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iLOQ 5 SERIES ONLINE - N500, N501, N502, N503, N504i, N505i, AND N507

General

iLOQ Online products have a vital role in scaling up the usability of iLOQ offline and no-battery products by enabling the remote management of C5 Oval lock cylinders, iLOQ keys and electrical door environments such as electric locks, door automation, etc., by connecting them to the iLOQ Cloud service via an RS485-connected iLOQ N500 Net Bridge – Online Door Module combination or via iLOQ N501 Standalone Door Module.

Doors equipped with iLOQ Online can be opened with iLOQ S5 and iLOQ S50 keys via connected iLOQ NFC Readers or by using calendar controls, an access code or iLOQ HOME remote opening.

In addition to just opening the door, an important function of iLOQ Online is to work as a link between the iLOQ keys and locks when transferring the D2D data of their offline activity to the iLOQ Cloud. In practice this can mean writing new access rights to iLOQ keys, blocking the use of a lost key but also reading the previous offline events from the key and sending them to the iLOQ Cloud.

The main features of the iLOQ Online system are:

- Controlling the devices in the door environment with:
  - iLOQ Key, in which case the NFC Reader will also update the Key.
  - Code access
  - Calendar controls
  - iLOQ Remote opening
- Remote management of iLOQ C5 lock cylinders (Scandinavia only)
- Updating, sharing and collecting lock and key information such as access rights, time profiles, log events and lists of blocked keys through a D2D network with an NFC Reader N504i or N505i.
- Door status monitoring

iLOQ 5 Series Online consists of the components below:

- The iLOQ N500 Net Bridge operates as a link between the iLOQ Cloud, Online Door Modules and other bus devices.
- The iLOQ N501 Standalone Door Module has connection to iLOQ Cloud and to the devices in the door environment.
- The iLOQ N502 Online Door Module is located in the vicinity of a door, and it controls the devices in the door environment.
- The iLOQ N503 Offline Door Module is located in the vicinity of a door, and it controls the devices in the door environment.
- The iLOQ N507 Online I/O Module for more complex controlling needs.
- The iLOQ NFC Reader N504i/N505i is used to read and write data to iLOQ Keys while opening the door.

The iLOQ 5 Series Online 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

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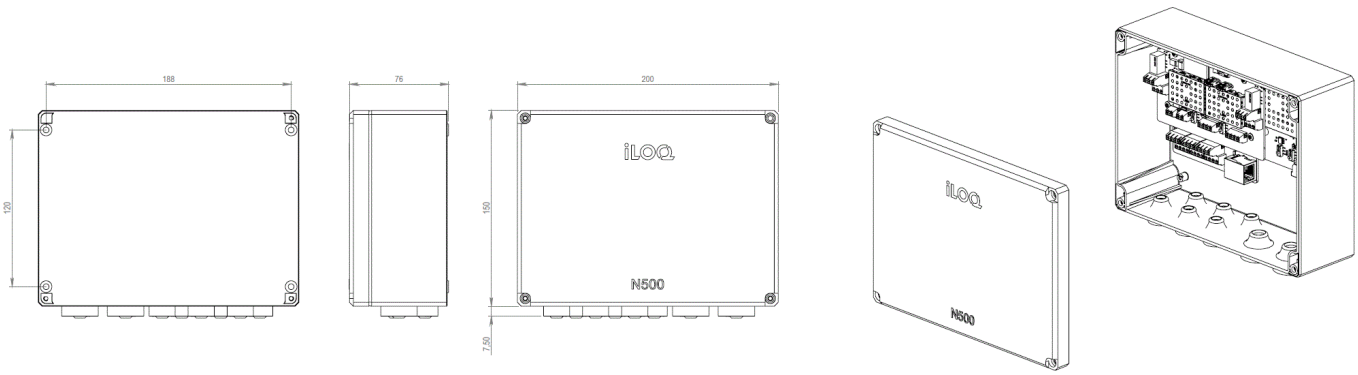
iLOQ N500 NET BRIDGE



General

The iLOQ N500 Net Bridge acts as the central unit of an iLOQ Online system. The iLOQ N500 Net Bridge acts as a link between the iLOQ Cloud and the door modules and other bus devices allowing the administrator to remotely control locks and keys with iLOQ Manager without the need to visit the installation site.

The iLOQ N500 Net Bridge is installed in a secure interior space, such as a technical room, that is equipped with an Ethernet connection and an AC outlet.

The iLOQ N500 Net Bridge is connected to the iLOQ Cloud via a LAN network and it has an RS-485 bus for connecting iLOQ N502 Online Door Modules, iLOQ NFC Readers and iLOQ N507 Online I/O Module. The N500 Net Bridge can be powered by a DC power supply or alternatively PoE/PoE+.

Connections

- ETHERNET / POE — Ethernet LAN connection with Power over Ethernet (PoE/PoE+) support
- 24VDC, 40W — Power input for an external power supply
- Main bus – RS-485 / 6 branches

Technical data N500

Bus interface	RS-485
Power consumption	< 5W
Material of housing	Plastic
Installation method	Screws
Color	Gray with transparent cover
Temperature range	-20 °C…+50 °C
Weight	0,620 kg
Max amount of bus devices	16*)
Compliance	CE, FCC, ISED

*) Theoretical maximum, see restrictions from planning guide.

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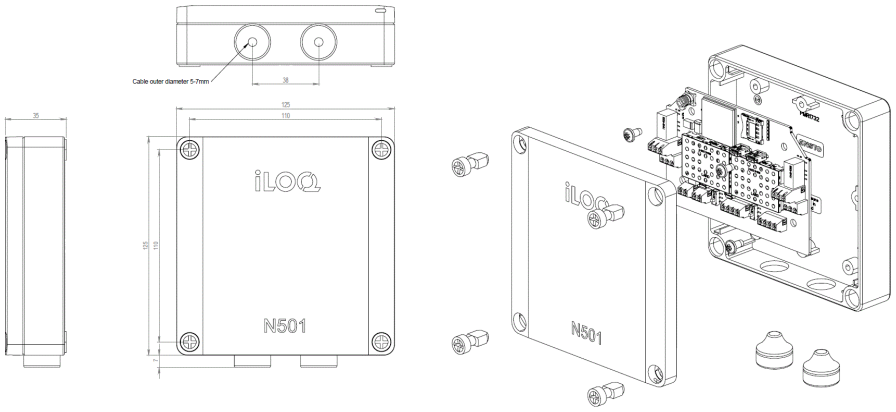
iLOQ N501 STANDALONE DOOR MODULE



The iLOQ N501 Standalone Door Module is a device located in the vicinity of a door, and it controls devices installed on the door, such as a lock cylinder, an iLOQ NFC Reader, an electric lock, an electric strike plate, a magnet lock, and so on. The iLOQ N501 Door Module is equipped with a pre-installed 4G connection to the iLOQ Cloud. With the iLOQ N501 Door Module, the remote or otherwise hard-to-wire door environments can be easily connected to be a part of the iLOQ Online system.

The most common use cases are:

- Connecting a calendar-controlled electric lock
- Connecting an NFC reader to control an electric lock
- Connecting an NFC/PIN reader to control an electric lock by a key and PIN code combination
- Connecting a code-controlled electric lock
- Updating, sharing and collecting lock and key information such as access rights, time profiles, log events and lists of blocked keys through a D2D network with an NFC/PIN reader N504i/N505i
- Door status monitoring

Connections

- CYLINDERS — Cylinder connections for 1 cylinder.
- 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 rights.
- READER RS-485 — The reader bus controls the NFC/PIN reader N504i or N505i
- RELAY K1 — Relay output for controlling an external device.
- FAULT RELAY K2 – To allow fault information to be sent to an external system (option).
- SIM card holder – Pre-installed SIM card for server connection.

Technical data N501

Reader interface	RS-485
Server connection	4G LTE
Power consumption	< 2W
Material of housing	Plastic
Installation method	Screws
Color	Gray
Temperature range	-25°C…+50 °C
K1 and K2 relay output contact ratings	Max 30V and 2A
Compliance	CE

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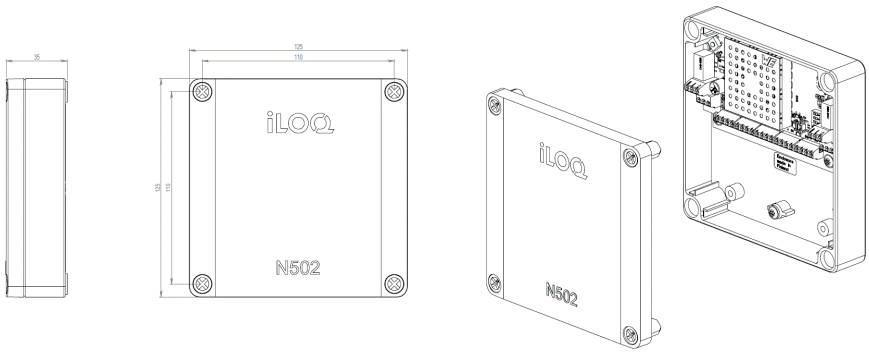
iLOQ N502 ONLINE DOOR MODULE



The iLOQ N502 Online 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 NFC Reader, an electric lock, an electric strike plate, a magnet lock, and so on.
The Online Door Module is hosted by iLOQ N500 Net Bridge; it does not operate independently. The Online Door Module has several different use cases, and it can be used both as unprogrammed or programmed.

The most common use cases are:

- Connecting a calendar-controlled electric lock.
- Connecting an NFC Reader to control an electric lock.
- Connecting lock cylinders for remote management.
- Connecting readers to control an electric lock by a key and PIN code combination.
- Connecting a code-controlled electric lock.
- Updating, sharing and collecting lock and key information such as access rights, time profiles, log events and list of blocked keys through a D2D network with an NFC Reader N504i/N505i.
- Door status monitoring.

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 two NFC Readers with the same access rights.
- RELAY K1/K2 — Relay outputs for controlling an external device.

Technical data N502

Bus interface	RS-485
Power consumption	< 2 W
Material of housing	Plastic
Installation method	Screws
Color	Gray
Temperature range	-25°C…+50 °C
K1 and K2 relay output contact ratings	Max 30V and 2A
Compliance	CE, FCC, ISED

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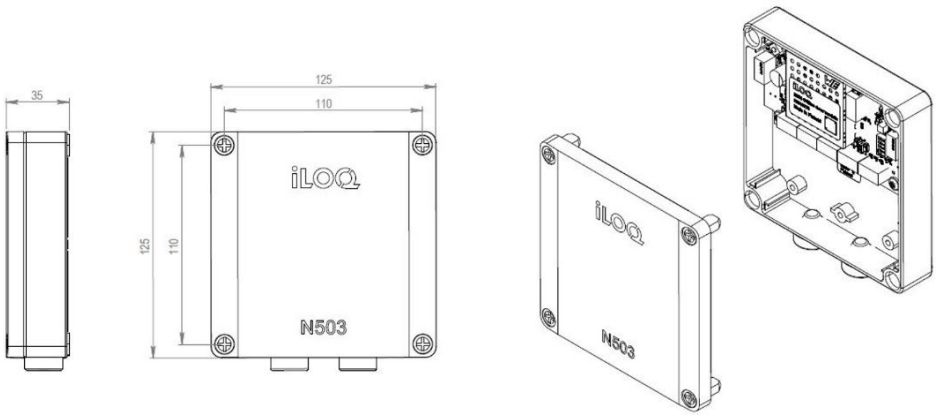
iLOQ N503 OFFLINE DOOR MODULE



The iLOQ N503 Offline Door Module is located in the vicinity of a door, and it controls devices installed on the door, such as iLOQ NFC Reader, an electric lock, an electric strike plate, a magnet lock, and so on. N503 has several different use cases, and it can be used both as unprogrammed in combination with connected C5 cylinders or programmed as a Lock with the connected iLOQ NFC Readers.

The N503 Offline Door Module operates independently without a connection to iLOQ Cloud. NOTE that this means that the connected NFC Reader does not necessarily share the latest Blocklist-, program- nor collect the audit trail events from the Keys.

The most common use cases are:
- Controlling an electric lock/device with a valid iLOQ Key via connected iLOQ NFC Reader
- Controlling an electric lock/device with a valid iLOQ S5 Key to a connected C5 cylinder

Connections

- RS-485 IN — 24VDC Power supply to + and – connections. A&B not used.
- RS-485 OUT — Reserved for firmware update.
- 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 — For connecting an iLOQ NFC Reader
- RELAY K1/K2 — Relay outputs for controlling an external device.

Technical data N503

Bus interface	N/A
Power consumption	< 2 W
Material of housing	Plastic
Installation method	Screws
Color	Gray
Temperature range	-25°C…+50 °C
K1 and K2 relay output contact ratings	Max 30V and 2A
Compliance	CE, FCC, ISED

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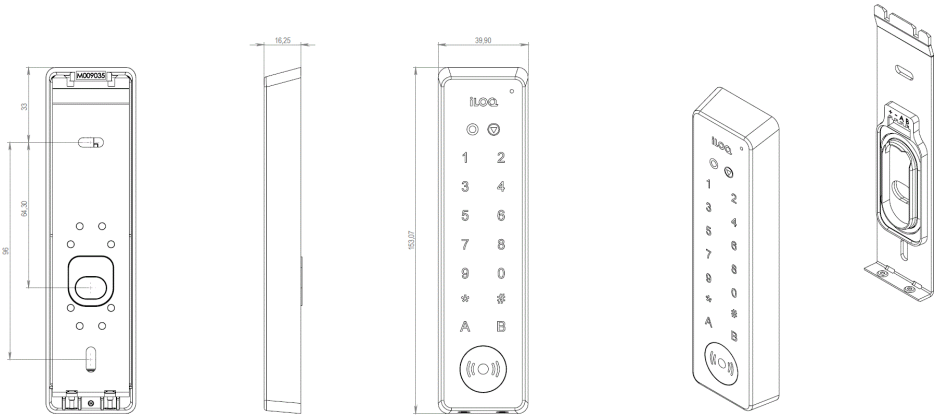
iLOQ N504i NFC/PIN DOOR READER



The iLOQ NFC Reader is a device located in the vicinity of a door. Readers are connected to the reader bus of the iLOQ N502 Online Door Module or to the chain bus of the iLOQ N507 Online I/O Module to control electronic devices. iLOQ NFC Readers can also be connected

directly to the main bus of the iLOQ N500 Net Bridge to work as a HotSpot for updating keys. iLOQ NFC Readers use NFC technology to read and write data to iLOQ S5 and iLOQ S50 keys, but also Mifare RFID tags can be read. Some of the iLOQ NFC Readers are equipped with a keypad that can be used to enhance the security by demanding a Key + PIN-code combination or, for low security features like opening the door, with just an access code.

iLOQ NFC Readers communicate with other iLOQ Online components via an RS-485 bus and to iLOQ keys wirelessly using NFC. In both cases the communication is secured with strong AES-256 encryption. iLOQ NFC Readers are not programmed or in any way adjusted via iLOQ Manager software. No security-related data is stored in the memory of the reader. iLOQ NFC Readers do not have any other connections (Input or Outputs).

Connections

DC+ - Positive
DC- - Negative
A – Data A
B – Data B

Technical data N504i NFC/PIN Door Reader

Interface to Door Module	RS-485
Power consumption	< 3 W
Operating Frequency	13,56 MHz
Supported iLOQ Keys	K5S.1-9, K55S.1, K55S.2, Phone key
Touch pad for PIN code use	Yes
Encryption with K5S.1-9 key and K55S.1 Key Fob	Air interface: AES-256, From reader to host: AES-256
Material of housing	Plastic
Installation method	Installation frame and screws
Color	Black
Ingress protection rating	IP54
Temperature range	-40 °C…+55 °C
Compliance	CE, FCC, ISED, ACMA, RCM
Field strength	According to EN300330
Cable	No, quick connector
LED	White and RGB LED
Buzzer	Yes, mono speaker

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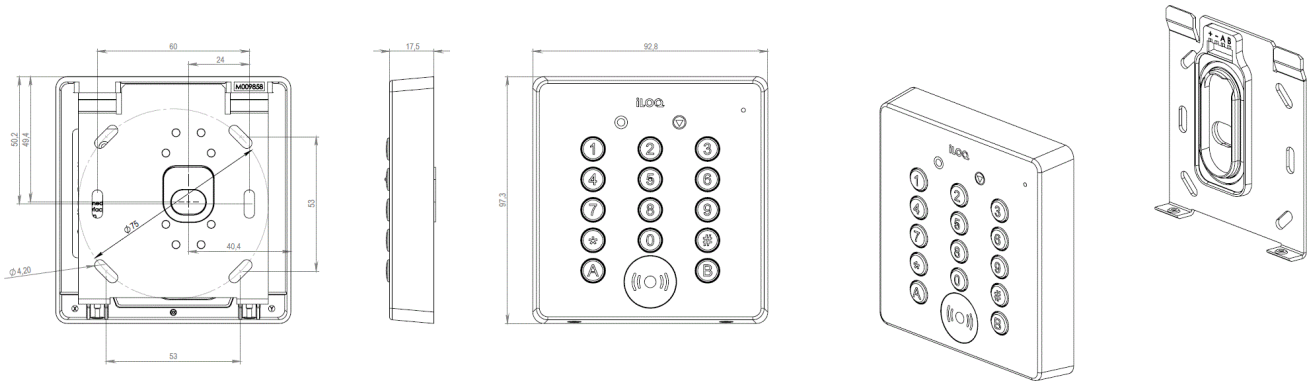
iLOQ N505i NFC/PIN WALL READER



The iLOQ NFC Reader is a device located in the vicinity of a door. Readers are connected to the reader bus of the iLOQ N502 Online Door Module or to the chain bus of the iLOQ N507 Online I/O Module to control electronic devices. iLOQ NFC Readers can also be connected

directly to the main bus of the iLOQ N500 Net Bridge to work as a HotSpot for updating keys. iLOQ NFC Readers use NFC technology to read and write data to iLOQ S5 and iLOQ S50 keys, but also Mifare RFID tags can be read. Some of the iLOQ NFC Readers are equipped with a keypad that can be used to enhance the security by demanding a Key + PIN-code combination or, for low security features like opening the door, with just an access code.

iLOQ NFC Readers communicate with other iLOQ Online components via an RS-485 bus and to iLOQ keys wirelessly using NFC. In both cases the communication is secured with strong AES-256 encryption. iLOQ NFC Readers are not programmed or in any way adjusted via iLOQ Manager software. No security-related data is stored in the memory of the reader. iLOQ NFC Readers do not have any other connections (Input or Outputs).

Connections

DC+ - Positive
DC- - Negative
A – Data A
B – Data B

Technical data N505i NFC/PIN Wall Reader

Interface to Door Module	RS-485
Power consumption	< 3 W
Operating Frequency	13,56 MHz
Supported iLOQ keys	K5S.1-9, K55S.1, K55S.2, Phone key
Keypad for PIN code use	Yes
Encryption with K5S.1 key and K50S.1 Key Fob	Air interface: AES-256, From reader to host: AES-256
Material of housing	Plastic
Installation method	Installation frame and screws
Color	Black
Ingress protection rating	IP54
Temperature range	-40 °C…+55 °C
Compliance	CE, FCC, ISED, ACMA, RCM
Field strength	According to EN300330
Cable	No, quick connector
LED	White and RGB LED
Buzzer	Yes, mono speaker

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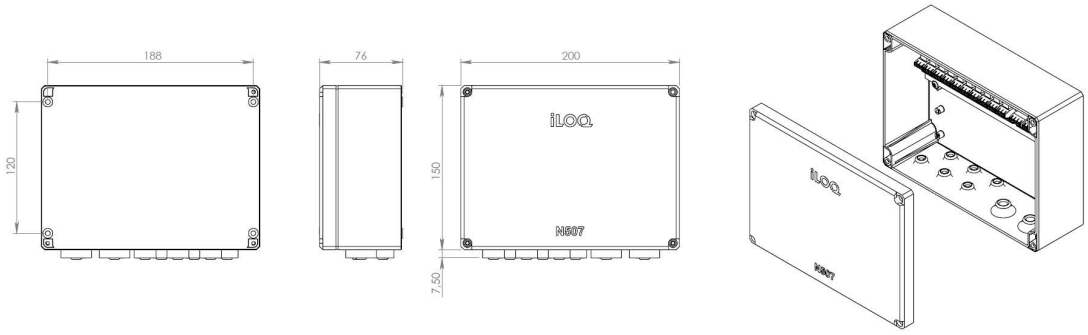
iLOQ N507 ONLINE I/O MODULE



The iLOQ N507 Online I/O Module is a bus device located in the vicinity of a door, and it controls devices installed on the door, such as an electric lock, an electric strike plate, a magnet lock, and so on. The N507 Online I/O Module is hosted by a Net Bridge or another N507; it does not operate independently. The N507 Online I/O Module has several different use cases, and it can be used both as unprogrammed or programmed.

The most common use cases are:
• Connecting a code- or calendar-controlled electric lock or device
• Connecting an iLOQ NFC reader to control an electric lock or device
• Using any of the 10 Inputs to control the Relays
• Updating, sharing and collecting lock and key information such as access rights, time profiles, log events and list of blocked keys through a D2D network with an iLOQ NFC Reader N504i or N505i.

Connections

- RS-485 IN — Main bus input connection
- RS-485 OUT — Main bus output connection
- RS-485 Chain bus – Online Reader and slave card connection
- INPUTS - IN1-IN10 — Potential-free inputs have varying functions according to the selected operating mode
- RELAYS K1-K10 — Relay outputs for controlling an external device

Technical data N507

Bus interface	RS-485
Power consumption	< 2 W
Material of housing	Plastic
Installation method	Screws
Color	Gray
Ingress protection rating	IP54
Temperature range	-25°C…+50 °C
Relay output contact ratings	Max 30V and 2A
Compliance	CE, FCC, ISED

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iLOQ S55

Hybrid Reader

iLOQ S55 Hybrid Readers - a new product family to be a part of iLOQ Online system. Available in different models. Standard, narrow, with or without keypad.

iLOQ Readers use NFC technology to read and write data to iLOQ S5 keys, iLOQ Mobile keys and iLOQ Key fobs. Mifare® RFID tags* can also be used as keys.

Technical Specifications

Supported Technologies

Supported iLOQ keys	K5S, K55S, iLOQ mobile app
Encryption	AES-256

Electrical Specifications

Interface to door module	RS-485
Operating voltage	+10 - +42 VDC
Power consumption	max. 2.5 W
Operating frequency	13,56 MHz
LED	RGB LEDs
Buzzer	Yes

Dimensions

Narrow stile without keypad / Narrow stile with 2x6 touch keypad	126 x 45 x 28 mm (H x W x D)
Standard without keypad / Standard with 3x4 touch keypad	129 x 77 x 28 mm (H x W x D)

Mechanical Specifications

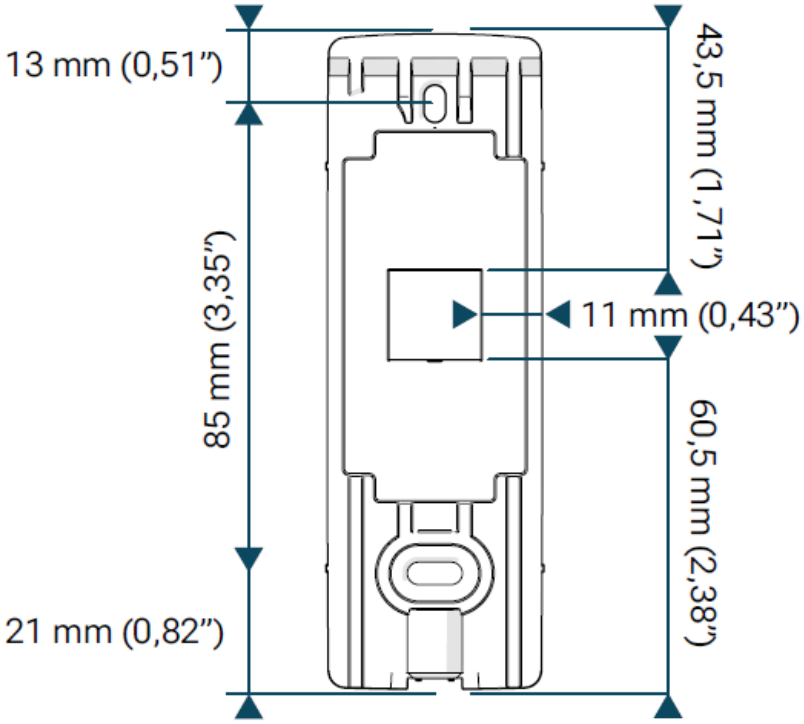
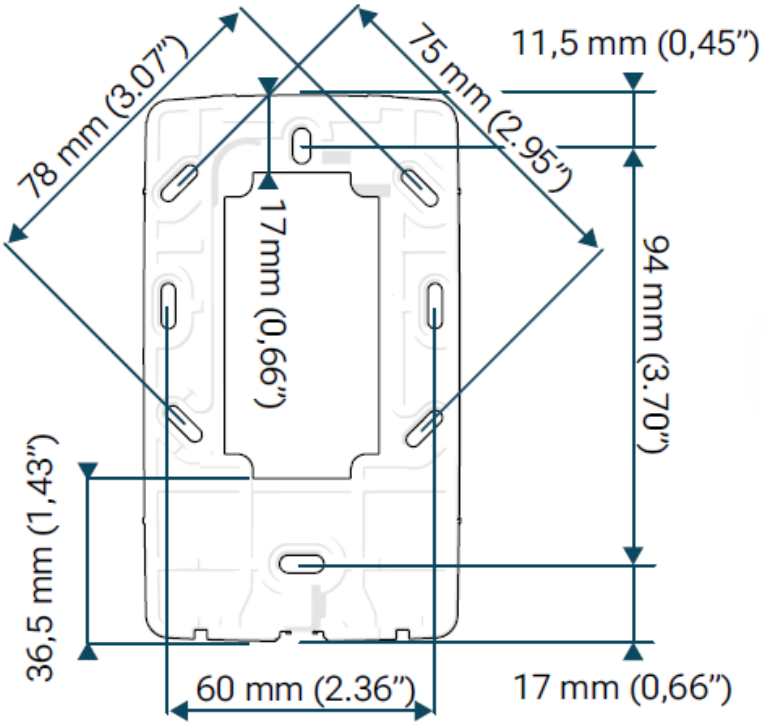
Material of housing	Plastic
Installation method	With screws
Connector	7 pin strip connector (4 pins in use)
Connections	Data A, Data B, DC+, DC-
Color	Black
Ingress protection	IP67
IK-rating	IK-09
Flammability class	UL94 HB, UL94 V2

Environmental Specifiations

Operational/storage temperature range	-40 °C...+55 °C
UV radiation	EN60068-2-5, total radiation 1090 W/m2, 72h

*When using Mifare® RFID: We only read the UID. The UID information is not encrypted.

N510.1X0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