

PRELIMINARY

Doorframe i7

# Manual FC-line

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# 1 Introduction:

The Doorframe i7 is a state-of-the-art 8.2 MHz RF antenna with customer counting sensors for Intelligent Article Surveillance (IAS). The antenna can easily be mounted on a door or window frame, keeping the entrance of the store wide open. The Doorframe i7 is a concealed solution especially designed for narrow entrances and entrances where placing gates on the floor is not practical or preferred.

## Knowledge Base articles

This manual provides an overview of the products, the installation and configuration. To obtain more details on various topics or background information, several Knowledge Base articles are available, and are referred to in this manual. You can find the Knowledge Base articles on the Nedap Retail portal.

This manual covers the following products:

| Article number | Article name  | Technologies | Model name          |
|----------------|---|--------------|---------------------|
| 9563725        | Doorframe i7 - ASSY FC180R RF WHITE                   | 8.2 MHz RF   | ASSY FC180R RF      |
| 9563725        | Doorframe i7 - ASSY FC180R RF WHITE + Metal Detection | 8.2 MHz RF   | ASSY FC180R RF + MD |
| 9216561        | FLOOR MOUNT COLUMN                                    |              | FLOOR MOUNT COLUMN  |

 This manual is for Nedap Retail certified service engineers only.

This product contains no user serviceable parts. Nedap Retail equipment should be serviced only by authorized Nedap Retail service engineers. They will ensure that service procedures and replacement parts used will not affect performance.

 The FC-line antennas have a maximum operating temperature of max. 40 degrees Celsius.

## CE WEEE

This European Standard specifies a marking:

- of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE); This is in addition to the marking requirement in Article 10(3) of this Directive which requires producers to mark electrical and electronic equipment put on the market after 13 August 2005 with a 'crossed-out wheeled bin' symbol.
- that applies to electrical and electronic equipment falling under Annex IA of Directive 2002/96/EC, provided the equipment concerned is not part of another type of equipment that does not fall within the scope of this Directive. Annex IB of Directive 2002/96/EC contains an indicative list of the products, which fall under the categories set out in Annex IA of this Directive;
- that serves to clearly identify the producer of the equipment and that the equipment has been put on the market after 13 August 2005.



## 2 Product overview

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 In this document the following abbreviations will be used from here onwards:

- 'RF technology' is an abbreviation for 8.2 MHz RF technology.

### Box contents

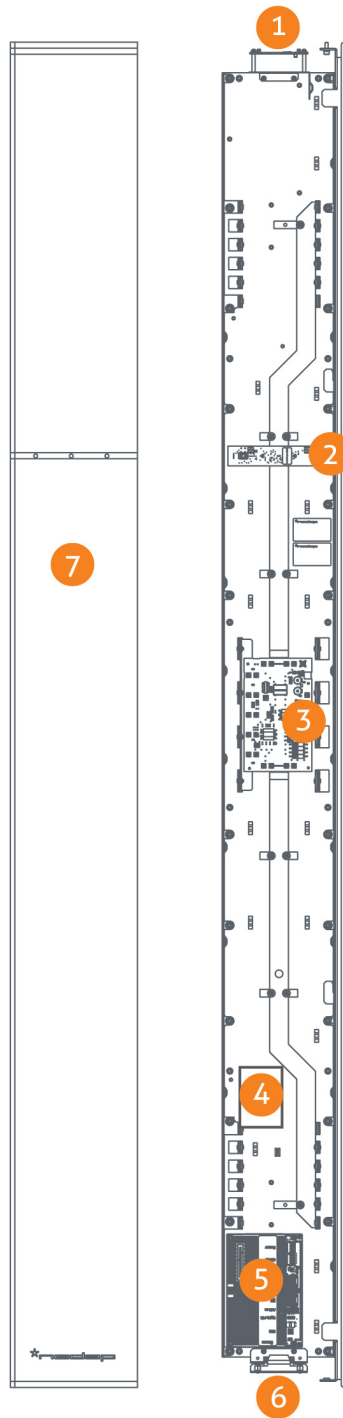
| Article number | Article name         | Box contents   |
|----------------|----------------------|--|
| 9563725        | ASSY FC180R RF WHITE | <ul style="list-style-type: none"> <li>• FC180R RF gate with Renos RF inside</li> <li>• Frame for wall mounting</li> <li>• Installation set</li> </ul> |



- Metal detection is optional and must be ordered separately, article number #9563717.
- Floor mount column is optional and must be ordered separately, article number #9216561.

# Components

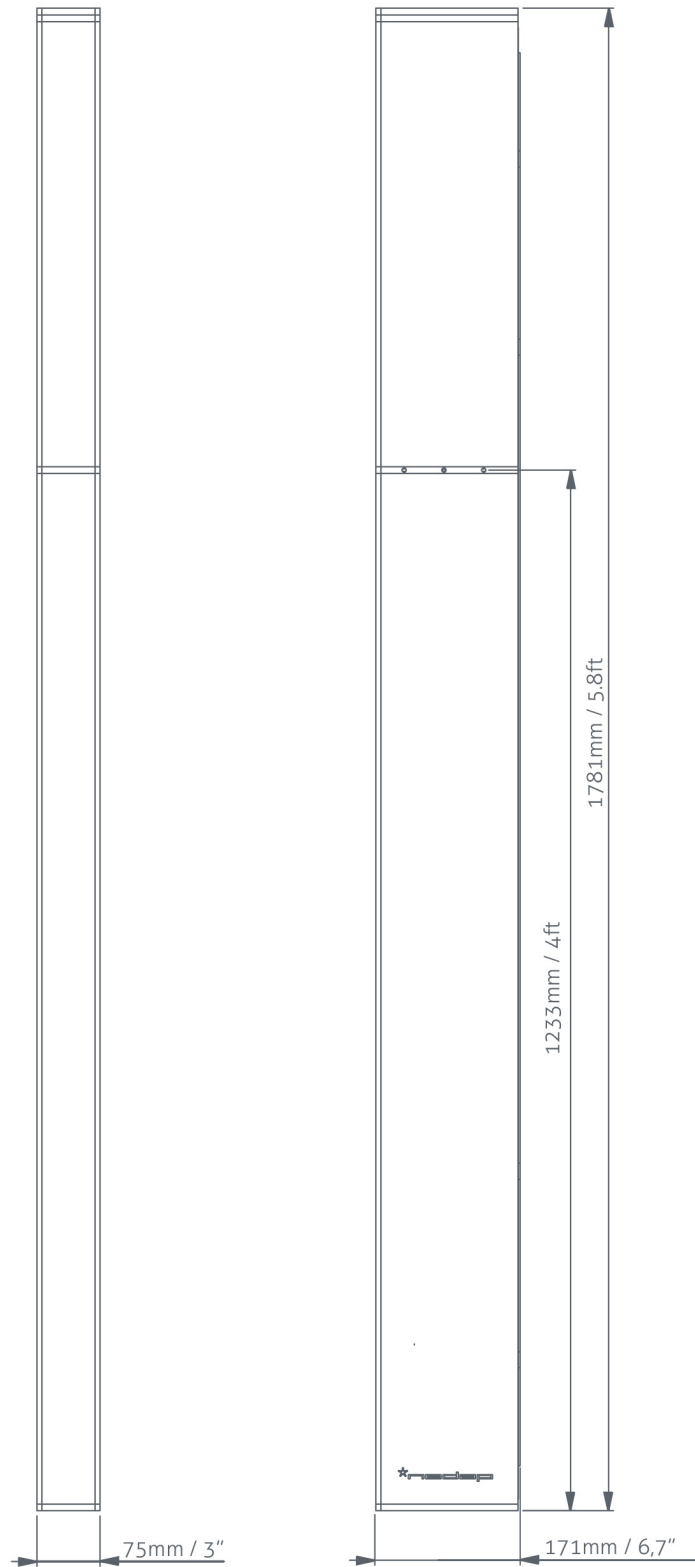
The Doorframe i7 is based on the Renos platform. The Renos platform is developed by Nedap Retail specifically for retail applications. The Doorframe i7 has several serviceable parts. These are explained in the table below and highlighted in the schematic drawings.



| Number | Component        | Description   |
|--------|------------------|---|
| 1      | Lights           | The red LED lights can be used for user feedback or alarms.   |
| 2      | Customer counter | Integrated customer counter.  |
| 3      | 50 ohm PCB       | The 50 ohm PCB takes care of the connection between the Renos unit, the RF antenna and the lights.  |
| 4      | Metal detection  | The metal detection unit (optional) must be placed here and is used to detect metal objects.  |
| 5      | Renos unit       | The Renos unit is the main processing unit of an FC product. It takes care of powering the system, data communication between units and with the outside world. It is equipped with an RF detection engine. |
| 6      | Buzzer           | The buzzer can be used for user feedback or alarms.   |
| 7      | Cover            | White removable cover for easy access to the connections.   |

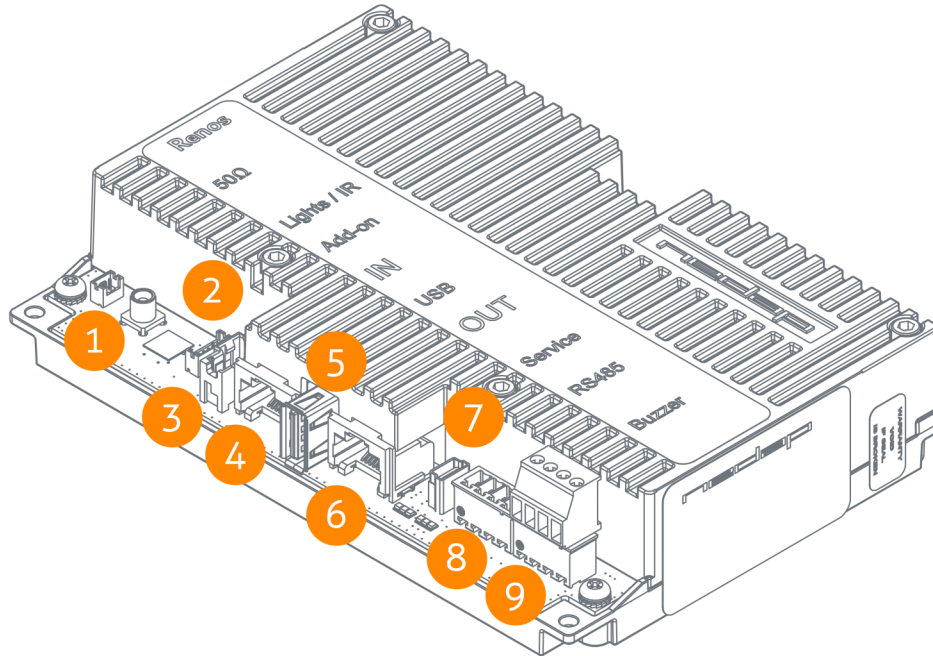


# Dimensions



# Connections

Below a Renos unit is displayed, with a description of all its connectors and what they are used for.

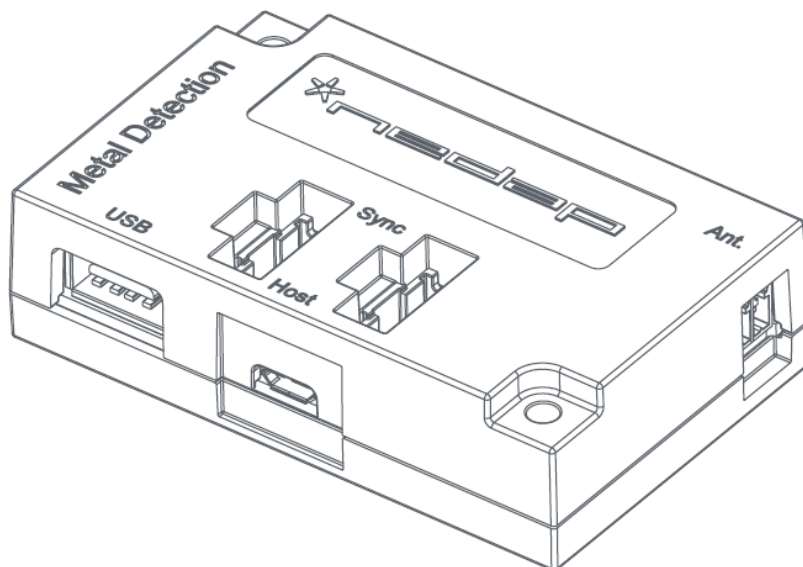


| Number | Connector             | Usage  |
|--------|-----------------------|--|
| 1      | 50 ohm                | Connect the Renos unit to the 50 ohm PCB. The 50 ohm PCB connects both the light and the RF antenna.                                   |
| 2      | Infrared beams        | Connect to the optional infrared beam sensors.   |
| 3      | Add-on                | Provide power and synchronization to add-ons.  |
| 4      | Network IN            | Connected to the Network OUT of a previous Renos unit or a Power Inserter.   |
| 5      | USB                   | Connect accessories to Renos.  |
| 6      | Network OUT           | Connected to the Network IN of a previous unit or a Power Inserter. Can also be left unconnected or connected to the customer network. |
| 7      | Mini USB service port | Connect your laptop to configure the Renos system.   |
| 8      | RS485 connector       | Connect to the optional Nedap RF Smart Deactivator.  |
| 9      | Buzzer connector      | Connect to the included buzzer.  |

## Add-ons

### Metal Detection

The Renos Metal Detection unit (#9563717) can be used to detect foil-lined bags, which are sometimes used by thieves to prevent the RF tags from being read by the detection system or reader. With metal detection, we can detect metal objects and provide a discrete alarm to the store employees.



#### Restrictions for metal detection

- You need a minimum of 2 gates with Metal Detection units to work.
- Only possible when there are no moving doors with metal (i.e. an aluminum frame around the door).
- Please note that for the connection of the Metal Detection in the FC-line antenna a longer connection cable is needed (800 mm / 2.6 ft).

### RF security dashboard

The Renos platform has a built-in RF security dashboard. It can be enabled by entering a license key during the configuration wizard. The customer can then visit the dashboard via the web browser. To make this work, the Renos system should be either connected to the customer network, or a stand-alone set-up with a router should be made.

## 3 Preparing the installation

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When preparing an installation with FC-line products, there are a few things that should be taken into account:

- How many gates one needs to cover an entrance or door.
- Where the gates will be placed in relation to the environment, for example to minimize interference (RF).
- It is preferred to install the FC-line gate on the floor mount column. This will up the performance of the system and still gives a clean look in the store.
- What cabling need to be applied (Cat 5E cable).
- The maximum distance between antennas is 2200 mm / 7.2 ft (2000mm / 6.6 ft recommended).
- Mounting distance from the ground must be 200 mm / 8".
- For mounting on concrete and stone walls, chemical anchors are preferred
- For mounting on steel frames, EPDM rivet blinds are necessary, which are included in the installation set
- Distance brackets (25 mm / 0.98") are provided in the installation set, when possible install the FC-line products with these distance brackets. This will improve the performance of the system, especially recommended for steel frames.
- The firewall settings that need to be in place to enable Device Management

### Defining the system

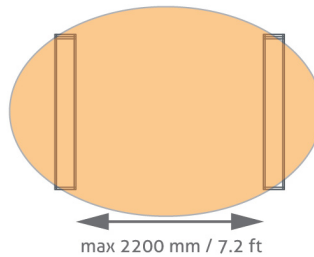
When the store owner requires gates to be placed at several locations, one needs to decide on how to combine these gates into one or multiple systems. The following rules shall be taken into account:

1. **Create as large systems as possible.** To minimize interference between gates, the Renos platform has a built-in synchronization mechanism. For this synchronization mechanism to work, the gates need to be connected in one system.
2. **However, the maximum cable length requirements needs to be satisfied.** If it is not possible to put all the gates in one system due to the maximum cable length requirements of 100 meters / 109 yd, you can split the gates into two or more systems. In this case assign each system a different *multi-system channel* during the RF configuration.

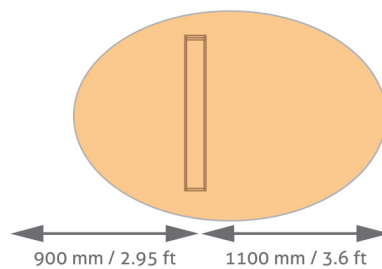
## Field distribution for RF

There are two modes of operation for RF technology. The mode can be configured during the configuration wizard.

**Focused field.** There is an RF field in between gates. This mode is preferred for the best performance of the system.



**Full field.** There is an RF field around the gate. This mode is mainly used when the gates are placed near the checkouts, as you can have one gate covering a relatively large area.



### **i** Infra-read beam sensors

Please note that when you want to use infrared beam sensors for customer counting, you can only count customers in between the gates. So, if you set RF to full field, you are not able to count customers outside of the gates.

# Device Management

All the Renos-based products can be connected to the Nedap Device Management Service. This service provides:

- **Monitoring.** Critical system parameters are monitored 24/7. As soon as something is wrong with the system, an alert is generated to the supporting partner.
- **Remote log-in.** Via the Device Management portal it is possible for an authorized Nedap-certified engineer to access the user interface of the system to make changes to the configuration or access system logs.
- **Remote Firmware update.** It is possible to install new firmware releases remotely.

To use Device Management, please make sure that the following firewall ports are opened before installation:

- TCP port 443 outgoing to \*.nedapretail.com

This can be verified by connecting your laptop to the customer network, open your browser and navigate to <https://api.nedapretail.com>. You should see a special page there.

It is also possible to do this via an HTTPS proxy, however, the remote log-in feature is not available then.

For more details, please see the Knowledge Base article on Device Management.



If Device Management is available at a certain site, it is possible to pre-configure a system, such that the field engineer will have an easier job. For more information, please refer to the Knowledge Base article on Pre-configuration.

## 4 Executing the installation

When all the preparations are taken into account, the installation of the system can take place. The installation consists of physically mounting the system in the right orientation, installing the cabling and applying power to the system.

### Physical installation: Wall mounting

The FC-line gates can be mounted in three different methods:

- Mounted on the floor mount column (recommended)
- Mounted on the front of the door frame
- Mounted on the side of the door frame

#### **Distance to the floor**

The distance to the floor should be at least 200 mm / 8" to have enough space for cabling and filters.

#### **Rotation of the antenna**

The antenna can be rotated vertically to create the optimal focussed RF field. Please note that only when both sensitive sides of the two antennas are facing each other, the maximum distance of 2200 mm / 7.2 ft can be obtained. When rotating the antenna, please make sure the Customer Counter PCB's also face each other to work properly. The Customer Counter PCB can easily be rotated inside the antenna.

#### **Prevent interference**

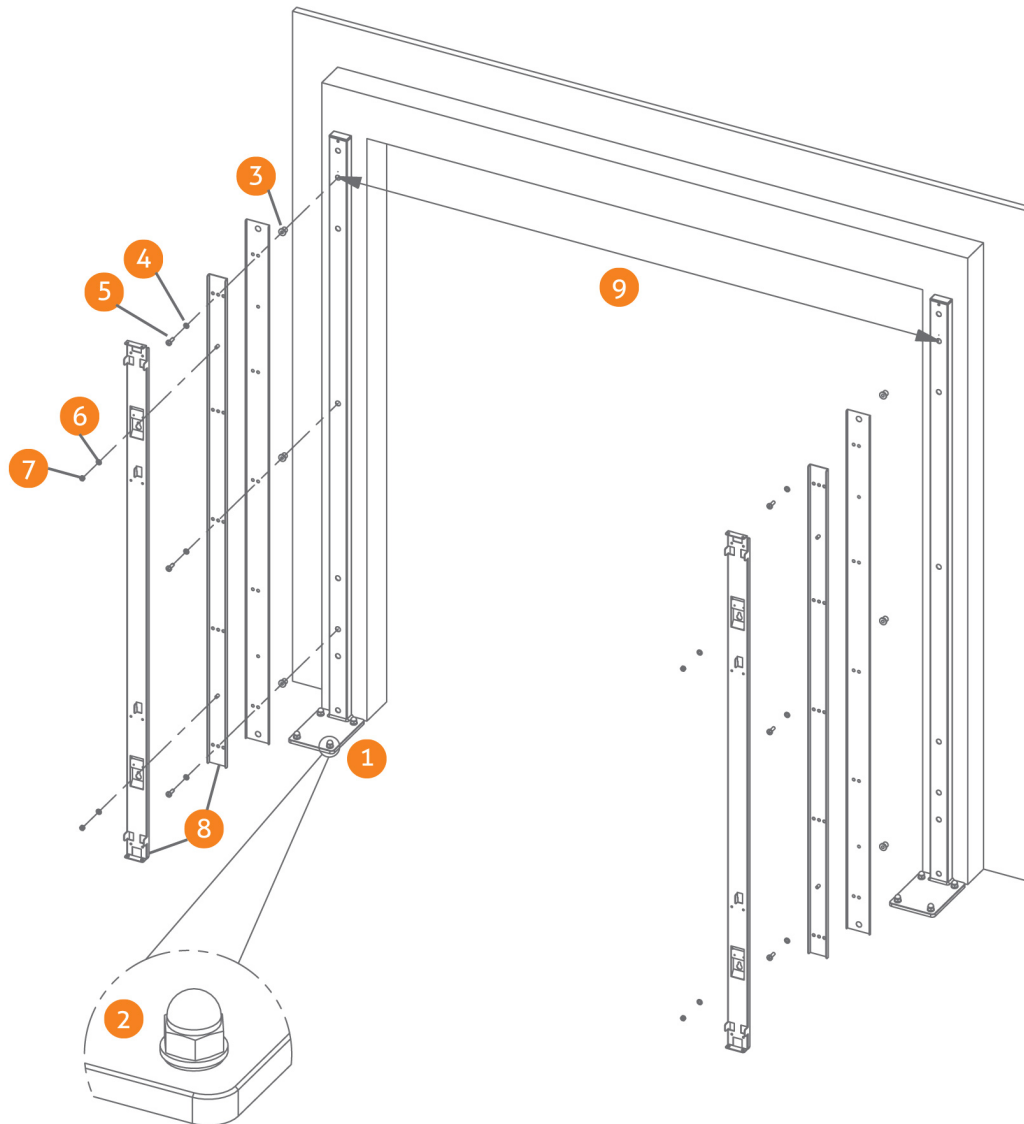
Using the floor mount column increases the performance of the FC-line gate. It prevents interference from the door frame or wall behind the door frame. When mounting the FC-line gate to the door frame, using the distance brackets included in the installation set, will help prevent interference.

#### **Order floor mount column separately**

The floor mount column is not included in the product, but should be ordered separately, article number 9216561.

## Mount on floor mount column

The next drawing specifies the mounting of the FC-line antenna on the floor mount column.

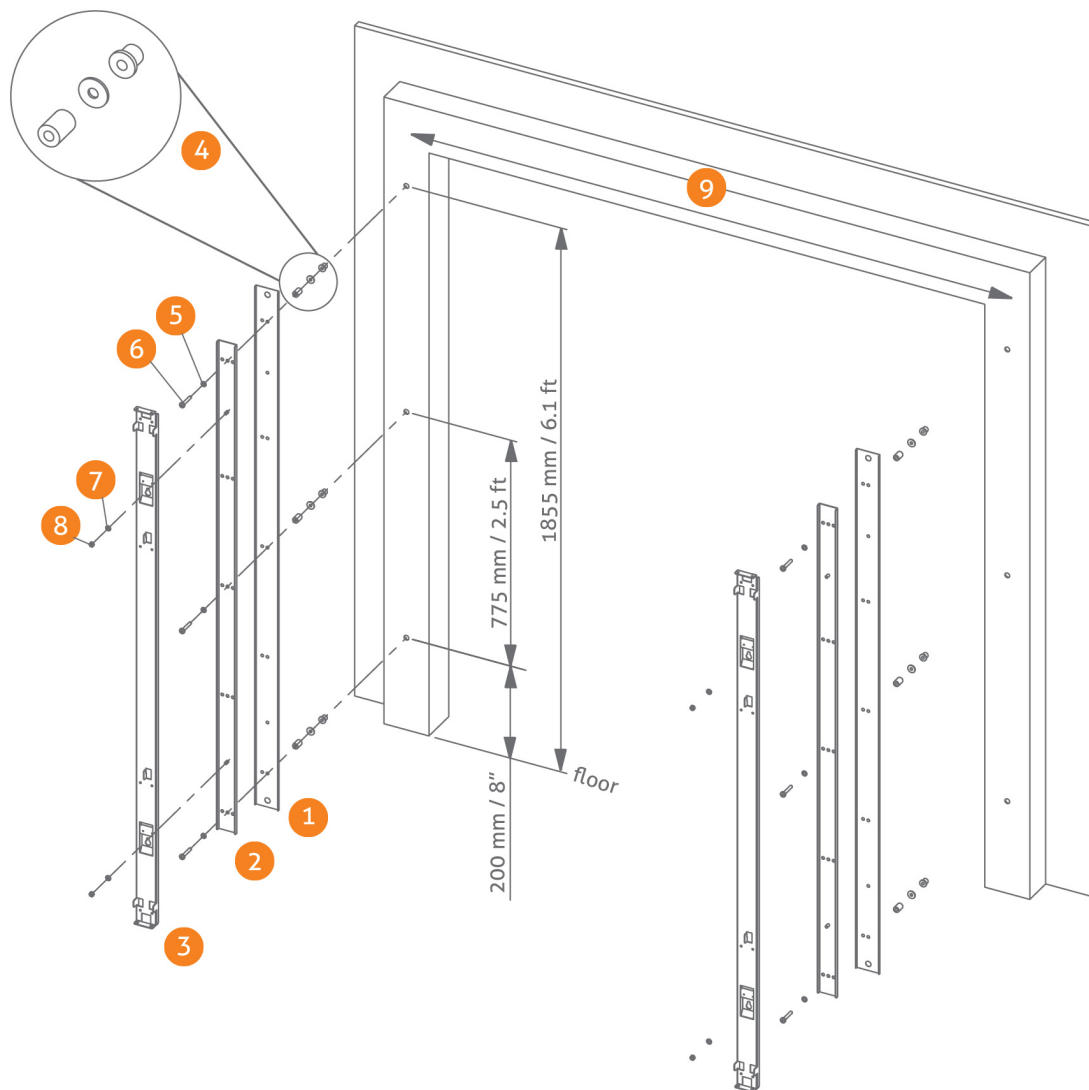


1. Place the floor mount column on the floor. Drill four holes to mount the column to the floor.
2. Mount the column to the floor using the isolation sleeve, washer, nut DIN 1587 and an M10 bolt (included in the installation set).
3. EPDM rivet blind M8
4. Washer M8
5. Bolt M8
6. Washer M8
7. Nut M8
8. Mounting brackets are included in the box of the FC-line.
9. Distance between antennas 1800 mm / 5.9 ft - 2200 mm / 7.2 ft (2000mm / 6.6 ft recommended).



## Mount on the front of the door frame

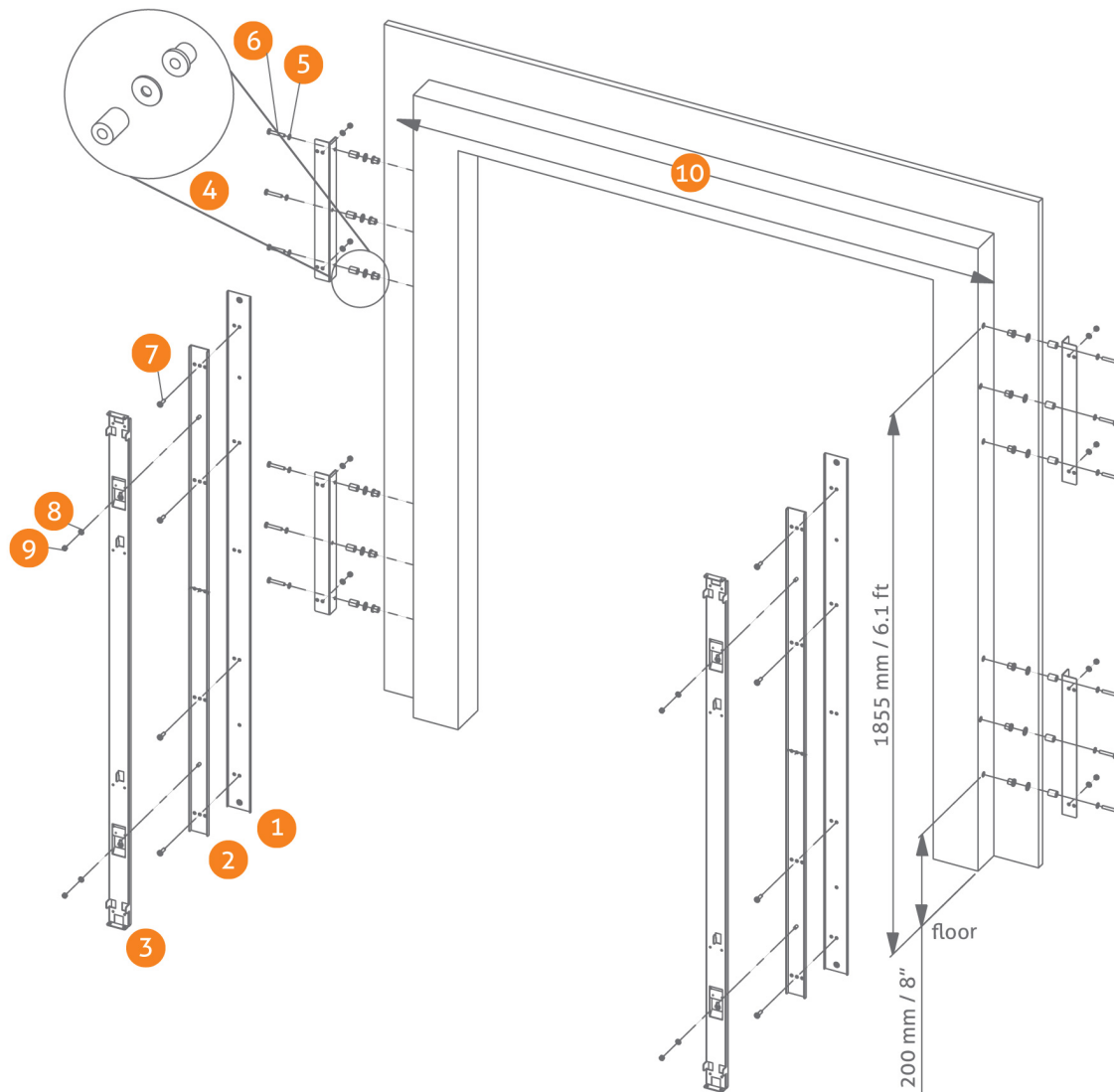
The drawing below specifies the mounting of the FC-line antenna on the front of the door frame using the wall mount brackets included in the box.



1. Bracket RVS
2. Bracket 1 (included in the box)
3. Bracket 2 (included in the box)
4. EPDM rivet blind + Washer M8 DIN9021 + Distance bracket 25mm / 0.98"
5. Washer M8
6. Bolt M8
7. Washer M8
8. Nut M8
9. Distance between antennas 1800 mm / 5.9 ft - 2200 mm / 7.2 ft (2000mm / 6.6 ft recommended).

## Mount on the side of the door frame

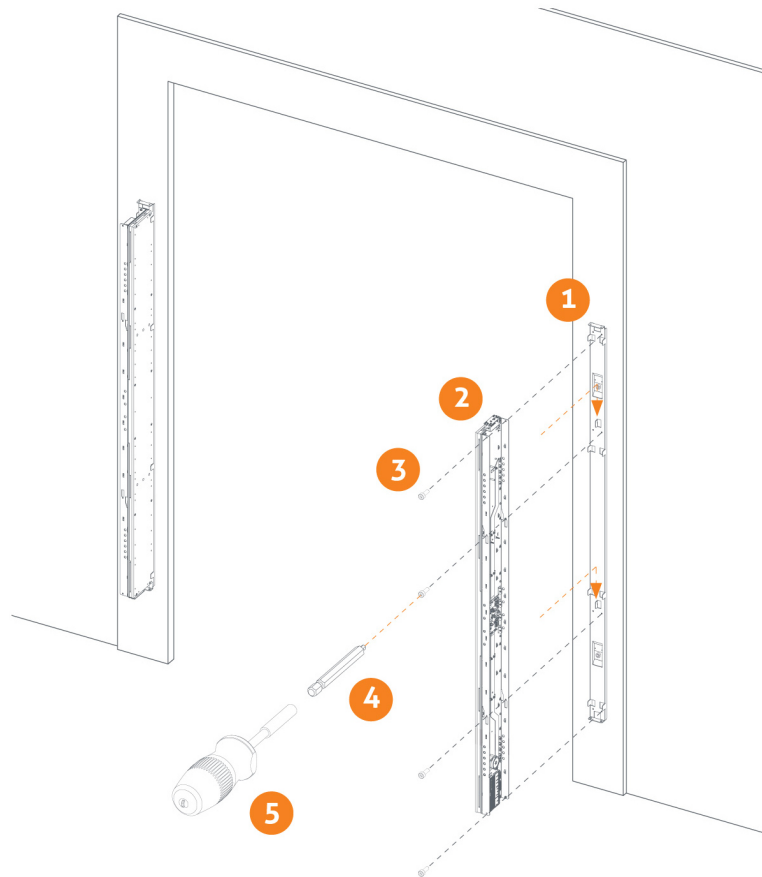
The drawing below specifies the mounting of the FC-line antenna on the side of the door frame using the wall mount bracket included in the box.



1. Bracket RVS
2. Bracket 1 (included in the box)
3. Bracket 2 (included in the box)
4. EPDM rivet blind + Washer M8 DIN9021 + Distance bracket 25mm / 0.98"
5. Washer M8
6. Bolt M8 x 50
7. Bolt M8 x 25
8. Washer M8
9. Nut M8
10. Distance between antennas 1800 mm / 5.9 ft - 2200 mm / 7.2 ft (2000mm / 6.6 ft recommended).

## Physical installation: Mount electronic unit


The drawing below specifies the mounting of the electronic unit to the wall mount bracket or floor mount column.



1. Bracket 1 + Bracket 2
2. Electronic unit
3. Nut M4 x 10
4. Inbus bit 3mm - 1/4"
5. Bit holder (not included)

## Physical installation: Installing cabling and filters

During the preparation phase, the exact cabling required was already determined. Now these cables can be placed.

 All wiring should be done according to local regulations.



- Model ASSY FL180R RF+MD antennas with internal Renos shall only be powered by the POE Model PW-085C-1Y560HPOE provided by Nedap. There are four article numbers for the POE model available, according to the country of origin. Each is packaged in a box with one of these mains cord: EU, USA, China, UK and Swiss.
- To disconnect the system from the mains, please remove the power cord either from the POE unit or from the mains power socket.



When cables are installed, it is recommended to mark them with IN and OUT, or PREVIOUS and NEXT, as this will allow you to distinguish them from each other.

## Filters

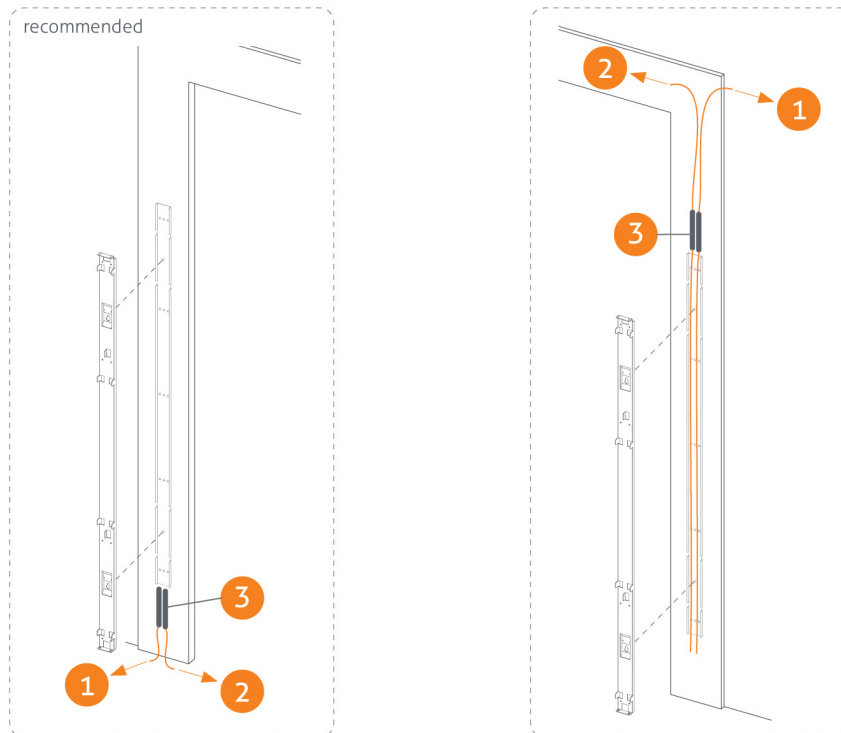
Please note that filters should be placed around the cables to reduce interference with other systems. These filters are delivered together with the system.

Filter should be placed at:

1. Every Power Inserter: around the Ethernet cable, both at the OUT and IN port.
2. Every Renos unit: around the Ethernet cable, both at the OUT and IN port.
3. Every 9 m / 30 ft. for longer Ethernet cables.



To save yourself a huge amount of frustration, please first place the filters *before* attaching the connectors. The other way around is not possible. Many have tried before.



1. Power Inserter OUT to Renos IN
2. Renos OUT to the next Renos IN
3. Filters

✔ Filters can be ordered as spare part with Nedap. Please refer to the Nedap Retail Portal for more information.

## Ethernet cables

### ⚠ Maximum length and type of Ethernet cable

The maximum data communication length for an Ethernet cable is 100 meter (328 ft.). Therefore we recommend the following maximum distances:

- The maximum cable length in between two Renos units is 100 meter (328 ft.) - even if there is a Power Inserter in between.
- The maximum cable length from the Power Inserter to the last Renos unit powered by that Power Inserter is also 100 meter (328 ft.)

Please use Ethernet Cat. 5 cable or better and make sure to test every Ethernet cable for correct connections and twisting of all 4 pairs (8 wires) with an Ethernet cable tester. This is to make sure that the system can function correctly.

1. Connect the Ethernet cable from the OUT port with the IN port of the next Renos unit
2. First, in all aisles connect the Ethernet OUT port with the IN port of the next Renos unit, always following the directions of the arrows in the cabling indicated by the image above.

✔ When the cable lengths allow for it, we recommend to place the Power Inserter in the switch room. In this way the customer only has to arrange an Ethernet outlet near the installation, and no power sockets are needed. This could reduce the cost for installations significantly.

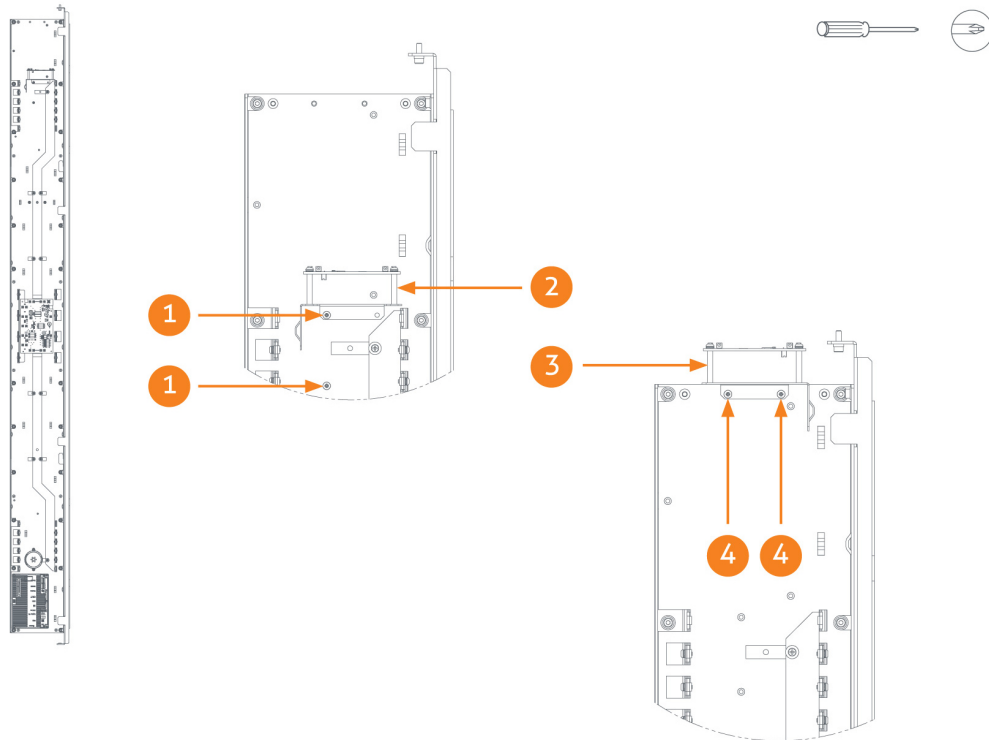
When a connection to the customer network is to be made for local access or Device Management, this connection can be made from:

- The customer network to the IN port of the Power Inserter.
- The customer network to the OUT port of the last Renos unit in the chain.

The exact location needs to be configured during the configuration wizard.

## Physical installation: Mount the LED PCB

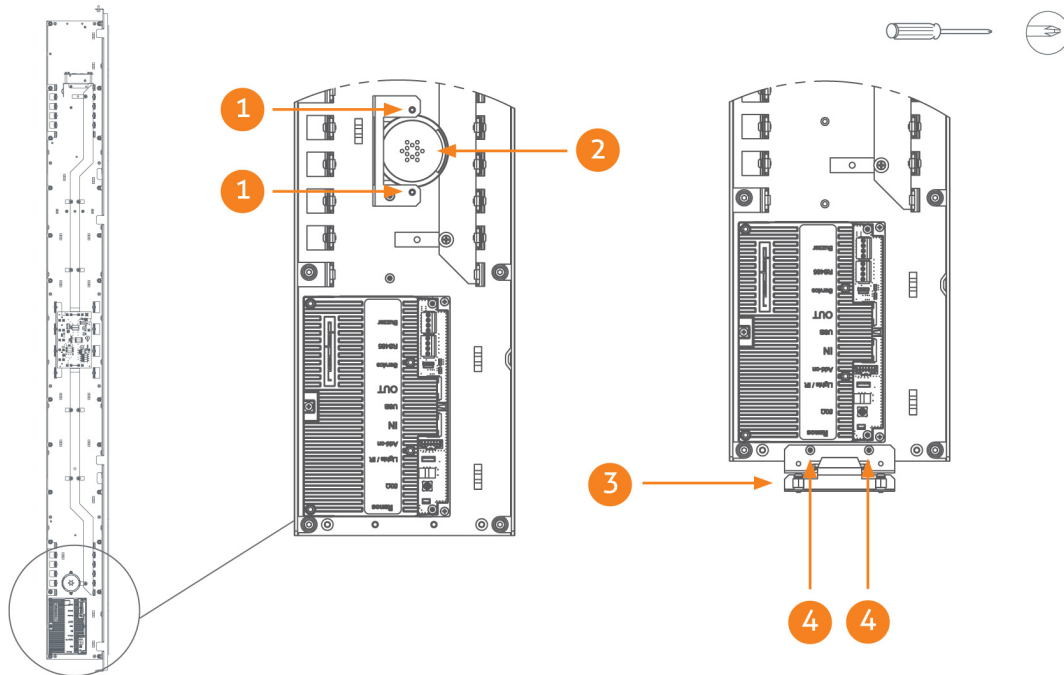
During transport the LED PCB is mounted in the transport position. During the installation the LED PCB must be placed in the working position. See the drawing below for instructions.



1. Remove screw (2x)
2. Remove PCB from transport position
3. Place PCB to working position
4. Place screw (2x)

## Physical installation: Mount the Buzzer PCB

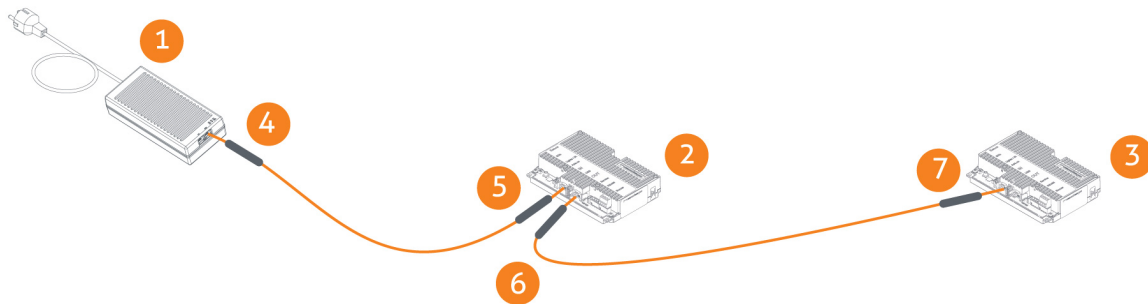
During transport the Buzzer PCB is mounted in the transport position. During the installation the Buzzer PCB must be placed in the working position. See the drawing below for instructions.



1. Remove screw (2x)
2. Remove PCB from transport position
3. Place PCB to working position
4. Place screw (2x)



## Connect Renos and Power Inserter



1. Power Inserter (not included, order separately)
2. ASSY FC180R RF
3. ASSY FC180R RF
4. Power Inserter - OUT
5. Renos - IN
6. Renos - OUT
7. Renos - IN

## Power consumption Renos

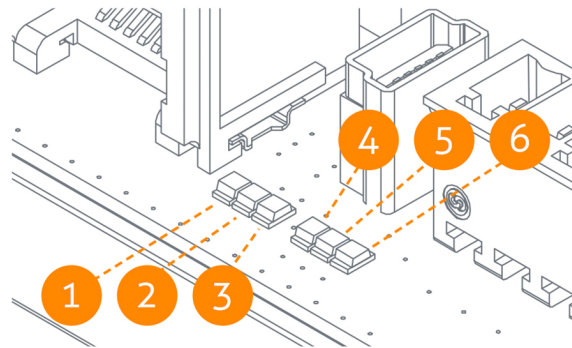
When the installation location of the products is clear, the location of Power Inserters needs to be defined. There is a maximum number of Renos units that can be connected to one Power Inserter, depending on which technologies are used and the number of add-ons that are in use.

| Technologies in use | # units / Power Inserter - 230V | # units / Power Inserter - 115V |   |
|---------------------|---------------------------------|---------------------------------|---|
| RF                  | 6                               | 5                               | Index:<br>• RF = Radio Frequency 8.2 MHz<br>• MD = Metal Detection<br>• 2 SD's = 2 connected smart deactivators |
| RF + MD             | 4                               | 4                               |   |
| RF + 2 SD's         | 5                               | 4                               |   |
| RF + MD + 2 SD's    | 4                               | 3                               |   |

**i** Please note that you can only use a Nedap Power Inserter (Power-over-Ethernet) to power Renos systems. It is not possible to use generic Power-over-Ethernet switches or stand-alone inserters.

## Status LEDs on Renos unit

The electronics inside the unit has several status LEDs that can be used to discover the status of each part of the electronics.



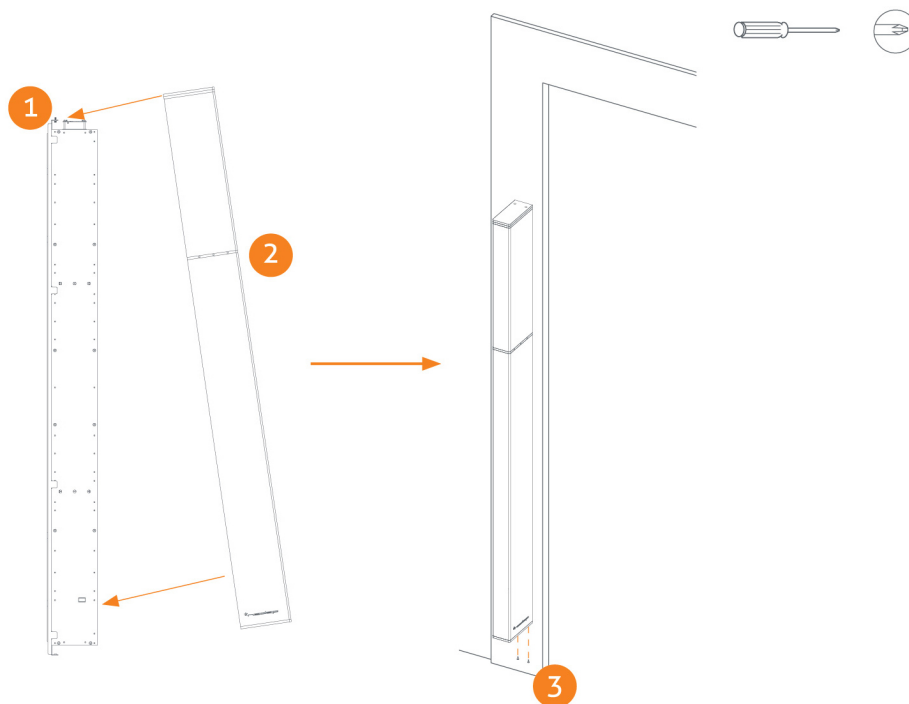
| Led | Color  | Status   | Explanation   |
|-----|--------|----------|---|
| 1   | Green  | On       | There is a Renos unit connected to the OUT port of this unit                                    |
|     |        | Off      | There is no Renos unit connected to the OUT port of this unit                                   |
| 2   | Blue   | Blinking | There is no device connected to the OUT port of this unit                                       |
|     |        | On       | There is a Power Inserter connected to the OUT port of this unit                                |
| 3   | Red    | On       | There is an issue with the power supply at the OUT port of this unit (too little current drawn) |
|     |        | Blinking | There is an issue with the power supply at the OUT port of this unit (too much current drawn)   |
|     |        | Off      | There is no issue with the power supply at the OUT port of this unit                            |
| 4   | Yellow | Blinking | The operating system on the Renos unit is running   |
|     |        | Off      | The operating system on the Renos unit is not running   |
| 5   | Green  | Blinking | The storage flash on the Renos unit is accessed   |
|     |        | Off      | The storage flash on the Renos unit is not accessed   |
| 6   | Green  | On       | The firmware on the Renos unit is running   |
|     |        | Off      | The firmware on the Renos unit is not (yet) running   |

Please refer to the Troubleshooting chapter later in this manual to resolve erroneous conditions.

**i** If the Renos unit has a firmware error, the rightmost three LEDs (4, 5 and 6) will remain off when the unit is powered. This can be solved by using a 'Local - single unit' firmware update, as is described later on in this manual.

## Place cover

Place the cover over the electronic unit as shown in the image below.



1. Place the M4 x 12 bolts (2x) at the top
2. Hang the cover as shown
3. Fix the cover from below using M4 x 16 bolts (2x)

# 5 Configuring the installation

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To complete the configuration, the following tools are required.

- Mini-USB cable.
- Laptop with installed driver (if necessary) and recent browser.

## Driver installation

To configure a Renos-based system, sometimes a driver needs to be installed. Please check the table below whether you need to install a driver, based on your operating system.

| Operating system       | Driver                    |
|------------------------|---------------------------|
| Windows XP, Vista or 7 | Download from portal      |
| Windows 8              | No need to install driver |
| Mac OS X               | No need to install driver |
| Linux                  | No need to install driver |

Once you have installed the driver, check if it works by plugging-in a Renos unit.

## Recent browser

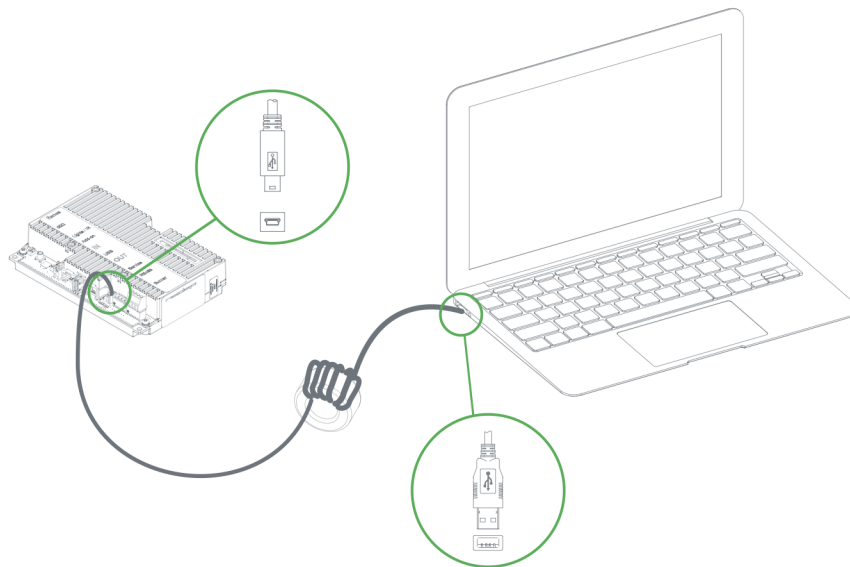
To configure the system, an HTML5 compatible browser should be installed on your laptop. The following browsers (or higher) are officially supported:

- Google Chrome
- Mozilla Firefox 6 (or higher)
- Apple Safari 6 (or higher)
- Microsoft Internet Explorer 9 (or higher)

If you don't have one of these browsers installed on your laptop, please install them now.

## Connecting a laptop to the Renos unit

You can connect your laptop via a Mini-USB cable to the service port on the Renos unit. You can choose any Renos unit in the system.



**i** It is advisable to use a long USB cable. This is more comfortable as you can find a good place to put your laptop (instead of on top of stairs, or on the floor next to the antenna). Besides, some laptops cause interference on the RF technology, so it is better to place them further away.

**✓** We advise to use a ferrite ringcore filter around the mini USB cable that is used to configure Renos. These can be ordered as spare part with Nedap. Please refer to the Nedap Retail Portal for more information.

## Entering the configuration wizard

You can enter the configuration wizard by opening your browser, and navigating to:

<http://192.168.133.1>

## Authentication

During the configuration, the user is required to authenticate himself. How this is done, is dependent on the Device Management availability.

- The system is connected to Device Management: you can directly enter your Nedap Retail username and password.
- The system is not connected to Device Management, and you don't have a Nedap Retail authentication software: choose one of the following steps:
  - If your laptop is able to connect to Device Management via a 3G dongle or Wi-Fi, you can use this option to enter your username and password.
  - If that is not available, you can use your smartphone.
  - If your smartphone has no internet access, you can call our support to get an authentication code.

Please contact support for more details on how to obtain a Nedap Retail username and password.

## Getting help in the wizard

If something is not clear, each page has a question mark button in the top right corner. You can click this to get more information on what is expected to do on a certain page.

## Firmware version and System ID

When you ask for support for a specific system, the support engineer will always ask you for the firmware version and the system ID. The firmware version is displayed in the right top of the configuration wizard. If you click the firmware version, a pop-up will appear that shows the System ID.

## Factory reset

To execute a factory reset on a single Renos unit, the following steps need to be executed:

1. Turn off the system by removing the power cable of the Power Inserter.
2. Connect a Mini-USB cable from the USB service port to the USB port on the Renos unit.
3. Reconnect the power cable to the Power Inserter.
4. The LED that usually indicates that the firmware is running (the green LED on the right) will show the following behavior:
  - a. Blink couple of times
  - b. Stay on
  - c. Blink couple of times

When this is completed, wait one minute before proceeding.

5. Turn off the power.
6. Remove the USB cable.
7. Turn on the power.


### **Configuration is lost**

Please note that when doing a factory reset, all settings and configuration of the unit are lost. The firmware version does not change.

## Firmware change

There are three ways to change the firmware version on a Renos-based system:

1. Device Management update. The update can be executed via the Device Management service.
2. Local - single unit flash. The update can be executed by inserting a USB stick with the right firmware into the USB port.
3. Local - complete system flash. The update can be executed during the configuration wizard with files on your laptop.

 If the system is integrated with a 3rd party system, please confirm the firmware version with that 3rd party before installing it.

## Device Management update

To update the firmware via Device Management, please make sure the system is configured, delivered and connected to the Device Management service. Then, navigate to the Device Management website and use the functionality there to initiate the firmware update.

## Local - single unit flash

Download the correct firmware image file from the Nedap Retail portal. Extract this file to a USB stick. Turn off the power of the system. Insert the USB stick in the USB port of a Renos unit. Power the system. Wait until LEDs 4, 5 and 6 are off again. This can take around ten minutes. Then turn off the power again, remove the USB stick and turn on the power.

### **Configuration is lost**

Please note that when using 'local - single unit flash' firmware change, all settings and configuration of the unit are lost.

It's only possible to execute this on-site and not remotely, as the system needs to be re-configured before it is usable again.

## Local - complete system flash

Download the correct firmware image file from the Nedap Retail portal. Enter the configuration wizard and accept all Renos units in the system that should be updated. Press the Advanced button and follow the steps to change the firmware. One of these steps is to upload the firmware image file.

### **Configuration is lost**

Please note that when using 'local - complete system flash' firmware change, all settings and configuration of the system are lost.

It's only possible to execute this on-site and not remotely, as the system needs to be re-configured before it is usable again.



# 6 Integrating the installation with other systems

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It is highly recommended to integrate the FC-line product into other solutions in use at the end customer.

## Software integration with API's

The Renos platform offers several API endpoints that deliver events. Those events include:

- RF alarms
- Infrared beam sensor events

For more information please refer to the Software integration page on the Nedap Retail Portal with documentation and examples.

## Physical integration using an IO Box

It is also possible to integrate other systems via relay contact outputs and inputs. This is not directly provided by the Renos unit, but can be done via a 3rd party IO Box.

### Supported 3rd party IO Box

At the moment, the following 3rd party IO Box is supported:

- MOXA ioLogik E1214

The IO Box should be connected to a Renos unit via a USB to Ethernet adaptor.

An output on an IO Box can be switched when one of these events occur:

- There is an RF alarm
- Someone has pressed the attention button on the RF deactivator
- The deactivator has deactivated a RF label

Activating an input on the IO Box can be used to control the system in the following way:

- Disable RF transmitter

## URL trigger

Network-based devices that have an http-based-API can be triggered with the URL trigger mode. At this moment *Axis* cameras and *Renos Pager* are supported. A control URL (a link containing information) of this device can be triggered by an RF alarm, Metal Detection alarm or an Attention Button alarm. The URL should be created in the device. The communication can be further configured in the configuration wizard. Make sure that this device is reachable by the Renos system.

# 7 Servicing the installation

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When the installation has been completed and delivered, it is possible to service the installation via Nedap Device Management. Besides, we provide monitoring options locally via SNMP.

## Nedap Device Management

Via Nedap Device Management the following features are available, when the system is connected to Nedap Device Management.

- System monitoring via some key metrics. The following key metrics are available:
  - Whether all Renos units are active
  - Whether all infrared beam sensors are operating without blocked aisles
  - Whether the buzzers and lights are muted
- Firmware update. As described before, the firmware of the Renos system can be updated via Device Management.
- Remote log-in. It is possible to access the configuration wizard remotely via Device Management.

These features are available via a web interface and an API, which can be used to integrate Nedap Device Management into 3rd party solutions. For more information, please contact support.

## SNMP

To allow for local monitoring of Renos systems, and integration into existing IT infrastructure we support Simple Network Management Protocol (SNMP). The following variables are available on the Renos platform:

- One or more Renos units are not reachable
- One or more infrared beam sensors are blocked
- The system is connected to Device Management

Renos systems use SNMP version 2c, community public. The MIB file is available on the Renos system itself via the URL [http://\(ip address of the system\)/snmp](http://(ip address of the system)/snmp) (for example, that is <http://192.168.133.1/snmp> when connected to the USB service port).

# 8 Troubleshooting

If the system is not working correctly, please check the troubleshooting options below. If it is not possible to solve your issue, you can find support options in the next chapter.

## Physical installation

| Symptom   | Cause   | Solution   |
|---|---|--|
| The red LED (3) on a Renos unit is on.  | The current drawn out of the OUT port of the Renos unit is too low. The cabling at the OUT port of the Renos unit does not satisfy the maximum length requirements. | Verify whether the cabling length in the system satisfies the requirements posed earlier in this document.             |
|   | The current drawn out of the OUT port of the Renos unit is too low. The connectors of the Ethernet cable at the OUT port of the Renos unit are not mated properly.  | Check the Ethernet cabling at the OUT port of the Renos unit with a Ethernet cable tester.                             |
| The red LED (3) on a Renos unit is blinking.                                    | The current drawn out of the OUT port of the Renos unit is too high. Too much Renos unit and add-ons connected to one Power Inserter.                               | Verify the number of Renos units and add-ons connected to the Power Inserters with the table earlier in this document. |
|   | The current drawn out of the OUT port of the Renos unit is too high. There is a short circuit in the cabling leaving the OUT port of this Renos unit.               | Check the Ethernet cabling at the OUT port of the Renos unit with an Ethernet cable tester.                            |
| The green LED (1) on a Renos unit is off, but there is a unit behind this unit. | There is an issue in the cabling between those unit, such that the following unit is not recognized.  | Check Ethernet cabling with an Ethernet cable tester.  |

# Configuration

| Symptom  | Cause  | Solution  |
|--|--|---|
| It is not possible to access the configuration web interface.  | Renos unit has not started yet   | Verify the green "firmware running" LED on the Renos unit (6). If this LED is not on, verify the system has power or wait five minutes and try again. |
|  | Mini USB cable not attached to Renos unit and laptop   | Attach cable to Renos unit and laptop.  |
|  | Driver not installed   | On Windows 7 and older you manually need to install a driver to support Renos.  |
| I have put a system together, but I only see a part of all units during the hardware discovery.              | During configuration, the WAN access port will be 'closed' for internal network traffic. If you combine two systems later on, this needs to be re-openend. | Do a factory reset on the unit that was previously used as WAN entry point.<br>If that doesn't work, do a factory reset on all units.                 |
|  | There is a cabling error.  | Please check all Ethernet cabling with an Ethernet cable tester.  |
|  | Not all Power Inserters are powered, or some Renos units are not fully started.  | Verify the green "firmware running" LED on the Renos unit (6). If this LED is not on, verify the system has power or wait five minutes and try again. |
| There is a firmware failure, indicated by the fact that all three LEDs 4, 5 and 6 are off on the Renos unit. | Something might has gone wrong with a firmware update.   | Use the 'local - single' unit firmware update mechanism to restore the unit.  |

## RF technology issues

When there are issues with RF technology during the configuration (the gates show as orange or red in the wizard), please follow the following steps:

1. Check the parameters in the RF Advanced Config of the configuration wizard, RF gate performance section. Probably one of those parameters is red or orange.
2. Disable all transmitters.
  - a. If all parameters in the RF gate performance section turn green again, there is a coupling problem (the transmitter couples with a label-like object in environment). Please continue at the 'coupling problem' section.

- b. If all parameters in the RF gate performance section remain orange or red, there is an active interferer (another device that transmit radio waves around the 8.2 MHz RF spectrum, like another EAS system, an engine or a power supply). Please continue at the 'active interferer' section.

## Coupling problem

Coupling problems are caused by objects that act as a label to the RF system. For example metallic doorframes, metal checkouts, cabling: everything that runs in a loop and is metallic.

To solve these problems, there are a few things you can try:

- Tighten screws in the metallic construction. This might work for checkouts or customer guidance rails.
- Try to interrupt the metallic loop. This can be done by using non-metallic parts inside those loops, or to make a cut in them.
- Create a shortcut in the metallic loop, to make it smaller. In this way it will resonate at a different frequency.

If the above solutions don't solve the problem, you can decrease the sensitivity of the system. This can be done by ticking the 'reduced sensitivity' button in the RF Advanced Config.

- ✔ If a decreased sensitivity doesn't work, and there is only one type of label or tag in the store, you also have the option to increase the 'receiver delay', in steps of 3 dB.

If these things don't solve the problem, please contact support.


## Active interferer

The first step is to try to locate the source of the active interferer. You can do this by unplugging electronic devices around the gate (or move them away), and see if the parameters in the 'RF gate performance' section improve, or when the average height of the spectrum is reduced. If this is the case, you have identified the active interferer.

When the active interferer is known, the following solutions are possible:

- Try to move the active interferer away from the gate as far as possible.
- Try to apply filters around the cabling of the active interferer.
- Shield the active interferer with aluminum foil of at least 0.05 mm (2 mil.).

If the above solutions don't solve the problem, you can decrease the sensitivity of the system. This can be done by ticking the 'reduced sensitivity' button in the RF Advanced Config.

 There are also standard click-on ferrites available that can be used to reduce active interference sources (e.g. Würth 742 711 31)

If these things don't solve the problem, please contact support.

## 9 Regulatory information

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### FCC and IC Compliance statement

This device complies with part 15 of the FCC Rules and to RSS210 of Industry Canada. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Cet appareil se conforme aux normes CNR210 exemptés de license du Industry Canada. L'opération est soumis aux deux conditions suivantes:

- (1) cet appareil ne doit causer aucune interférence, et
- (2) cet appareil doit accepter n'importe quelle interférence, y inclus interférence qui peut causer une opération non pas voulu de cet appareil.

Les changements ou modifications n'ayant pas été expressément approuvés par la partie responsable de la conformité peuvent faire perdre à l'utilisateur l'autorisation de faire fonctionner le matériel.

### FCC and IC Radiation Exposure Statement

This equipment complies with FCC and Canadian radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme a CNR102 limites énoncées pour un environne- ment non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

This Class B digital apparatus complies with Canadian ICES-3. Cet appareil numérique de Classe B est conforme à la norme Canadienne NMB-3.

### FCC Information to the user


Note: This equipment has been tested and found to comply with the limits for a class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against



harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequent energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does not cause harmful interference to radio or television reception, which can be determine by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver.

 Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. To ensure compliance with FCC regulations, use only the shielded interface cables provided with the product, or additional specified components or accessories that can be used with the installation of the product.

## Information for Taiwan

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

# 10 About Nedap

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## About

At Nedap Retail, we work around the globe to deliver industry-leading products, services and solutions for our customers' diverse needs in loss prevention, stock management and store monitoring. Our inventive thinking and collaborative spirit allows us to deliver tailor-made solutions for the fast paced retail sector.

We simplify retail management while improving your customers' shopping experience. By taking most recurring tasks off your hands, we create time for you to devote to your customers. And that is what retail is all about. Whether you run a small local store or a large international chain, you will benefit from our broad range of products, ideas and services. Nedap solutions are built upon 40 years of global experience, market expertise and close cooperation with leading retailers. Our worldwide operations are supported by a flexible network of certified partners across the globe. Nedap systems are future-proof (RFID-ready), cost-efficient and eco-friendly. Our mission is simply to make sure your customers maintain the best shopping experience whilst we help you protect your profits. Our philosophy: "your store - our store."

## Contact

If you need any further details or require help in preparing an installation, executing an installation or servicing an installation you are always welcome to contact our support team at: [support-retail@nedap.com](mailto:support-retail@nedap.com).

Suggestions for improving our products and documentation are of course always welcome.

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