - PoE+, the available power for bus devices is 20 W
  - External power supply, the available power for bus devices is 30 W
- RS-485 1/2/3 — Main bus connections (6 pcs). There is one main bus, which can be divided to six parallel branches
- To the main bus, it is possible to connect:
  - Door Modules
  - Programming Hot Spots
- The USB host is used to upload device configuration data from a USB memory stick to Net Bridge
- TOKEN — A locking-system specific token is required when communicating with the server and when handling encrypted programming packages

### Technical data N100

Bus interface .....	RS-485
Power consumption.....	5 W
Material of housing.....	Plastic
Installation method.....	Screws
Colour .....	Grey with transparent cover
Ingress protection rating.....	IP65
Temperature range.....	-20 °C...+50 °C
Weight .....	0,620 kg
Max amount of bus devices.....	32*)
Certificates .....	CE

\*) Theoretical maximum, see restrictions from planning guide.

## N102 DOOR MODULE



Door Module is a bus device located in the vicinity of a door, and it controls devices installed on the door, such as a lock cylinder, a key reader, an RFID reader, an electric lock, an electric strike plate, a magnet lock, and so on.

Door Module is hosted by Net Bridge; it does not operate independently. Door Module has several different use cases, and it can be used both as unprogrammed or programmed.

The most common use cases are:

- Connecting lock cylinders for remote management
- Connecting a calendar-controlled electric lock
- Connecting a key reader to control an electric lock
- Connecting an RFID reader to control an electric lock
- Connecting a key reader to control an alarm system
- Connecting an RFID reader to control an alarm system
- Connecting readers to control an electric lock by a key and PIN code combination
- Connecting a code-controlled electric lock
- Door status monitoring

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### Connections

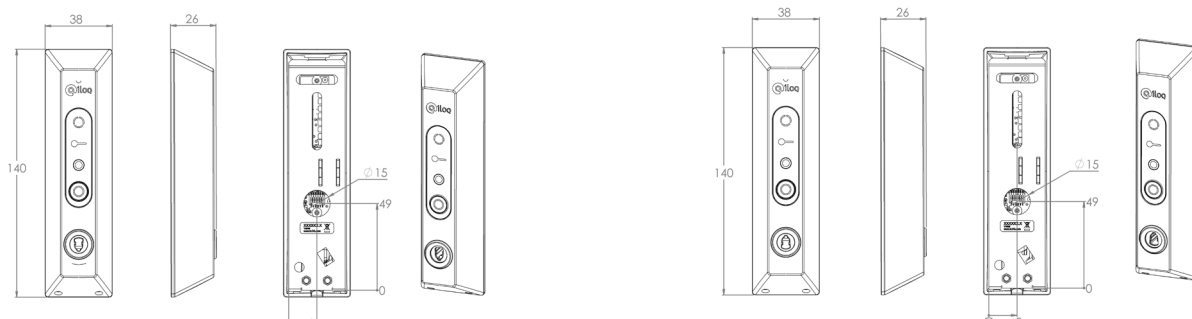
- RS-485 IN — Main bus input connection
- RS-485 OUT — Main bus output connection
- CYLINDERS — Cylinder connections for 2 cylinders
- INPUTS - IN 1/IN 2 — Potential-free inputs have varying functions according to the selected operating mode
- INPUTS - EXT — A potential-free contact information for conditional access right
- READER RS-485 — The reader bus is a separate bus from the main bus. It controls the key reader and the RFID reader
- RELAY K1/K2 — Relay outputs for controlling an external device

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### Technical data N102

Bus interface .....	RS-485
Power consumption.....	1 W
Material of housing.....	Plastic
Installation method.....	Screws
Colour.....	Grey
Ingress protection rating.....	IP65
Temperature range.....	-25°C...+50 °C
K1 and K2 relay output contact ratings .....	Max 30V
.....	Max 2 A

## N103 HOT SPOT/ KEY READER



Key reader / Hot Spot can be used for two different purposes:

- As a programming hot spot only. Independently connected to the main bus, the device is used for updating keys remotely, and for downloading programming tasks to the Programmer, for programming offline locks
- As a key reader. Connected to the door module READER RS-485 bus, the device controls the electric lock, and the key is also updated when the door is opened. In this configuration, the device cannot be used for downloading programming tasks to iLOQ Programmer, for programming offline locks

### Product versions

N103.1.....	Key reader for indoor,
.....	Contact wire downwards
.....	(for Scandinavian oval cylinder market),
.....	Plastic cover
N103.2.....	Key reader for indoor
.....	Contact wire upwards ,
.....	(for Europrofile cylinder market),
.....	Plastic cover
N103.4.....	Key reader for outdoor
.....	Contact wire upwards ,
.....	(for Europrofile cylinder market),
.....	Stainless steel cover,
.....	Vandal proof, Hard-wearing

### Connections

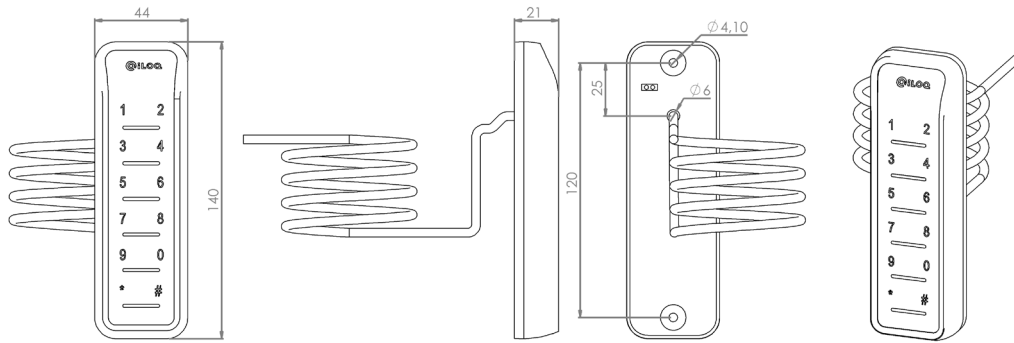
RS-485 IN  
RS-485 OUT

### Technical data N103

Bus interface .....	RS-485
Power consumption.....	0.1 W
Installation method.....	Screws
Ingress protection rating.....	IP22 *)
Temperature range.....	-35 °C...+55 °C

\*) If used outdoors, the reader must be protected against rain. Weather protection cover A10.84 available as an accessory.

## N104 RFID READER



RFID Reader is a device located in the vicinity of a door. RFID Reader is connected to the Door Module READER RS-485 bus; it has no other connections. RFID Reader is used to control an electric lock by an iLOQ key equipped with an iLOQ RFID tag.

If RFID Reader is equipped with a keypad, it can be used to provide access to the door with a code only.

- When installing:
- Reading distance may be shorter if installed on a metal surface or closer than 10 cm from each other
- If installed directly on a metal surface, using an installation plate A10.119 between the door and the reader may improve reading distance
- It is recommended to use a sheet metal plate between the readers if two readers are installed close to each other
- Do not install a reader to the vicinity of strong electromagnetic disturbance sources
- Do not cut the cable shorter than 10 cm
- Extra wires, that are not mentioned in the connection instructions, are left disconnected. However, these wires must not be left in short cut with each other

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### Product versions

N104.1.....	RFID reader with key pad
.....	without encryption
N104.2.....	RFID reader without key pad
.....	without encryption
N104.3.....	RFID reader with key pad
.....	with encryption
N104.4.....	RFID reader without key pad
.....	with encryption

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## Connections

Red wire — DC+  
Black wire — DC-  
White wire — A  
Green wire — B

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## Technical data N104.1 RFID Reader

Interface.....	RS-485
Power consumption.....	1 W
Operating Frequency.....	13,56 MHz
Supported iLOQ RFID keys .....	K10S.5
Encryption with K10S.5 key.....	Air interface: none, ..... From reader to host: none
Keypad.....	Yes
Material of housing.....	Plastic
Installation method.....	Screws
Colour .....	Black
Ingress protection rating.....	IP67
Temperature range.....	-40 °C... +55 °C
EMC .....	Meets CE requirements
Field strength.....	According to EN300330
Cable .....	LIYY 3m
LED .....	Three-colour LED
Buzzer .....	Yes

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## Connections

Red wire — DC+  
Black wire — DC-  
White wire — A  
Green wire — B

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## Technical data N104.2 RFID Reader

Interface.....	RS-485
Power consumption.....	1 W
Operating Frequency.....	13,56 MHz
Supported iLOQ RFID keys.....	K10S.5
Encryption with K10S.5 key.....	Air interface: none, ..... From reader to host: none
Keypad.....	No
Material of housing.....	Plastic
Installation method.....	Screws
Colour.....	Black
Ingress protection rating.....	IP67
Temperature range.....	-40 °C... +55 °C
EMC.....	Meets CE requirements
Field strength.....	According to EN300330
Cable.....	LIYY 3m
LED.....	Three-colour LED
Buzzer.....	Yes

## Connections

Red wire — DC+  
 Black wire — DC-  
 White wire — A  
 Green wire — B

## Technical data N104.3 RFID Reader

RFID Reader is a secure access control reader with an AES data encryption between the reader and the host, iLOQ S10 Online system. The reader can read both keys, the iLOQ K10S.5 keys with MIFARE® Classic without over the air encryption, and the iLOQ K10S.6 key with MIFARE® DESFire with over the air encryption. The communication between the reader and the host is always AES encrypted.

Interface.....	RS-485
Power consumption.....	1 W
Operating Frequency.....	13,56 MHz
Supported iLOQ RFID keys.....	K10S.5, K10S.6
Encryption with K10S.5 key.....	Air interface: none, ..... From reader to host: AES
Encryption with K10S.6 key.....	Air interface: 3DES, ..... From reader to host: AES
Keypad.....	Yes
Material of housing.....	Plastic
Installation method.....	Screws
Colour.....	Black
Ingress protection rating.....	IP67
Temperature range.....	-40 °C...+55 °C
EMC.....	Meets CE requirements
Field strength.....	According to EN300330
Cable.....	LIYY 3m
LED.....	Three-colour LED
Buzzer.....	Yes



## Connections

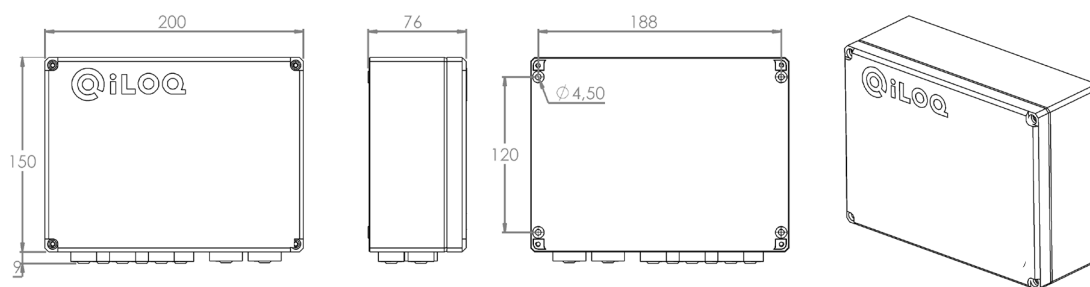
Red wire — DC+  
 Black wire — DC-  
 White wire — A  
 Green wire — B

## Technical data N104.4 RFID Reader

RFID Reader is secure access control reader with an AES data encryption between the reader and the host, iLOQ S10 Online system. The reader can read both keys, the iLOQ K10S.5 keys with MIFARE® Classic without over the air encryption, and the iLOQ K10S.6 key with MIFARE® DESFire with over the air encryption. The communication between the reader and the host is always AES encrypted.

Interface.....	RS-485
Power consumption.....	1 W
Operating Frequency.....	13,56 MHz
Supported iLOQ RFID keys.....	K10S.5, K10S.6
Encryption with K10S.5 key.....	Air interface: none, ..... From reader to host: AES
Encryption with K10S.6 key.....	Air interface: 3DES, ..... From reader to host: AES
Keypad.....	No
Material of housing.....	Plastic
Installation method.....	Screws
Colour.....	Black
Ingress protection rating.....	IP67
Temperature range.....	-40 °C...+55 °C
EMC.....	Meets CE requirements
Field strength.....	According to EN300330
Cable.....	LIYY 3m
LED.....	Three-colour LED
Buzzer.....	Yes

## N105 KEY SCHEDULER



### General

Key scheduler enables automatic key end date and time renewal.

It also enables automatic access right version number stepping on key within a defined time interval. The change, generated to a key by the Key Scheduler, can be fetched from any Key Programming Hot spot, no matter if it is connected to the Key Scheduler or a Net Bridge. Therefore, one Key Scheduler per locking system is enough even if there is a need of several Key Programming Hot Spots in different locations. The Key Scheduler license allows also one Hot Spot connection.

### Connections

- ETHERNET / POE — Ethernet LAN connection with Power over Ethernet (PoE) support
- DC — Power input for an external power supply
- Key Scheduler always requires an Ethernet connection and power supply. Power supply can be provided through an Ethernet switch supporting PoE, or by an external power supply
- If Key Scheduler is powered by:
  - PoE, the available power for bus devices is 10 W
  - PoE+, the available power for bus devices is 20 W
  - External power supply, the available power for bus devices is 30 W
- RS-485 1/2/3 — Main bus connections (6 pcs). There is one main bus, which can be divided to six parallel branches
- To the main bus, it is possible to connect Programming Hot Spots only
- The USB host is used to upload device configuration data from a USB memory stick to Key Scheduler
- TOKEN — A locking-system specific token is required when communicating with the server and when handling encrypted programming packages

### Technical data N105

Bus interface .....	RS-485
Power consumption.....	5 W
Material of housing.....	Plastic
Installation method.....	Screws
Colour .....	Grey with transparent cover
Ingress protection rating.....	IP65
Temperature range.....	-20 °C...+50 °C
Weight .....	0,620 kg
Max amount of bus devices.....	32*)
Certificates .....	CE

\*) Theoretical maximum, see restrictions from planning guide.