



**Installation and Operation Manual  
for Perenio® PEKIT01  
Smart Security Kit**



## Introduction

The Perenio Smart Security Kit is specially designed to detect potentially dangerous situations in the area or your interest. It is used as a part of a reliable **Perenio Smart Building Management System**.

The Control Gateway allows the User to monitor and manage operation of all connected ZigBee devices without passing commands to third party servers. Sensors provide timely push-notifications of any emerging problems, as well as prompt responses thereto.

The present Manual contains a detailed description of devices, as well as instructions for their installation and operation.

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## Responsibility and Technical Support

The present document is prepared in accordance with all necessary requirements and contains detailed information on the device installation, configuration and control valid as of the date of its issue.

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For any technical issues, please contact your local *Perenio IoT* representative or the Tech Support Department at **perenio.com**.

The most common problems may be found in Section 7 of the present document and at **perenio.com** where you can also download the latest version of this Installation and Operation Manual.

Manufacturer:

Perenio IoT spol s r.o.

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**perenio.com**

## Conformance to Standards



The device is CE certified and complies with requirements of the following Directives of the European Union:

- 2014/53/EU Radio Equipment Directive (RED);
- 2014/35/EU Low Voltage Directive (For the Control Gateway only);
- 2004/30/EC Electromagnetic Compatibility Directive.



The device has passed all procedures of assessments established in Technical Regulations of the Customs Union and conforms with standards of the Customs Union



The device complies with requirements of the Technical Regulations of the Republic of Belarus TR 2018/024/BY (Telecommunications. Security)



The national conformity mark of the Ukraine indicating that the device meets requirements of all applicable technical regulations



The device and supplied batteries must not be disposed of as a household waste in accordance with the Waste Electrical and Electronic Equipment Directive (2002/96/EC)

For the purpose of protection of the environment and human health, both the device and batteries must be disposed of in accordance with approved instructions on safe disposal. For more information on proper disposal, please contact your device supplier or local authorities responsible for waste management



|    |    |    |    |    |
|----|----|----|----|----|
| AT | BA | BG | CZ | HR |
| LT | LV | PL | SK |    |

Details on available Certificates are specified in Section 6 of the present document. For copies of Certificates and Reports, please visit a corresponding Section at **perenio.com**.

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## 1 General Description and Specifications

The Smart Security Kit consists of the following devices:

1. PEACG01 Control Gateway.
2. PECSS01 Smoke Sensor.
3. PECLS01 Leak Sensor.
4. PECWS01 Door & Window Sensor.
5. PECMS01 Motion Sensor.

The following paragraphs contain the detailed information on general purpose, technical specification and the scope of delivery of the Kit.

**ATTENTION!** All Products and the Mobile Application of the Company (including any future software and hardware whether in-house or third-party developed) are not intended for emergency responses and cannot be used as fire-extinguishing equipment and/or for emergency intervention, including but not limited to fires, flooding, gas leaks or explosions, burglary and theft, as well as natural disasters and other force majeure circumstances leading to damage and/or losses incurred by the Client or caused to their estates, personal property and/or other products, devices, personal data and privacy.

### 1.1 PEACG01 Control Gateway

#### 1.1.1 General Purpose

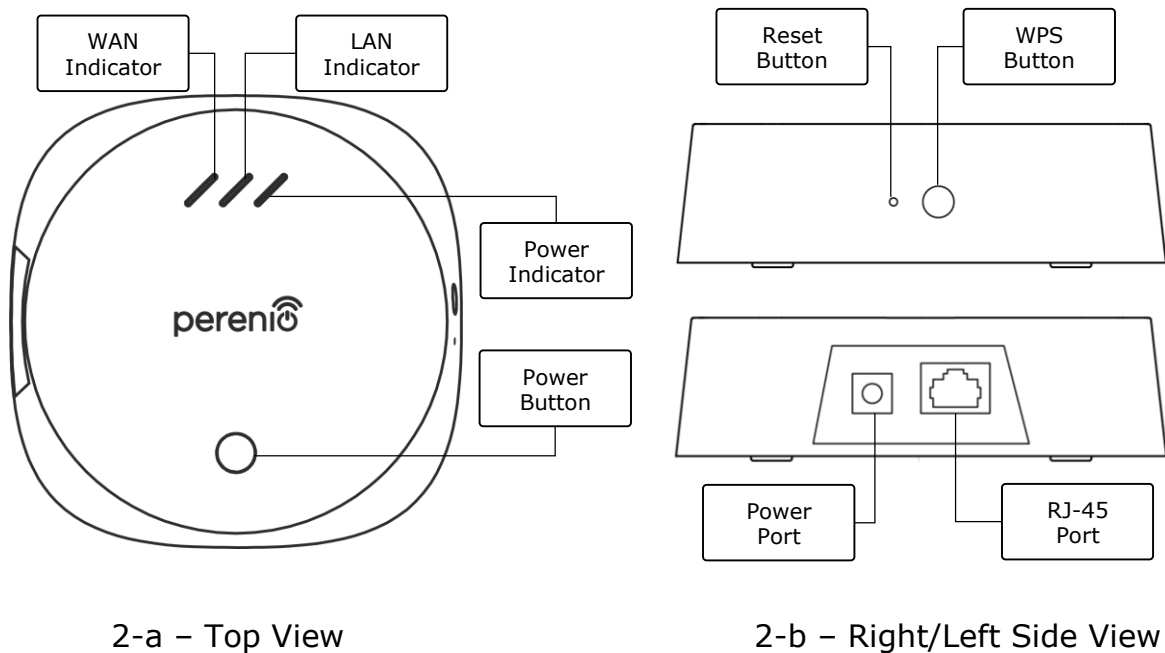
The **Perenio® PEACG01** Control Gateway (hereinafter referred to as the CG) is designed to join operation of ZigBee devices within the **Perenio Smart Building Management System**, as well as to collect data and alert Users in the event of alarm. The Control Gateway searches for and manages devices via the Mobile App.

Key features of the **PEACG01** Control Gateway are as follows:

- Support for Wi-Fi and ZigBee;
- iOS (10.1 and higher) and Android (5.1 and higher) smartphone compatibility;
- Possibility to connect up to 100 ZigBee devices located within the radius of 40 m;
- Support for cloud services, collection and analysis of data;
- Remote control via a free Mobile App.



**Figure 1 - The PEACG01 Control Gateway Exterior**



**Figure 2 - The PEACG01 Control Gateway Buttons, Ports and Indicators**

## Buttons, Ports and Indicators

|                        |                                                               |
|------------------------|---------------------------------------------------------------|
| <b>WAN Indicator</b>   | It lights up in the case of connection to the Remote Server   |
| <b>LAN Indicator</b>   | It lights up in the case of connection via the Ethernet Cable |
| <b>Power Indicator</b> | It lights up in the case of connection to the mains           |
| <b>Power Button</b>    | The button used to power on/off the Control Gateway           |

|                     |                                                                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>WPS Button</b>   | The button used for quick wireless network setup                                                                                                                            |
| <b>Reset Button</b> | The button used to reset the device to factory settings. After resetting, the User shall connect the Control Gateway to the router and then start the sensor search process |
| <b>Power Port</b>   | The port for connecting the Control Gateway to the mains                                                                                                                    |
| <b>RJ-45 Port</b>   | The cable port used for connection of the Control Gateway to the router ( <u>This function is currently unavailable</u> )                                                   |

Table 1 – Control Gateway LED Indicator Statuses

| Indicator       | Status       | Description                                     |
|-----------------|--------------|-------------------------------------------------|
| WAN Indicator   | Light is on  | The CG is connected to the Remote Server        |
|                 | Light is off | The CG is disconnected from the Remote Server   |
| LAN Indicator   | Light is on  | The CG is Ethernet-connected to the network     |
|                 | Light is off | The CG is not Ethernet-connected to the network |
| Power Indicator | Light is on  | The power is on                                 |
|                 | Light is off | The power is off                                |

### 1.1.2 Technical Specification

Table 2 – Basic Technical Specifications of the Control Gateway

| Parameter                | Value                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------|
| Article                  | PEACG01                                                                               |
| Operating System         | Linux                                                                                 |
| Communication Technology | Wi-Fi (IEEE 802.11b/g/n), ZigBee 3.0 (IEEE 802.15.4), Ethernet (10/100Mbps RJ-45)     |
| Bit Rate                 | 802.11b (11Mbps max), 802.11g (54Mbps max), 802.11n (300Mbps max), 802.15.4 (250Kbps) |
| WEP/WPA2 Encryption      | Support of 128-bit encryption                                                         |
| Supported Protocol       | TCP/IP                                                                                |
| IoT Protocols            | MQTT and CoAP                                                                         |

| Parameter                | Value                                                                                                |
|--------------------------|------------------------------------------------------------------------------------------------------|
| Compatibility            | iOS (10.1 and higher) and Android (5.1 and higher)                                                   |
| SoC                      | QCA4531 (Wi-Fi), EFR32/Cortex-M4 (ZigBee)                                                            |
| Flash Memory             | NAND Flash: 128MB<br>NOR Flash: 512KB                                                                |
| ZigBee Coverage          | up to 40 meters (open area)                                                                          |
| ZigBee Antenna           | Type: Built-in<br>Max RF Output Power: 10dBm<br>Receiver Sensitivity: -93dBm<br>Antenna Gain: 1dBi   |
| Wi-Fi Antenna            | Type: Built-in<br>Max RF Output Power: 16dBm<br>Receiver Sensitivity: -83dBm<br>Antenna Gain: 2.5dBi |
| Operating Frequency Band | 2400MHz – 2483.5MHz                                                                                  |
| Server                   | Remote Server                                                                                        |
| Power                    | Output: DC 5V/0.7A<br>Power Consumption: 5W (max)                                                    |
| Operating Temperature    | 0°C to +40°C                                                                                         |
| Operating Humidity       | 5% to 85% RH                                                                                         |
| Storage Temperature      | -20°C to +70°C                                                                                       |
| Storage Humidity         | 5% to 85% RH                                                                                         |
| Casing Protection Class  | IP21                                                                                                 |
| Connected Devices        | up to 100 ZigBee devices                                                                             |
| RTC Module               | Built-in                                                                                             |
| Installation             | On a horizontal surface (For indoor installation only)                                               |
| Casing Material          | PC (Polycarbonate)                                                                                   |
| Color                    | White                                                                                                |
| Dimensions (L x W x H)   | 110 x 110 x 31 mm                                                                                    |
| Weight                   | 123.7 g (259 g with accessories)                                                                     |

| Parameter       | Value                |
|-----------------|----------------------|
| Warranty Period | 24 months            |
| Service Life    | 24 months            |
| Certification   | CE, EAC, RoHS, UA.TR |
| Data Protection | GDPR Compliance      |

### 1.1.3 Scope of Delivery

The following items and accessories are supplied within the **Perenio® PEACG01 Control Gateway** package:

1. PEACG01 Control Gateway (1 pc.)
2. Ethernet Cable (Length: 1.0 m) (1 pc.)
3. Power Adapter (Output: 5V) (1 pc.)
4. Quick Start Guide (1 pc.)
5. Warranty Card (1 pc.)
6. Stickers (2 pcs.)



1



2



3

**Figure 3 - Scope of Supply of the PEACG01 Control Gateway\***

*\* Images of accessories are provided for informational purposes only*

## 1.2 PECSS01 Smoke Sensor

### 1.2.1 General Purpose

The **Perenio® PECSS01** photoelectric sensor is a ZigBee-based device intended to detect smoke and its visible particles (flameless stage). This device is used as part of the **Perenio® Building Management System** and provides for timely alert in the event of smoke in the room.

The principle of operation is based on the sensor triggering in the case of IR light scattering when visible smoke particles enter the detector area, which increases the accuracy of ignition source detection.

**NOTE.** The Smoke Sensor is NOT intended to detect gas, flame and high temperatures, as well as to extinguish fire.

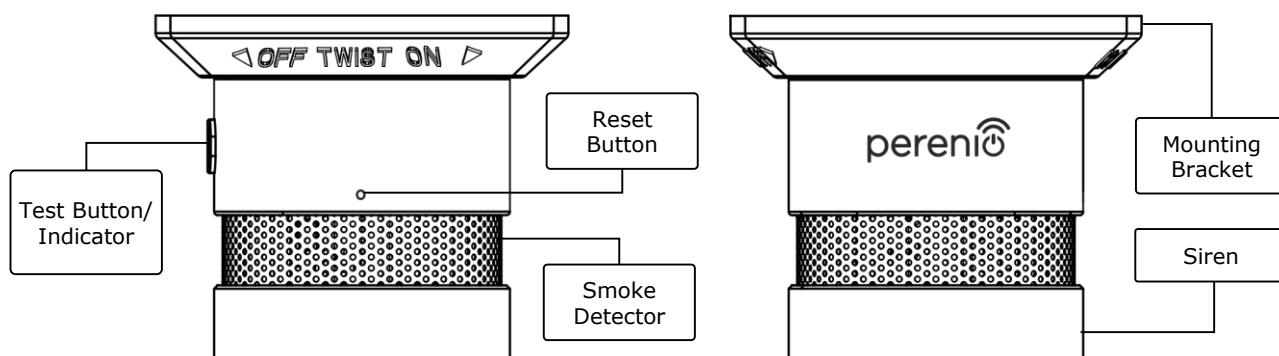
**ATTENTION!** The Smoke Sensor is not a fire detecting device and transmits no alarms to fire automatics devices or the fire department control panel. It is designed to provide an audible signal in case of detection of increased concentrations of smoke, vapor and dust particles in the area of installation.

The **PECSS01** Smoke Sensor has a number of distinctive features, namely:

- High alarm level (up to 85dB/3 m);
- Timely detection of smoke in a room;
- iOS and Android smartphone compatibility, support of ZigBee Protocol;
- Ultra-low power consumption (up to 3 years of operation with one battery);
- Impact- and heat-resistant casing material;
- Low battery level notification;
- Installation using 3M Tape or screws;
- Standalone operation;
- Small size and stylish design.



**Figure 4 – PECSS01 Smoke Sensor Exterior**



**Figure 5 – PECSS01 Smoke Sensor Buttons and Indicators**

## Buttons, Ports and Indicators

|                                   |                                                                                                                                                             |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Button/<br/>Indicator</b> | When pressed once, the beep sounds in the standby mode (It is used to check normal operation of the device). It is also used as the Sensor status indicator |
| <b>Smoke Detector</b>             | The smoke catching section of the Sensor                                                                                                                    |
| <b>Mounting Bracket</b>           | It is designed for mounting the Smoke Sensor on screws (Mounting holes available) or the 3M Tape (Attached to the base of the bracket)                      |
| <b>Reset Button</b>               | It is used to reset Smoke Sensor settings, as well as for the Smoke Sensor to be detected by the Control Gateway                                            |
| <b>Siren</b>                      | A signaling device that emits sound in the case of smoke in the room                                                                                        |

### 1.2.2 Technical Specification

Table 3 – Basic Technical Specifications of the Smoke Sensor

| Parameter                | Value                                                                                                                           |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Article                  | PECSS01                                                                                                                         |
| Microprocessor           | Silicon Labs EM3586 (ZigBee IC)                                                                                                 |
| Communication Technology | ZigBee HA 1.2 (IEEE 802.15.4)                                                                                                   |
| Operating Frequency      | 2.4-2.5GHz                                                                                                                      |
| Connection Radius        | up to 40 meters (open area)                                                                                                     |
| ZigBee Antenna           | Type: Built-in<br>Transmitting Power: -26dBm to +8dBm<br>Receiver Sensitivity: -102dBm<br>Antenna Gain: 0.5dBi<br>Repeater: N/A |
| Alarm Indication         | Red LED                                                                                                                         |
| Alarm Type               | Siren, light indication                                                                                                         |
| Alarm Level              | up to 85dB (at a distance of 3 meters)                                                                                          |
| Sensitivity              | 0.089dB/m to 0.25dB/m                                                                                                           |



| Parameter              | Value                                                                |
|------------------------|----------------------------------------------------------------------|
| Standalone Operation   | Available                                                            |
| Power Type             | CR123A Battery (1500mAh, 3V), 1 pc.                                  |
| Power Consumption      | Standby Mode: not more than 0.01mA<br>Alarm Mode: not more than 60mA |
| Battery Level          | Yes (Available in the Mobile App)                                    |
| Operating Temperature  | 0°C to +50°C                                                         |
| Operating Humidity     | 1% to 95% (non-condensing)                                           |
| Storage Temperature    | -10°C to +50°C                                                       |
| Storage Humidity       | 1% to 95% (non-condensing)                                           |
| Installation           | On a flat surface (Screws, 3M Tape). For indoor installation only.   |
| Casing Material        | ABS/PC                                                               |
| Color                  | White                                                                |
| Dimensions (L x W x H) | 60 mm x 60 mm x 49.2 mm                                              |
| Weight                 | 49.7 g (70.2 g with accessories)                                     |
| Warranty Period        | 24 months                                                            |
| Service Life           | 24 months                                                            |
| Certification          | CE, EAC, RoHS, UA.TR                                                 |

### 1.2.3 Scope of Delivery

The following items and accessories are supplied within the **Perenio<sup>®</sup> PECSS01** Smoke Sensor package:

1. PECSS01 Smoke Sensor (1 pc.)
2. Battery (CR123A) (1 pc.)
3. Screws and dowels (1 set)
4. Reset pin (1 pc.)
5. 3M tape (1 pc.)
6. Quick Start Guide (1 pc.)
7. Warranty Card (1 pc.)



**Figure 6** – Scope of Supply of the PECSS01 Smoke Sensor\*

*\* Images of accessories are provided for informational purposes only*

## 1.3 PECLS01 Leak Sensor

### 1.3.1 General Purpose

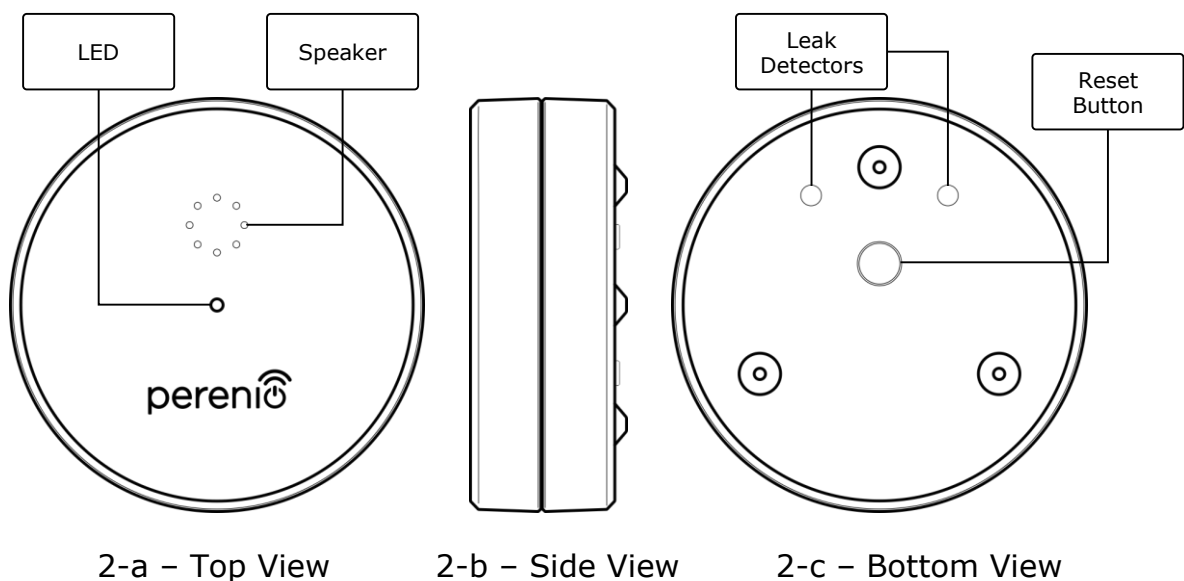
The **Perenio® PECLS01 Leak Sensor** is a device intended to alert users in the case of flood in the room. This device is used as part of the **Perenio® Building Management System** and is suitable for detection of leakage of water and some other liquids in the place of its installation.

The **PECLS01 Leak Sensor** has a number of distinctive features, namely:

- Easy to install and control;
- iOS and Android smartphone compatibility;
- Support of ZigBee Protocol;
- Triggering accuracy (in the case of floods);
- Impact- and heat-resistant casing material with IP67 Protection Class;
- Alarm level – 65 dB;
- Floating function;
- Operation with one battery for up to 16 months;
- Standalone operation;
- Small size and stylish design.



**Figure 7 – PECLS01 Leak Sensor Exterior**



**Figure 8 – PECLS01 Leak Sensor Buttons and Indicators**

## Buttons, Ports and Indicators

|                       |                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------|
| <b>LED</b>            | It lights up when leakage is detected                                                                          |
| <b>Speaker</b>        | It gives an alarm in the case of flooding the room                                                             |
| <b>Reset Button</b>   | It is used to reset Leak Sensor settings, as well as for the Leak Sensor to be detected by the Control Gateway |
| <b>Leak Detectors</b> | The Sensor will be actuated in the case when both detectors will be covered with water or other liquids        |

### 1.3.2 Technical Specification

Table 4 – Basic Technical Specifications of the Leak Sensor

| Parameter                | Value                                                                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Article                  | PECLS01                                                                                                                                       |
| Microprocessor           | DSP (JN5169)                                                                                                                                  |
| Communication Technology | ZigBee HA 1.2 (IEEE 802.15.4)                                                                                                                 |
| Operating Frequency      | 2.3GHz to 2.5GHz                                                                                                                              |
| Connection Radius        | up to 40 meters (open area)                                                                                                                   |
| ZigBee Antenna           | Type: Built-in<br>Transmitting Power: 10dBm<br>Receiver Sensitivity: -90dBm<br>Antenna Gain: 1dBi<br>Repeater: N/A                            |
| Number of Detectors      | Two                                                                                                                                           |
| Liquid Level             | Triggering level: 1.5 mm (height)                                                                                                             |
| Alarm Type               | Siren                                                                                                                                         |
| Alarm Level              | up to 65dB                                                                                                                                    |
| Standalone Operation     | Available                                                                                                                                     |
| Power Type               | CR123A Battery (1300mAh, 3V), 1 pc.                                                                                                           |
| Power Consumption        | Standby Mode: not more than 0.2mA<br>Alarm Mode: not more than 40mA                                                                           |
| Battery Level            | Yes (Available in the Mobile App)                                                                                                             |
| Operating Temperature    | 0°C to +50°C                                                                                                                                  |
| Operating Humidity       | 20°C to +90°C RH                                                                                                                              |
| Storage Temperature      | -20°C to +65°C                                                                                                                                |
| Storage Humidity         | 20°C to +93°C RH                                                                                                                              |
| Installation             | On a horizontal surface (For indoor installation). For outdoor installation, operating temperature and humidity conditions shall be respected |

| Parameter              | Value                          |
|------------------------|--------------------------------|
| Casing Material        | ABS/PC                         |
| IP Protection Class    | IP67                           |
| Color                  | White                          |
| Dimensions (L x W x H) | 60 mm x 60 mm x 21 mm          |
| Weight                 | 32 g (48.8 g with accessories) |
| Warranty Period        | 24 months                      |
| Service Life           | 24 months                      |
| Certification          | CE, EAC, RoHS, UA.TR           |

### 1.3.3 Scope of Delivery

The following items and accessories are supplied within the **Perenio<sup>®</sup> PECLS01** Leak Sensor package:

1. PECLS01 Leak Sensor (1 pc.)
2. Battery (CR123A) (1 pc.)
3. Quick Start Guide (1 pc.)
4. Warranty Card (1 pc.)



1



2

**Figure 9 – Scope of Supply of the PECLS01 Leak Sensor\***

*\* Images of accessories are provided for informational purposes only*

## 1.4 PECWS01 Door & Window Sensor

### 1.4.1 General Purpose

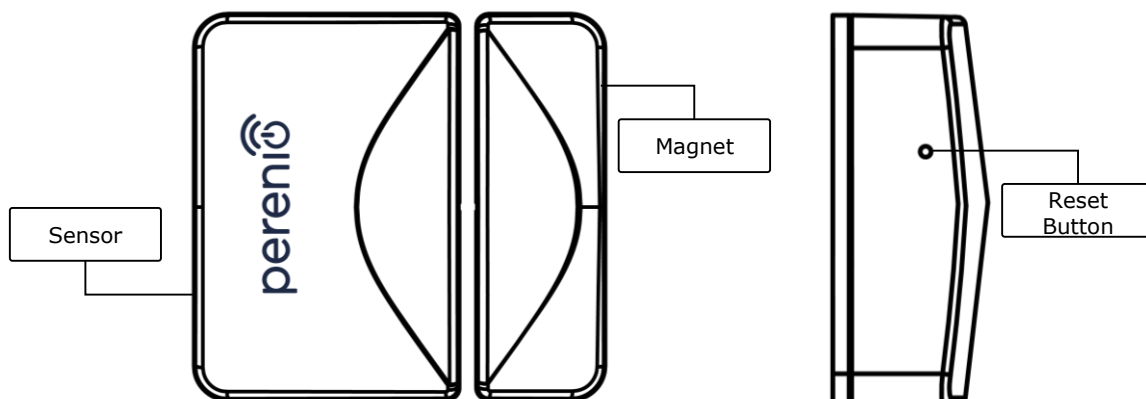
The **PECWS01** magnetic sensor is a device that sends corresponding signals to the **Perenio®** Control Gateway when the magnet is moved away from the main part of the device to a distance of more than 20-30 mm or is returned back to initial state.

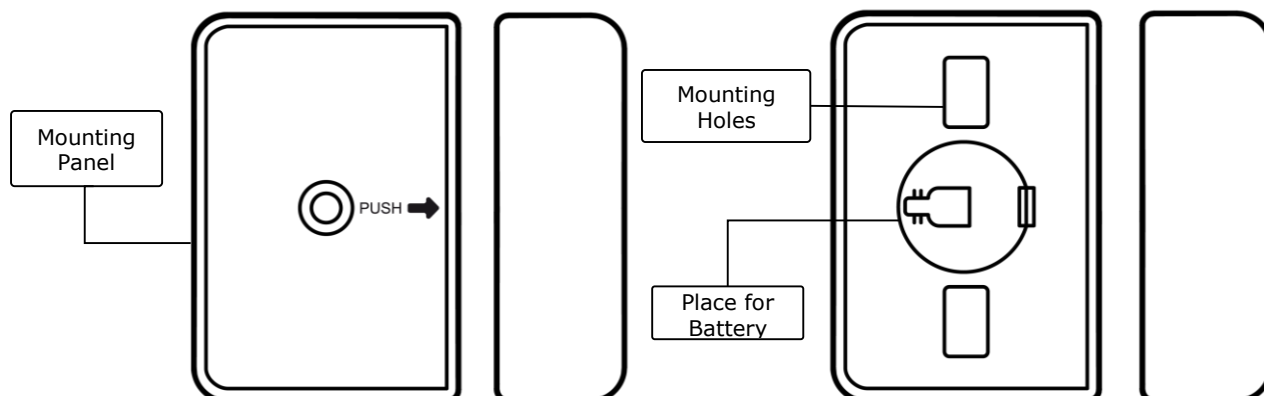
The **PECWS01** Door & Window Sensor has a number of distinctive features, namely:

- Timely notification of a window or door opening;
- Connection distance – up to 40 meters;
- iOS and Android smartphone compatibility;
- Support of ZigBee Protocol;
- Impact-resistant casing material;
- Installation using 3M Tape or screws;
- Ability to adjust the Sensor installation level;
- Operation with one battery for up to 2 years;
- Small size and stylish design.



**Figure 10** – PECWS01 Door & Window Sensor Exterior





**Figure 11** – PECWS01 Door & Window Sensor Components

### 1.4.2 Technical Specification

Table 5 – Basic Technical Specifications of the Door & Window Sensor

| Parameter                                                       | Value                                                                                                                           |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Article                                                         | PECWS01                                                                                                                         |
| Microprocessor                                                  | NXP5169 (ZigBee IC)                                                                                                             |
| Communication Technology                                        | ZigBee HA 1.2 (IEEE 802.15.4)                                                                                                   |
| Operating Frequency                                             | 2.4GHz                                                                                                                          |
| Connection Radius                                               | up to 40 meters (open area)                                                                                                     |
| ZigBee Antenna                                                  | Type: Built-in<br>Transmitting Power: 5.5dBm<br>Receiver Sensitivity: -90dBm<br>Antenna Gain: 1.5dBi to 1.8dBi<br>Repeater: N/A |
| Distance between the sensor and the magnet (Actuation distance) | $\geq 25 \pm 5$ mm                                                                                                              |
| Reset Button                                                    | Side panel of the Sensor                                                                                                        |
| Standalone Operation                                            | N/A                                                                                                                             |
| Power Type                                                      | CR2032 Battery (125mAh, 3V), 1 pc.                                                                                              |
| Power Consumption                                               | Standby Mode: not more than 0.0016mA                                                                                            |

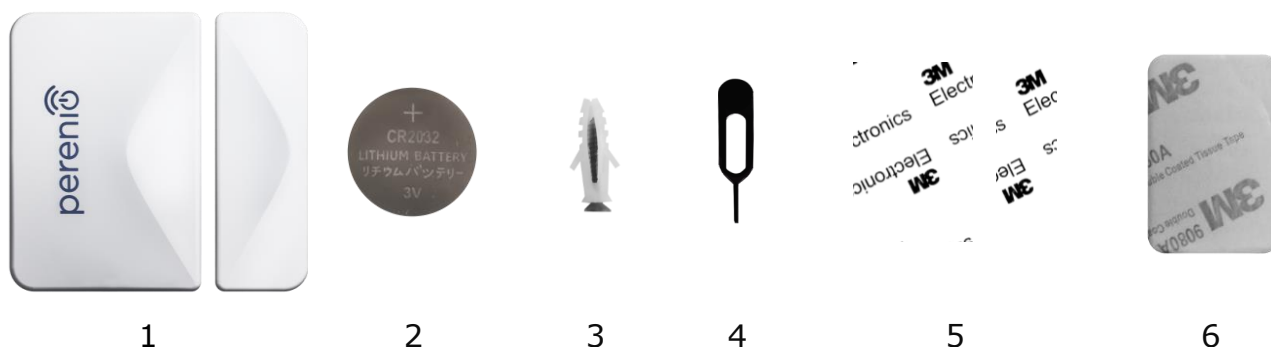
| Parameter              | Value                                                                    |
|------------------------|--------------------------------------------------------------------------|
|                        | Alarm Mode: not more than 19mA                                           |
| Battery Level          | Yes (Available in the Mobile App)                                        |
| Operating Temperature  | 0°C to +45°C                                                             |
| Operating Humidity     | 10% to 85% (non-condensing)                                              |
| Storage Temperature    | -10°C to +50°C                                                           |
| Storage Humidity       | 10% to 95% (non-condensing)                                              |
| Installation           | Edge of the door/window frame (For indoor installation only)             |
| Casing Material        | ABS/PC                                                                   |
| Color                  | White                                                                    |
| Dimensions (L x W x H) | Sensor size: 45 mm x 30 mm x 19 mm<br>Magnet size: 45 mm x 15 mm x 19 mm |
| Weight                 | 24.2g (32.4 g with accessories)                                          |
| Warranty Period        | 24 months                                                                |
| Service Life           | 24 months                                                                |
| Certification          | CE, EAC, RoHS, UA.TR                                                     |

### 1.4.3 Scope of Delivery

The following items and accessories are supplied within the **Perenio® PECWS01** Door & Window Sensor package:

1. PECWS01 Door & Window Sensor (1 set)
2. Battery (CR2032) (1 pc.)
3. Screws and dowels (1 set)
4. Reset pin (1 pc.)
5. 3M Tape (2 pcs.)
6. 3M Sponge (1 pc.)
7. Quick Start Guide (1 pc.)
8. Warranty Card (1 pc.)





**Figure 12 – Scope of Supply of the PECWS01 Door & Window Sensor\***

*\* Images of accessories are provided for informational purposes only*

## 1.5 PECMS01 Motion Sensor

### 1.5.1 General Purpose

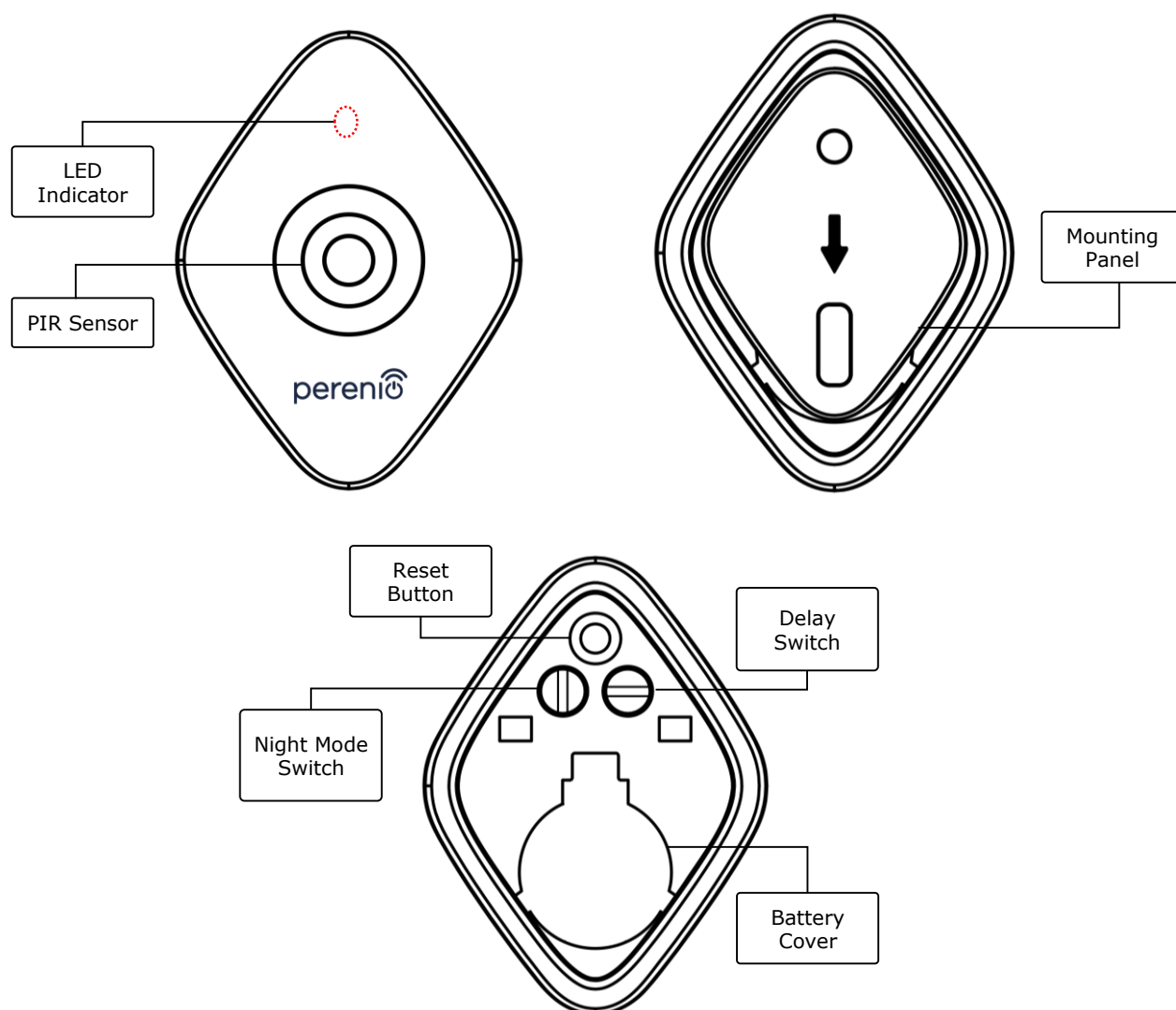
The **Perenio<sup>®</sup> PECMS01** Infrared Motion Sensor is a PIR device that detects movement of thermal objects in the desired area and sends an alarm to the **Perenio<sup>®</sup>** Control Gateway.

The **PECMS01 Motion Sensor** has a number of distinctive features, namely:

- Motion detection distance – up to 6 meters;
- Angle of coverage –  $110^{\circ} \pm 10^{\circ}$ ;
- Connection distance – up to 40 meters;
- iOS and Android smartphone compatibility;
- Support of ZigBee 3.0;
- Impact-resistant casing material;
- Triggering accuracy (PIR Technology);
- Installation using 3M Tape or screws;
- Operation with one battery for up to 2 years;
- Small size and stylish design.



**Figure 13** – PECMS01 Motion Sensor Exterior



**Figure 14** – PECMS01 Motion Sensor Components

## Buttons, Ports and Indicators

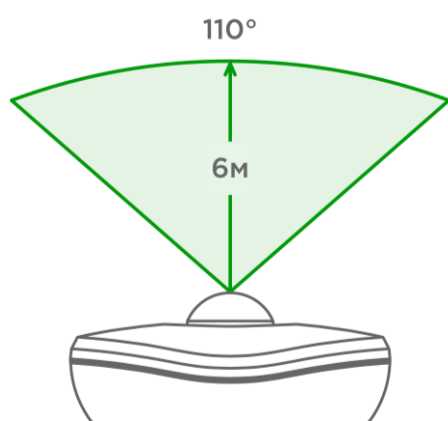
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LED Indicator</b>     | The LED will flash every second if the Sensor does not connect to the Control Gateway. After successful connection, it will go out                                                                                                                                                                                                                                                                                                                                                |
| <b>PIR Sensor</b>        | Passive infrared sensor that contains a pyroelectric sensitive element that responds to changes in heat emission which provides for high accuracy in detecting movements                                                                                                                                                                                                                                                                                                          |
| <b>Mounting Panel</b>    | Removable plate that is attached to the wall and allows the User to replace the battery and detach the Sensor without the need for complete dismantling                                                                                                                                                                                                                                                                                                                           |
| <b>Reset Button</b>      | <p>It is used to reset Sensor settings, as well as for the Sensor to be detected by the Control Gateway.</p> <p>After the button is released, the LED will flash quickly indicating a successful reset.</p>                                                                                                                                                                                                                                                                       |
| <b>Night Mode Switch</b> | <p>There are two possible modes of Sensor operation:</p> <ul style="list-style-type: none"><li>– <i>Vertical position</i>: The Sensor will be able to activate certain actions such as switching on the light upon motion detection day and night (if smart bulbs connected);</li><li>– <i>Horizontal position</i>: The Sensor will be able to activate certain actions such as switching on the light upon motion detection at nights only (if smart bulbs connected).</li></ul> |
| <b>Delay Switch</b>      | <p>If the Sensor does not detect any movement for a specified period of time, it may activate certain actions such as switching off the light (if smart bulbs connected).</p> <p>The following delay periods are possible:</p> <ul style="list-style-type: none"><li>– 1, 5 or 10 minutes.</li></ul>                                                                                                                                                                              |
| <b>Battery Cover</b>     | It protects the battery from external effects                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## 1.5.2 Technical Specification

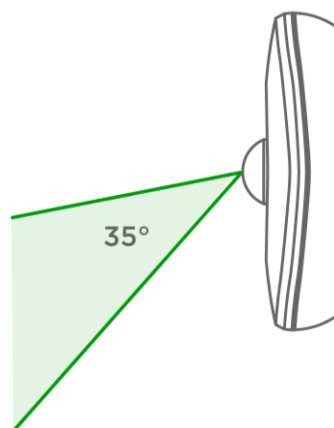
Table 6 – Basic Technical Specifications of the Motion Sensor

| Parameter                | Value                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Article                  | PECMS01                                                                                                                           |
| Microprocessor           | NXP5169 (ZigBee IC)                                                                                                               |
| Communication Technology | ZigBee HA 1.2 (IEEE 802.15.4)                                                                                                     |
| Operating Frequency      | 2.4GHz                                                                                                                            |
| Detection Technology     | PIR (Passive infrared sensor)                                                                                                     |
| Light Sensitivity        | Not less than 20 lux                                                                                                              |
| Detection Angle          | 110°±10° (See Figure 15 below)                                                                                                    |
| Detection Distance       | 6 meters (Detection Area: 10 m x 6 m at 110°)                                                                                     |
| Connection Radius        | up to 40 meters (open area)                                                                                                       |
| ZigBee Antenna           | Type: Built-in<br>Transmitting Power: 5.5dBm<br>Receiver Sensitivity: -90dBm<br>Antenna Gain: 0.39dBi to 0.90dBi<br>Repeater: N/A |
| Standalone Operation     | N/A                                                                                                                               |
| Power Type               | CR2450 Battery (600mAh, 3V), 1 pc.                                                                                                |
| Power Consumption        | Standby Mode: not more than 0.0098mA<br>Alarm Mode: not more than 19mA                                                            |
| Battery Level            | Yes (Available in the Mobile App)                                                                                                 |
| Operating Temperature    | 0°C to +45°C                                                                                                                      |
| Operating Humidity       | 10% to 85% (non-condensing)                                                                                                       |
| Storage Temperature      | -10°C to +50°C                                                                                                                    |
| Storage Humidity         | 10% to 95% (non-condensing)                                                                                                       |
| Installation             | On a flat vertical surface (For indoor installation only).                                                                        |
| Casing Material          | ABS/PC                                                                                                                            |

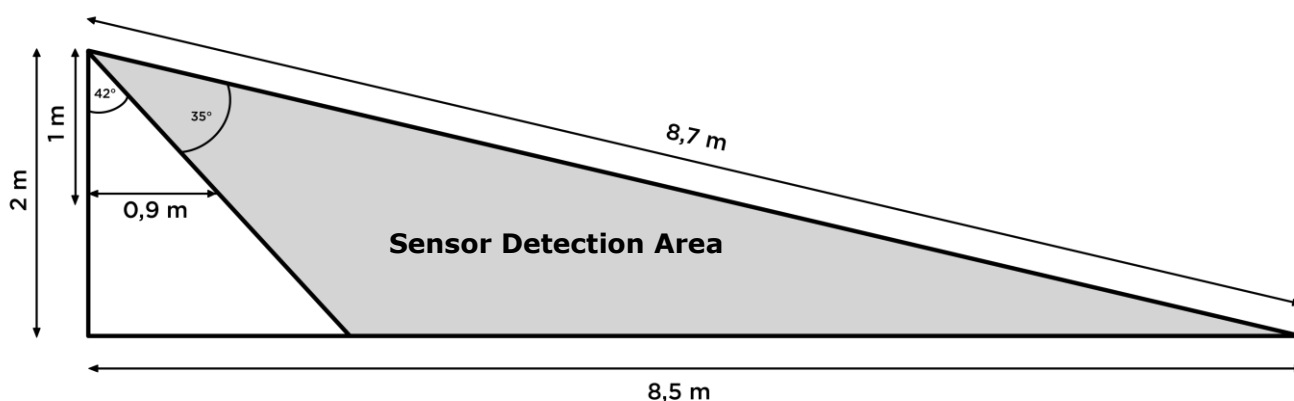
| Parameter              | Value                            |
|------------------------|----------------------------------|
| Installation height    | 2.0-2.6 m (recommended)          |
| Color                  | White                            |
| Dimensions (L x W x H) | 84.4 mm x 63.4 mm x 26.3 mm      |
| Weight                 | 31.9 g (42.4 g with accessories) |
| Warranty Period        | 24 months                        |
| Service Life           | 24 months                        |
| Certification          | CE, EAC, RoHS, UA.TR             |



15-a – Detection angle (horizontally)



15-b – Detection angle (vertically)



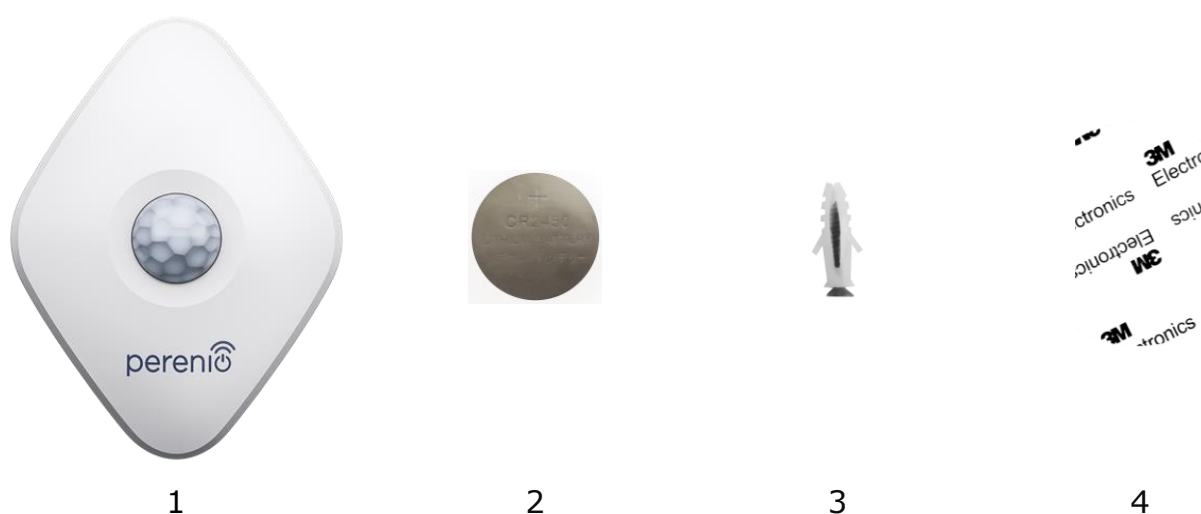
15-c – Details on the vertical detection angle

**Figure 15** – Detection Angles of the PECMS01 Motion Sensor

### 1.5.3 Scope of Delivery

The following items and accessories are supplied within the **Perenio® PECMS01** Motion Sensor package:

1. PECMS01 Motion Sensor (1 pc.)
2. Battery (CR2450) (1 pc.)
3. Screws and dowels (1 set)
4. 3M tape (1 pc.)
5. Quick Start Guide (1 pc.)
6. Warranty Card (1 pc.)



**Figure 16 – Scope of Supply of the PECMS01 Motion Sensor\***

*\* Images of accessories are provided for informational purposes only*

### 1.6 Packaging and Labelling

The **Perenio® PEKIT01** Smart Security Kit is supplied in an individual carton package of 292 x 176 x 71 mm (L x W x H) containing the full name and marking of the device, the list of accessories provided and basic technical specifications thereof, as well as the date of manufacture and information about the Manufacturer of devices.

Also, devices that are part of the present kit can be purchased separately. Weights and sizes of individual packages are shown in Table 7 below.

Table 7 – Data on separately supplied CG and Sensors

| Device               | Package | Package size, mm        | Net/Gross weight |
|----------------------|---------|-------------------------|------------------|
| Control Gateway      | Box     | 159 mm x 159 mm x 72 mm | 259 g/454 g      |
| Smoke Sensor         | Blister | 171 mm x 126 mm x 57 mm | 70 g/110 g       |
| Leak Sensor          | Blister | 171 mm x 126 mm x 27 mm | 49 g/80 g        |
| Door & Window Sensor | Blister | 171 mm x 126 mm x 27 mm | 33 g/60 g        |
| Motion Sensor        | Blister | 171 mm x 126 mm x 35 mm | 43 g/70 g        |

## 1.7 Safe Operation Rules

For the proper and safe operation of **Perenio<sup>®</sup> PEKIT01** Smart Security Kit, follow the instructions and safety procedures described in the present Manual. The Manufacturer shall not be liable for any damage caused as a result of improper operation of devices.

### Safe Operation Conditions

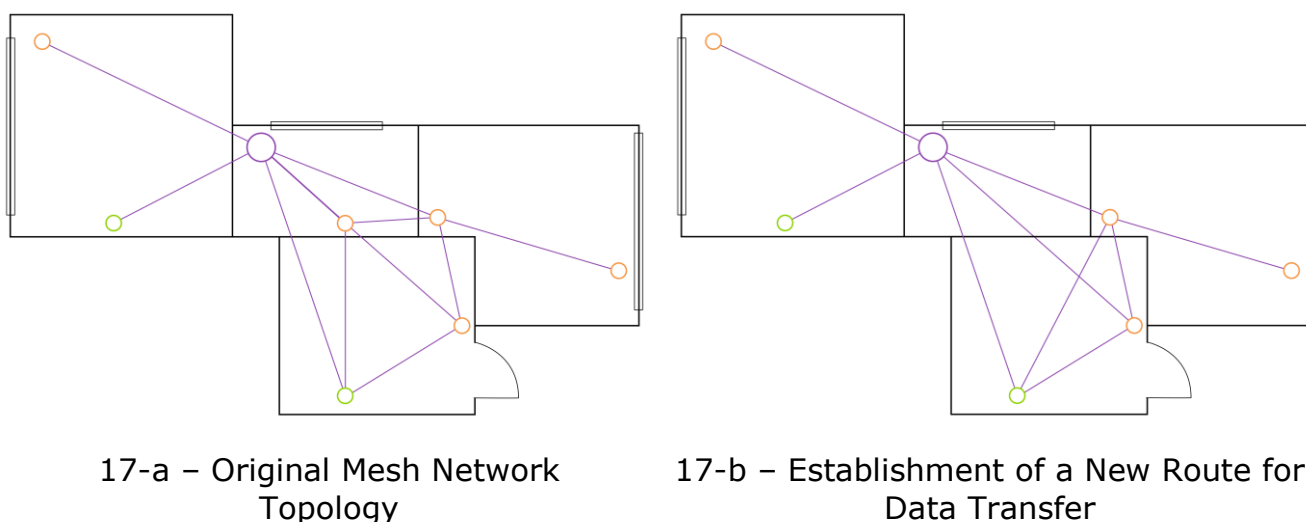
1. The Users shall observe storage/transportation conditions, as well as the operating temperature mode of the device as declared by the Manufacturer.
2. The User shall not install the device in the area with high humidity and high content of dust and/or grease, as well as in the immediate vicinity of air conditioners and ceiling fans.
3. The Users must not disassemble or attempt to repair the device on their own.
4. The Users must not drop, throw or bend the device.
5. In order to avoid personal injury, it shall not be allowed to use the cracked or in any other way damaged device.
6. Use dry cloth or cloth soaked in a small amount of water for cleaning (don't use harsh chemicals/cleaning agents). The device must be powered off before cleaning.
7. Children shall not be allowed to use the device unsupervised and/or play with it.

## 1.8 Why ZigBee

The use of ZigBee 3.0 allows Users to organize a convenient, safe and energy-efficient environment. The key feature of the ZigBee Protocol is that devices (those which are signal repeaters) do not need to directly contact the Control Gateway in order to transmit a signal, since they can transmit it to another device within the network (See

Figure 4). So, in the case of failure of any node, the network will automatically be restored by establishing new routes for data transfer. This increases the reliability and flexibility of the system making it possible to install sensors at larger distance from the Control Gateway even in the presence of obstacles (for example, reinforced concrete walls).

It should also be noted that the ZigBee Protocol has several levels of security and uses the AES-128 encryption algorithm (used by banking and government agencies), which indicates a high degree of protection of the transmitted signal.



**Figure 17** – Self-Recovery of the ZigBee Network

Thus, the advantages of using ZigBee 3.0 include the following:

- Protection of transmitted data;
- Ultra-low power consumption;
- Self-recovery and self-management of the network;
- Data transmission over long distances;
- Possibility of expanding the network to 65,000 devices;
- Data exchange rate of up to 250kbps.

**NOTE.** Sensors and other battery-powered **Perenio®** devices do not have a signal repeating function.



## 1.9 Standalone Operation of Perenio<sup>®</sup> Sensors

The Control Gateway shall not be deemed mandatory for all **Perenio<sup>®</sup>** Sensors operation and notification of Users of potentially dangerous situations.

Thus, the Smoke Sensor and the Leak Sensor can operate as standalone devices, i.e. when smoke or flood is detected, they will start beeping loudly. However, to receive notifications on a smartphone and run active scenarios, it is required to install the Mobile App, as well as to activate the Control Gateway and unite the above devices into a single system.

At the same time, the Motion Sensor and the Door & Window Sensor are able to transmit alarm signals only through the Control Gateway, so they can't operate as standalone devices.

## 2 Installation and Setup

Before installation, the User shall select one of the following possible locations and mounting modes for devices:

- On a horizontal surface (the floor, a table, a stand, etc.);
- On a vertical surface (the wall, the furniture side, etc.);
- Using 3M mounting tape or screws.

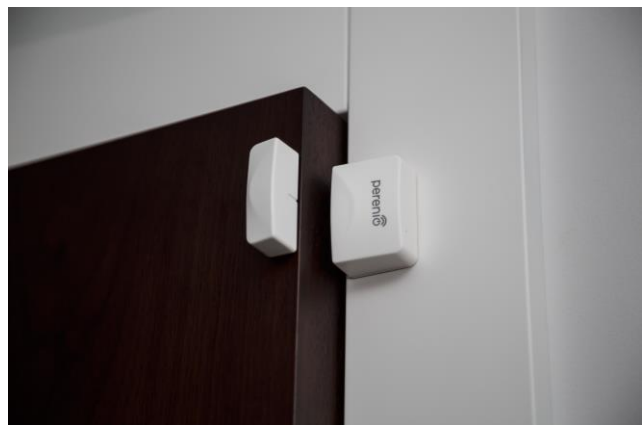
Also, make sure that the selected location meets the following requirements:

- No clutter and obstructions in the sensor viewing angle area;
- Availability of a mains socket near the installation site of the Control Gateway;
- Flat and stable surface in the installation site of the Control Gateway and sensors.

**NOTE.** It is not recommended to install the device in areas with a high level of noise and a high-frequency interference. Reinforced concrete floors may reduce the distance of wireless signal transmission.

It is recommended to install the Control Gateway so that it is at the minimum possible distance from ZigBee devices.

Below see possible locations for devices.



**Figure 18** – Examples of installation of the CG and the Door & Window Sensor\*



**Figure 19** – Examples of installation of the Leak and Motion Sensors\*

*\* Images of accessories are provided for informational purposes only*

For installation of Sensors using 3M tape (for example, on a ceiling), it is necessary to prepare the surface as follows:

1. Wipe the surface of the Sensor to which the 3M tape will be attached with alcohol and wait until it is dry.
2. Attach the 3M tape to the Sensor surface.
3. Make sure that the place of the Sensor installation is smooth and free from dust, dirt, etc.
4. Wipe the surface to which the 3M tape will be attached with alcohol and wait until it is dry.
5. Attach the device in the place of installation using the 3M tape.

The entire setting-up process for devices can be divided into below key steps:

- Installation of the Control Gateway in the selected location;
- Logging in to the **Perenio Smart** User Account;
- Activation of the Control Gateway via the Mobile App;
- Switching on the Sensor and installation in the required place;
- Connection of the Sensor to the Control Gateway.

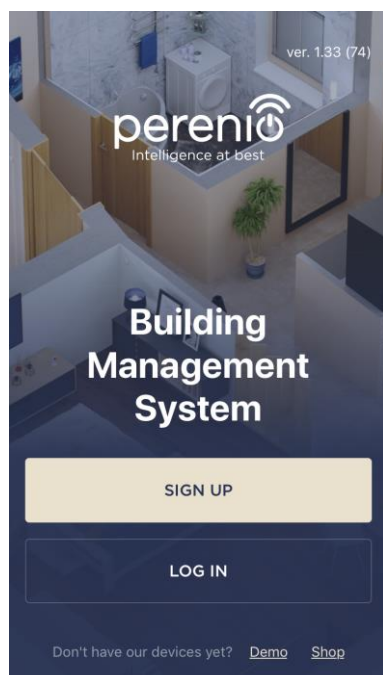
## 2.1 Initial Installation and Configuration of the Control Gateway

To ensure proper installation and operation of the Control Gateway, the User shall perform the following steps:

1. Unpack the Control Gateway, install it on a stable flat surface and connect to the mains (220V) using the power adapter supplied.
2. Install the **Perenio Smart Building Management System** mobile application on your smartphone and login in to the User Account (See par. **A** below).
3. Scan the QR Code, or enter CG data manually (See par. **B** below).
4. Enter your Wi-Fi Network data (See par. **C**, as well as par. 2.4 for the suitable network frequency selection).
5. Enter the desired Control Gateway name, Location and Room (See par. **D** below).

**ATTENTION!** The Device must not be switched off or disconnected from the mains for at least **5 MINUTES** after the RESET Button is pressed, as well as for at least **10 MINUTES** after the firmware update process is started.

### A. INSTALLATION OF THE PERENIO SMART MOBILE APP



The Control Gateway shall be managed through a free mobile application available for downloading in Google Play or App Store.

In order to login to the User Account, follow the steps below:

- a. Connect your smartphone to the Wi-Fi Network and download the **Perenio Smart Building Management System** app from Google Play or App Store;
- b. Register a new User Account (See par. **A.1.** below) or sign in to an existing User Account (See par. **A.2.** below).

## A.1. NEW USER ACCOUNT REGISTRATION

- a. Fill in your e-mail address, user name and password (8 or more symbols including at least one capital letter and one number), then select the country of residence;
- b. Agree to General Terms and Conditions, Privacy Policy and provisions for personal data protection (accessible by the link);
- c. Click on the **SIGN UP** button.  
The User will receive an email to verify the User Account (follow the link);
- d. Login to the User Account.

## A.2. LOGIN TO THE EXISTING USER ACCOUNT

- a. Enter your e-mail address and password in the login screen.
- b. Click on the **LOG IN** button.

**NOTE.** If the password was lost, the User can restore it by clicking on a corresponding link on the screen.

To restore a forgotten password, use the e-mail address linked to your User Account, to which instructions on changing the password will be sent.

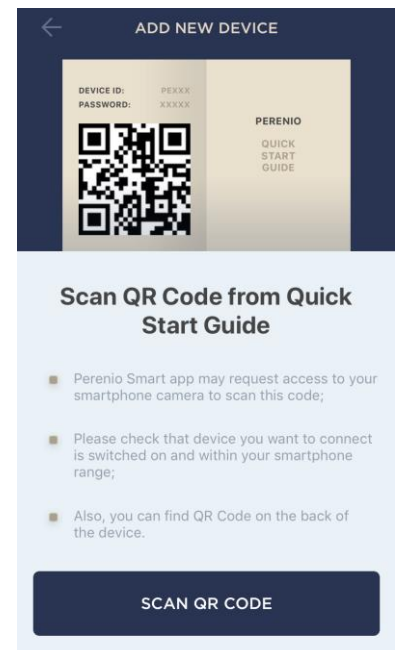
## B. DEVICE ACTIVATION BY QR CODE SCANNING

a. Switch to the QR Scan screen as follows:

- **For new Users:** The QR Scan screen will be displayed immediately after the first login to the Perenio Smart App User Account;
- **For existing Users:** After login to the Perenio Smart App User Account, click on the "+" icon in the upper right corner of the Devices tab, select "Add new device" and then the "Control Gateway" device in the list (See Figure 6).

b. Click on the **SCAN QR CODE** button;

c. Confirm the permission to access your Control Gateway in the pop-up window (It may not be available for certain smartphone models);



d. Find the QR Code sticker on the back of the Quick Start Guide supplied with the CG or on the bottom of the CG and place the smartphone 15-20 cm away from it, so that the QR Code is completely visible on the smartphone screen (See the picture on the left).

**NOTE.** In the event that the QR Code can't be scanned, you may activate the device manually (see par. **B.1.** below).

## B.1. MANUAL ACTIVATION OF THE DEVICE

If the QR Code was damaged or lost, you can enter the device data manually as follows:

- a. Click on the **ENTER MANUALLY** button at the bottom of the QR Code scan screen (See the figure in par. B);
- b. Enter the Device ID and the Password specified in the Quick Start Guide or on the bottom of the device (ID and Password lines next to the QR Code);
- c. Click on the **CONNECT** button.

## C. SENDING WI-FI NETWORK DATA TO THE DEVICE

Do as follows after the screen to connect the device to the Wi-Fi Network will be displayed:

- a. Enter the password from the Wi-Fi Network or select another Network;

**NOTE.** The device may be connected to Wi-Fi Network of **2.4 GHz** only.

- b. Click on the **CONNECT** button.

**NOTE.** Before connecting, make sure that the CG is powered on and that the smartphone is located at a distance of not more than 2 meters from it.

If the Wi-Fi Network password is incorrectly entered more than twice in a row, the Control Gateway may not return to the Access Point mode, which means that the reset to factory settings will be required (See par. 2.2 below).

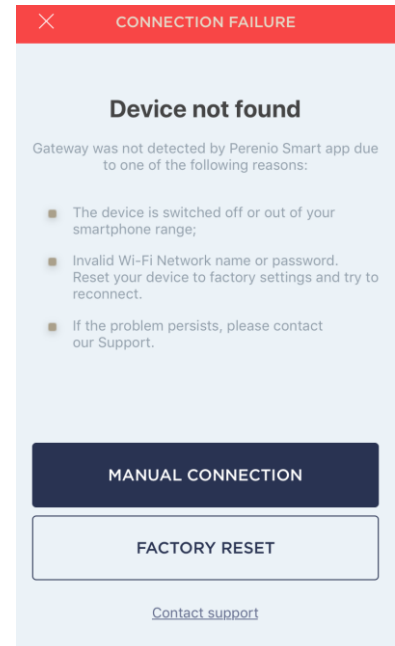


## C.1. CONNECTION ERRORS

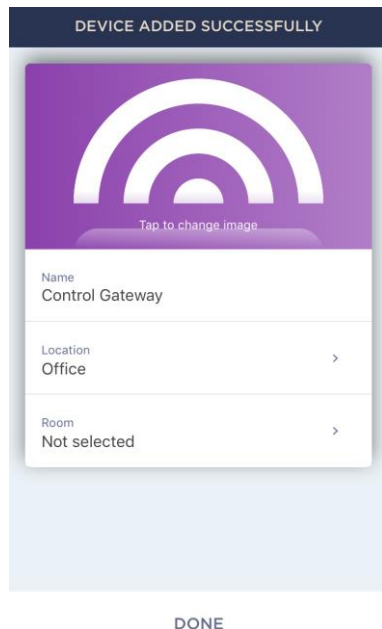
The connection failure of the device may occur due to one of the following reasons:

- a.** The device is switched off or at a too long distance from the smartphone;
- b.** The device was already activated in the current or some other User Account;
- c.** The device ID and/or password or Wi-Fi Network data was entered incorrectly;
- d.** Internet Provider failures.

**NOTE.** To eliminate connection failures, follow instructions specified on corresponding screens of the smartphone.



## D. LOCATION AND ROOM SETTING



After successful connection of the device, the User may specify the following:

- a.** Device name;
- b.** Device Location;
- c.** Room.

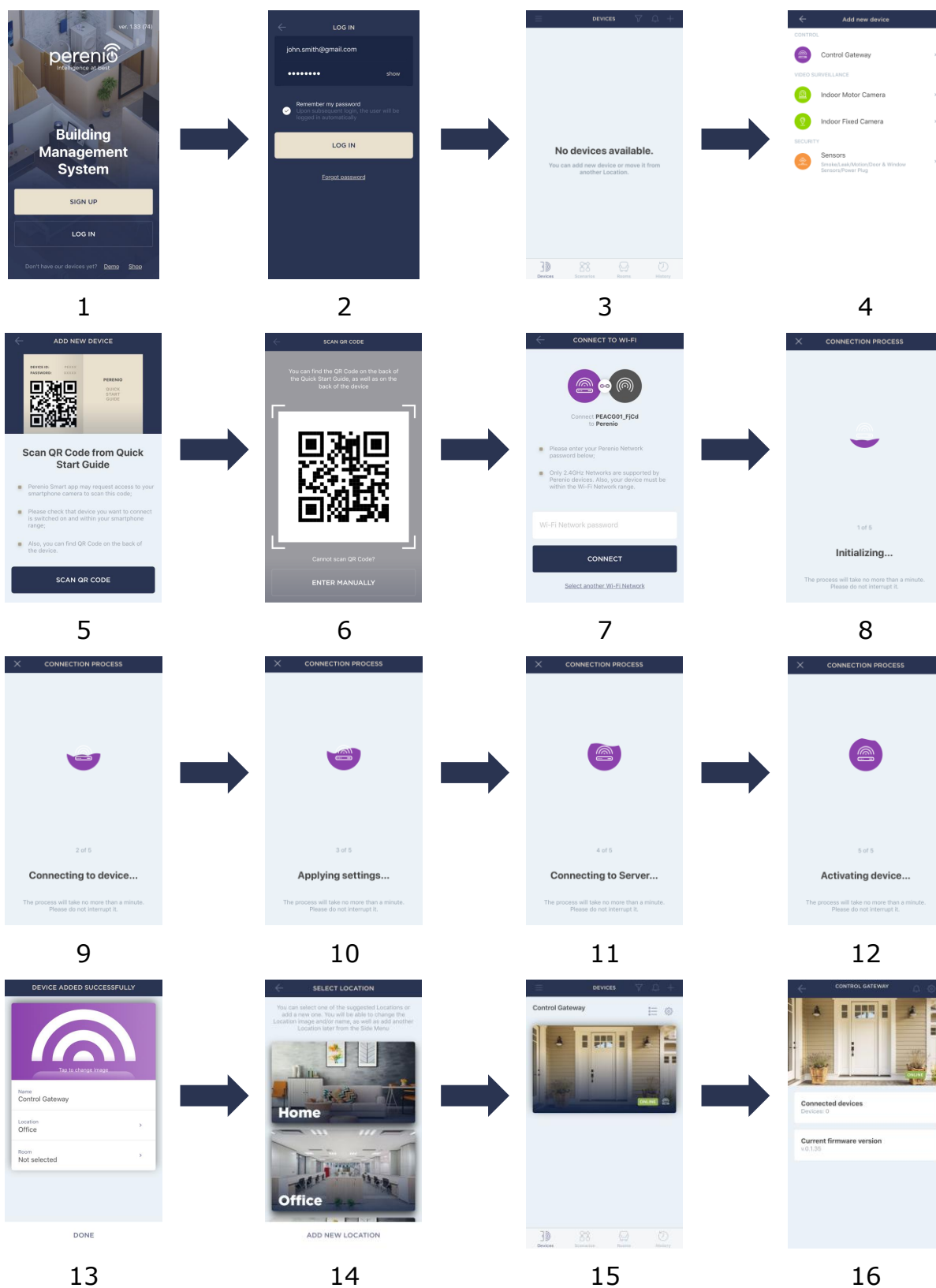
You can also select an image for the device by clicking on the "Tap to change image" link.

After completion, click on the **DONE** button.

The Control Gateway will be displayed in the Devices tab.

The entire process of the Control Gateway activation in the Mobile App is shown below.





**Figure 20** – Add new device procedure (The CG activation process)

## 2.2 Reset to Factory Settings

The reset to factory settings of the Control Gateway shall be performed in the case of any errors or connection failures occurred during the activation process. The reset to factory settings procedure shall be performed as follows:

1. Press and hold the Reset button for at least 10 seconds (You can find it on the side of the Control Gateway – see Figure 2).
2. Release the Reset button after all LED Indicators on the Control Gateway blink **three (3) times**. Wait until the Power Indicator lights up (For cases when the device was not activated in the Mobile App) and the CG reappears in the lists of available Wi-Fi Networks as an Access Point, or until both the WAN and the Power Indicators light up (For cases when the device was already activated in the Mobile App). As a rule, the reset to factory settings shall not take more than three (3) minutes.

After completion of the reset process, the Control Gateway is considered ready for operation or reactivation in the Mobile Application.

**NOTE.** The reset to factory settings is possible only if the Control Gateway is powered on, and there is no firmware update process.

It is not recommended to perform the factory reset until the Control Gateway is deactivated in the Mobile Application (Valid for Devices already being activated in the User Account).

## 2.3 Ethernet Connection

Currently, this Control Gateway may be connected to the Internet via Wi-Fi only (Connection via an Ethernet cable is temporary unavailable).

## 2.4 Wi-Fi Router Frequency Settings

**Perenio® PEACG01** Control Gateway may be connected to the Wi-Fi Network of 2.4GHz only. Due to this fact, the User shall make sure that your Wi-Fi Router is set to the above frequency before proceeding to par. **C. "SENDING WI-FI NETWORK DATA TO THE DEVICE"**.

Currently, Wi-Fi routers of most manufacturers support both frequencies, but in the case your local Wi-Fi is set to 5GHz only, it is necessary to add the access point of 2.4GHz as well.

**NOTE.** Your Wi-Fi router frequency settings shall be performed according to instructions of its manufacturer.

## 2.5 Changing the Room or Location for the Control Gateway

When using the Control Gateway, it may be necessary to change its installation area. The following options are possible:

- 1. Change the room/location** (The Wi-Fi Network remains the same):
  - a. Disconnect the Control Gateway from the mains (The status of the device will be changed to "Offline");
  - b. Move the CG to another room/location and connect it to the mains;
  - c. Wait until the Control Gateway is rebooted (It usually takes no more than 2 minutes) and the status of the device is changed to "Online";
  - d. Change the Room/Location in Control Gateway settings (⚙️).
- 2. Change the room/location** (The Wi-Fi Network will also be changed):
  - a. Log in to the Perenio Smart app and select the Location where the Control Gateway is activated;
  - b. In the Devices tab, select the required Control Gateway from the list and click on the ⚙️ icon (Settings);
  - c. In the pop-up window, choose "Disconnect device";
  - d. Wait for around **3 minutes** in order for the Control Gateway to disconnect from the current Wi-Fi Network;
  - e. Disconnect the Control Gateway from the mains;
  - f. Move the CG to another room/location and connect it to the mains;
  - g. Wait until the Control Gateway is rebooted (It usually takes no more than 2 minutes);
  - h. In the User Account, select the Location where you want to move the Control Gateway;
  - i. Activate the Control Gateway in the Mobile App according to par. 2.1 "First Installation and Configuration" (B-D) of this document.

## 2.6 First Installation and Configuration of the Smoke Sensor

In order to connect the Smoke Sensor to the Control Gateway through the **Perenio Smart** Mobile App, it is necessary to perform the following steps:

1. Unpack the Sensor and switch it on (See par. **E** below).
2. Login in to the **Perenio Smart Building Management System** User Account (See par. **B** below).
3. Connect the Smoke Sensor to the Mobile App (See par. **I** below).
4. Enter the desired Sensor name and select the Room of installation.
5. Install the Sensor in the selected room.

### E. SWITCHING ON AND INSTALLATION OF THE SMOKE SENSOR

To install the **Perenio® PECSS01** Smoke Sensor, follow steps below:

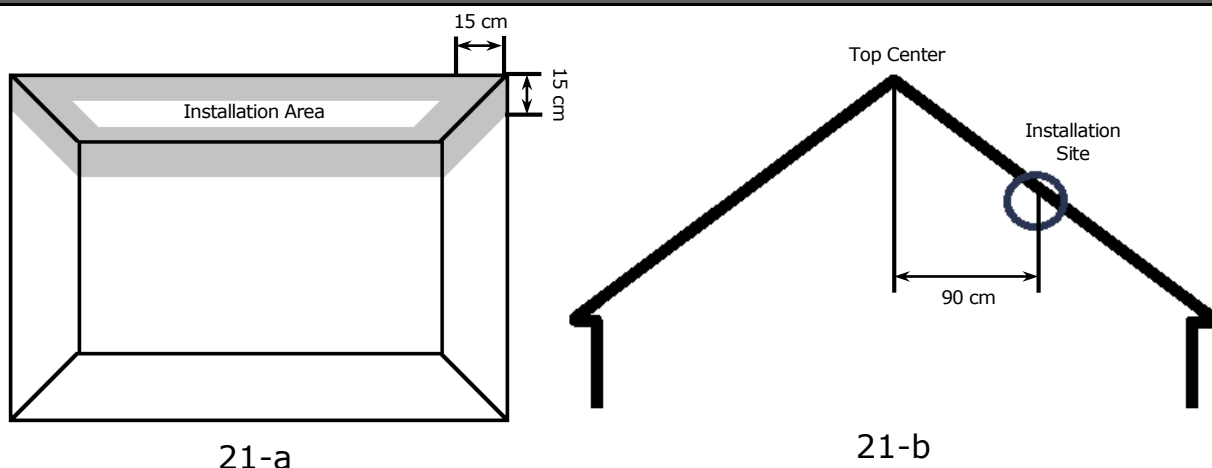
1. Unpack the device.
2. Select the installation place and method as follows:
  - a. *Installation Place*: On a flat/sloping ceiling or a suitable vertical surface;
  - b. *Installation Method*: Using the 3M tape or screws.

**NOTE.** When installing the Smoke Sensor on the ceiling, you should keep it at a distance of at least 30 cm from lamps and decorations, as well as at a distance of at least 15 cm from walls and corners (See Figures 21 and 22).

If the length of the room exceeds 9 meters, it is recommended to install two Smoke Sensors (one on each side of the room).

Do not install the Sensor in rooms with high level of humidity, insects, dust and/or grease, as well as near air conditioners and ceiling fans.

Replace the Smoke Sensor at least once every ten (10) years, even if it is not damaged.



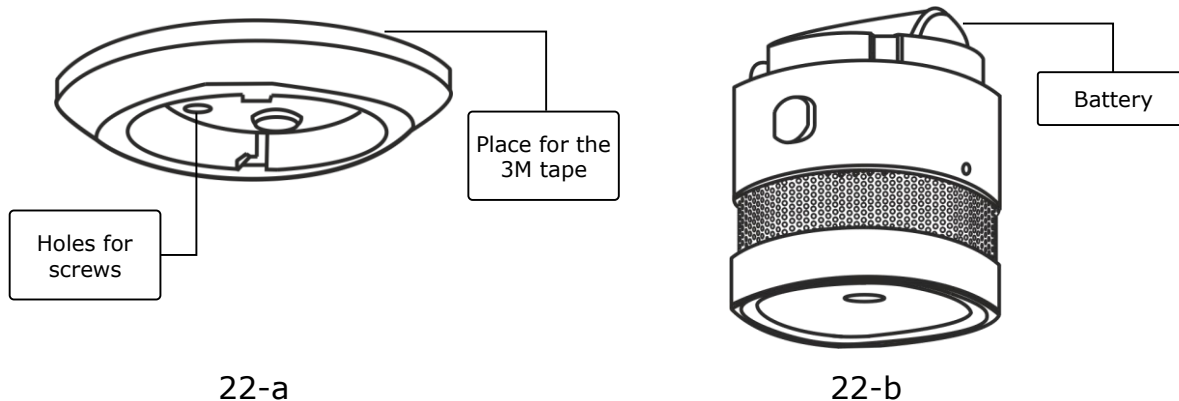
**Figure 21** — Installation of the Smoke Sensor on a flat and sloping ceiling

**Flat Ceiling  
Installation**  
(Figure 21-a)

It is recommended to install the Smoke Sensor in the central part of the ceiling, since smoke, heat and combustion products rise up first and then dissipate to sides

**Sloping Ceiling  
Installation**  
(Figure 21-b)

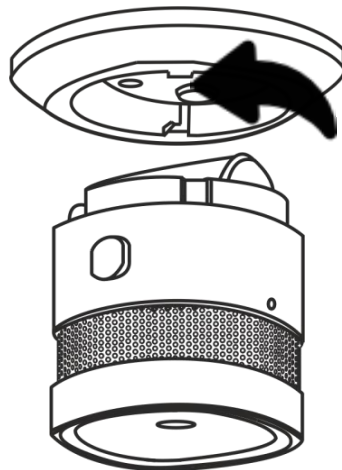
It is recommended to install the Smoke Sensor at a distance of 90 cm in a horizontal direction from the top of the sloping ceiling



**Figure 22** – Fastening of the Smoke Sensor on screws or the 3M tape

3. Disassemble the mounting bracket by turning it counterclockwise as shown in Figure below.
4. Mount the bracket in the required area using screws or glue it onto the 3M tape supplied with the Smoke Sensor.
5. Switch on the Smoke Sensor by removing the battery isolation strip.
6. Reassemble the Smoke Sensor and the mounted bracket.

**NOTE.** If the LED starts flashing slowly after removal of the battery isolation strip, you can immediately begin connecting it to the Control Gateway and skip **Step d** of par. I. "CONNECTION TO THE CONTROL GATEWAY", i.e. performing the reset.



**Figure 23** – Disassembling the mounting bracket from the Smoke Sensor

After the above Steps 1-6 are successfully completed, the Smoke Sensor is considered to be installed and ready for operation.

It is recommended to test the Smoke Sensor at least once a week. To do this, press the Test Button (see Figure 5) until the signal sounds.

## 2.7 First Installation and Configuration of the Leak Sensor

In order to connect the Leak Sensor to the Control Gateway through the **Perenio Smart** Mobile App, it is necessary to perform the following steps:

1. Unpack the Sensor and switch it on (See par. **E** below).
2. Login in to the **Perenio Smart Building Management System** User Account (See par. **B** below).
3. Connect the Smoke Sensor to the Mobile App (See par. **I** below).
4. Enter the desired Sensor name and select the Room of installation.
5. Install the Sensor in the selected room.

## F. SWITCHING ON AND INSTALLATION OF THE LEAK SENSOR

To install the **Perenio<sup>®</sup> PECLS01** Leak Sensor, follow steps below:

1. Unpack the device.
2. Select suitable installation area near a potential source of flood (water valve, washing machine, radiators, etc.).
3. Unscrew the Sensor body and switch on the device by removing the battery isolation strip.
4. Reassemble the Sensor body (See par.2.7.1 below) and install it in the desired area.

After the above Steps 1-4 are successfully completed, the Leak Sensor is considered to be installed and ready for operation.

**NOTE.** If the LED starts flashing slowly after removal of the battery isolation film, you can immediately begin connecting it to the Control Gateway and skip **Step d** of par. I. "CONNECTION TO THE CONTROL GATEWAY", i.e. performing the reset.

### 2.7.1 Leak Sensor Tightness

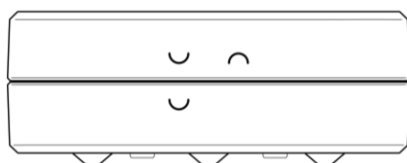
The IP67 Protection Class of the Leak Sensor casing completely prevents the ingress of dust into the device.

It also withstands short-term immersion in water (up to 30 minutes to a depth of no more than 1 meter) provided that the Sensor casing is properly closed and the rubber seal is not damaged.

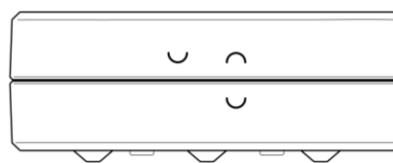
At the same time, the Sensor is not intended for continuous operation in water.

Although the Leak Sensor will float on the water surface in case of flood, it is necessary to follow rules below to prevent premature failure of the device:

- Do not allow children playing with the Sensor and immerse it in water;
- Keep the Sensor casing closed, since frequent opening-closing of the device may cause damage to the rubber sealing ring which is subject to natural wear;
- Close the Sensor casing according to special marks until a click appears (See Figure below).



24-a – Initial position of the upper and lower parts of the Sensor body relative to each other (The Sensor is NOT CLOSED)



24-b – Final position of the upper and lower parts of the Sensor body relative to each other (The Sensor is CLOSED)

**Figure 24** – Ensuring tightness of the Leak Sensor casing

## 2.8 First Installation and Configuration of the PECWS01 Sensor

In order to connect the Door & Window Sensor to the Control Gateway through the **Perenio Smart** Mobile App, it is necessary to perform the following steps:

1. Unpack the Sensor and switch it on (See par. **E** below).
2. Login in to the **Perenio Smart Building Management System** User Account (See par. **B** below).
3. Connect the Smoke Sensor to the Mobile App (See par. **I** below).
4. Enter the desired Sensor name and select the Room of installation.
5. Install the Sensor in the selected room.

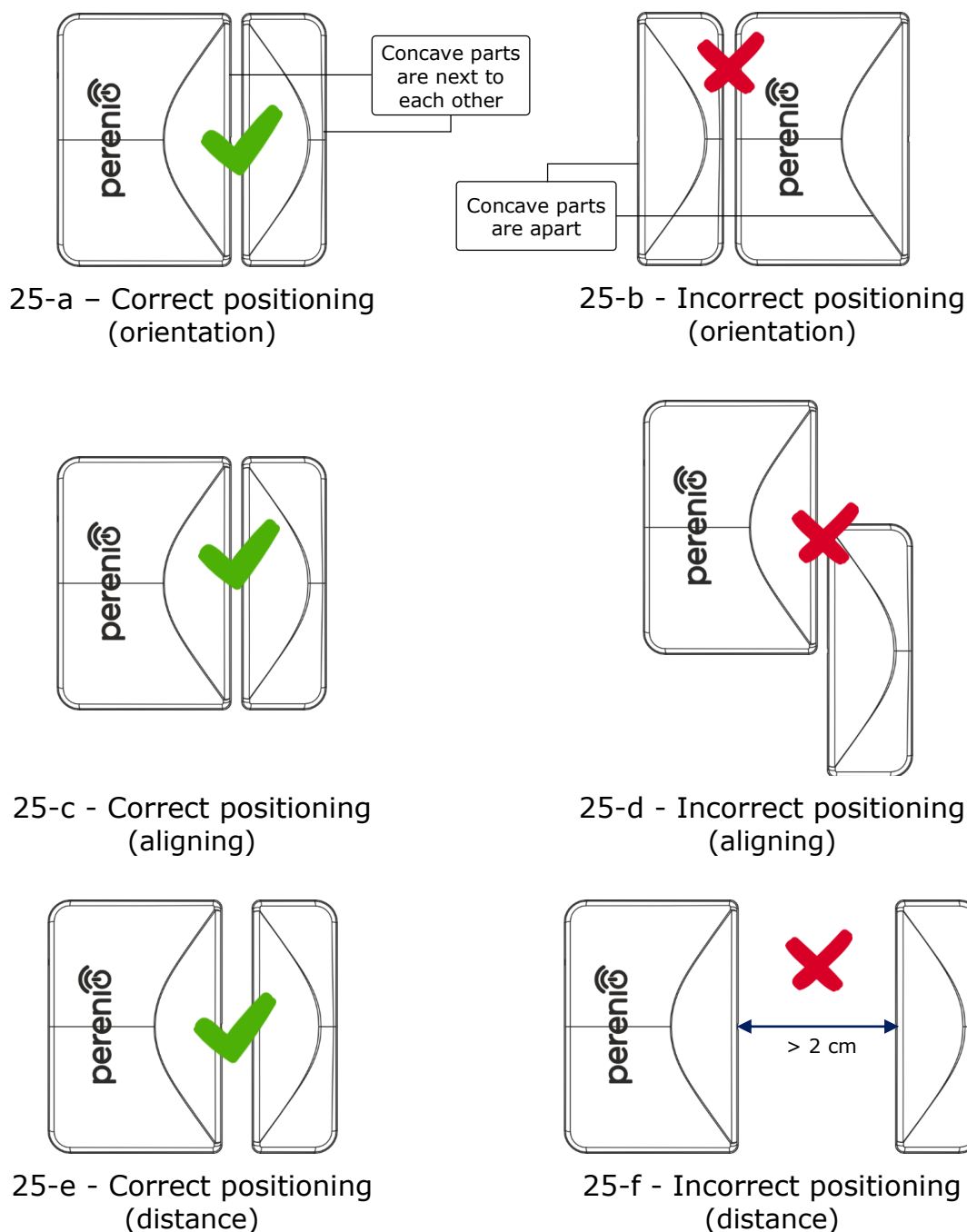
## G. SWITCHING ON AND INSTALLATION OF THE DOOR & WINDOW SENSOR

To install the **Perenio® PECWS01** Door & Window Sensor, follow steps below:

1. Unpack the device.
2. Choose a suitable installation area for the Sensor and the Magnet (window frame, door leaf, etc.) as follows:
  - a. Attach the Sensor on the door or window frame using 3M tape (See Figure 25-a). You can also mount the Sensor using the screw.
  - b. Attach the Magnet to the door or window frame at the same level as the Sensor.

**ATTENTION!** It is required to install the Sensor and the Magnet in such a way that concave parts of their bodies are next to each other (See Figure 28-a below).





**Figure 25** – Installation rules for the Sensor and the Magnet

**NOTE.** The Sensor and the magnet shall be mounted coaxially so that in the closed position of the door or the window the magnet is at a distance of no more than 2 cm from the sensor.

**NOTE.** The Sensor may be installed using the screw (supplied).

To align the position of the sensor and the magnet (when the door frame is thicker than the door leaf), the User may use the 3M Sponge supplied with the device.

To clean the sensor, use a soft cloth with a small amount of water or alcohol. Cleaning can only be performed after switching off the sensor.

3. Switch on the Door & Window Sensor by removing the battery isolation film.
4. Install the Sensor onto the removable cover in the selected location.

**NOTE.** If the LED starts flashing slowly after removal of the battery isolation film, you can immediately begin connecting it to the Control Gateway and skip **Step d** of par. I. "CONNECTION TO THE CONTROL GATEWAY", i.e. performing the reset.

After the above Steps 1-4 are successfully completed, the Door & Window Sensor is considered to be installed and ready for operation.

## 2.9 First Installation and Configuration of the Motion Sensor

In order to connect the Motion Sensor to the Control Gateway through the **Perenio Smart** Mobile App, it is necessary to perform the following steps:

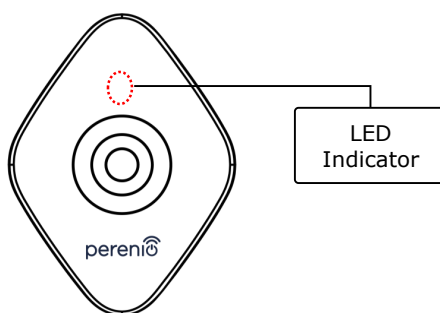
1. Unpack the Sensor and switch it on (See par. **E** below).
2. Login in to the **Perenio Smart Building Management System** User Account (See par. **B** below).
3. Connect the Smoke Sensor to the Mobile App (See par. **I** below).
4. Enter the desired Sensor name and select the Room of installation.
5. Install the Sensor in the selected room.

## H. SWITCHING ON AND INSTALLATION OF THE MOTION SENSOR:

To install the **Perenio® PECMS01** Motion Sensor, follow steps below:

1. Unpack the device.
2. Choose a suitable installation area for the Sensor (e.g., on the wall in the area where intruders are possible).

3. Remove the Sensor mounting plate and open the battery cover (See Figure 14 above) to remove the battery isolation strip and switch on the device. Immediately after switching on, the red LED will flash.
4. Attach the Motion Sensor on the wall using the 3M tape (Recommended installation height: 2.0-2.6 m) so that the red LED is located at the top (See Figure 26 below).
5. Set the night and/or delay mode, if required (See Figure 14).
6. Mount the Sensor onto the mounting plate.

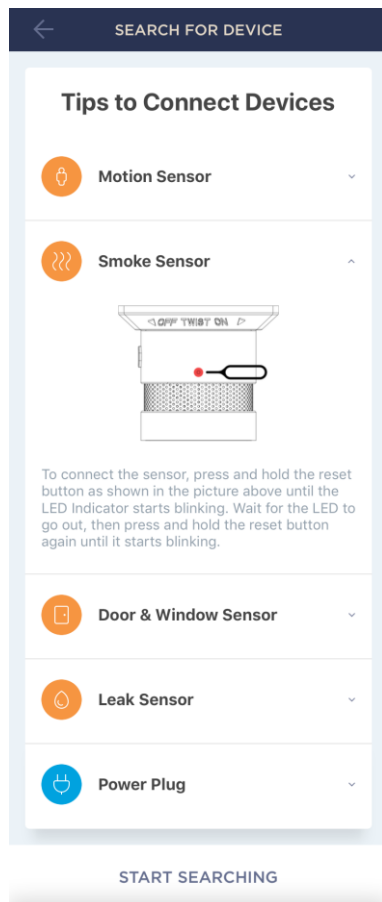


**Figure 26** – Motion Sensor orientation during installation

**NOTE.** The Sensor is designed for installation on the wall or other vertical surface only and is not suitable for installation on the ceiling. The Sensor can be installed using screws (supplied). Do not install the Sensor in areas with extreme temperature changes (near heaters, refrigerators, stoves, etc.).

After the above Steps 1-6 are successfully completed, the Motion Sensor is considered to be installed and ready for operation.

## I. CONNECTION TO THE CONTROL GATEWAY



- a. Click on the "+" icon in the upper right corner of the Devices tab, select "Add new device" and then the connected Sensor in the list;
- b. Select the Control Gateway to which the Sensor shall be connected (This screen will be displayed, only if there are several Control Gateways activated in the User Account).

**NOTE.** The Control Gateway must be connected to the mains and the Internet, as well as activated in the Perenio Smart App.

- c. Start searching for Sensors;
- d. If the LED flashes slowly after the first power on of the device, proceed to the **Step e**, otherwise press and hold the reset button as specified in the screen of your smartphone.

**NOTE.** Several sensors may be connected to the Control Gateway at once.

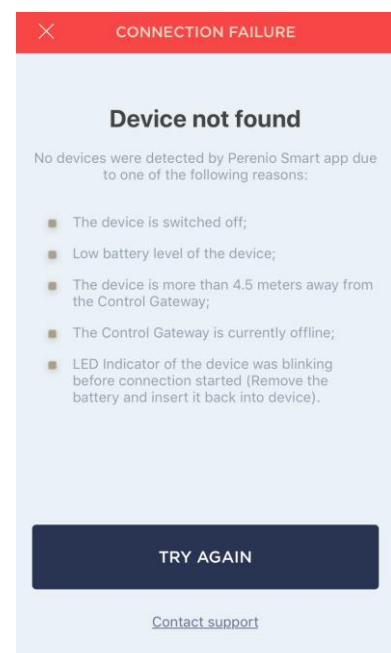
- e. After successful connection, enter the Sensor's name and select the Room.

### C.1. CONNECTION ERRORS

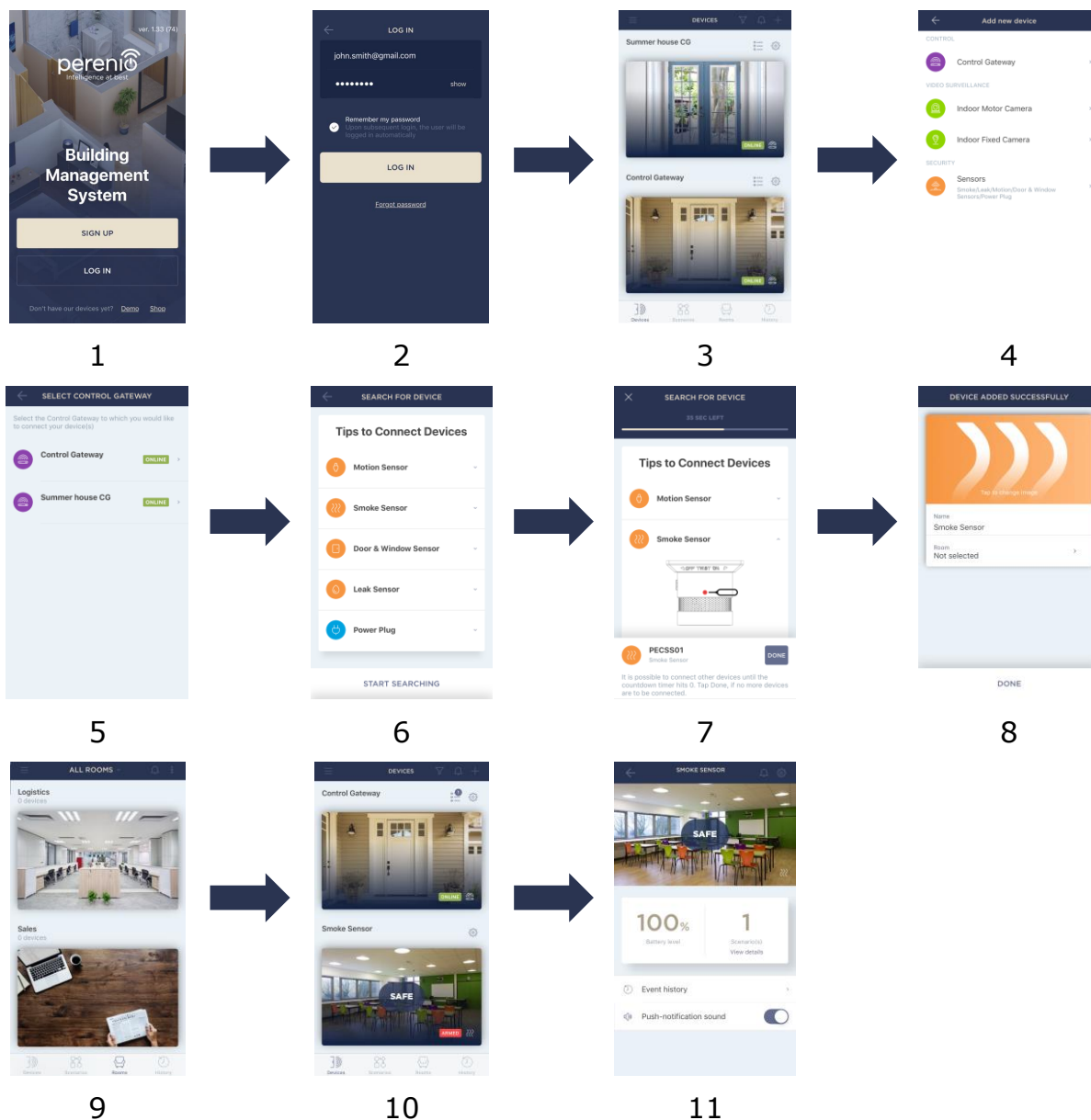
The connection failure of the device may occur due to one of the following reasons:

- a. The device is switched off or at a too long distance from the Control Gateway (4.5 meters);
- b. The Control Gateway is offline;
- c. The LED Indicator was blinking before start of the sensor connection (You should remove the sensor battery and insert it back into the casing).

**NOTE.** To eliminate connection failures, follow instructions specified on corresponding screens of the smartphone.



The entire process of the Sensor connection in the Mobile App is shown below.



**Figure 27 – Add new device (Sensor) procedure**

## 2.10 Changing the Room or Location for Sensors

When using the Sensor, it may be necessary to change its installation area. The following options are possible:

- 1. Change the room/location** (The CG remains the same) as follows:
  - a. Demount the Sensor and move it to another room;
  - b. Make sure that the Sensor is at an allowable distance from the Control Gateway;
  - c. Install the Sensor in a new room (Use a new 3M tape, if required);
  - d. Change the Room in Sensor settings in the User Account.
- 2. Change the room/location** (Connection to another CG is required) as follows:
  - a. Sign in to the Perenio Smart app and select the Location where the Sensor is activated;
  - b. In the Devices tab, select the required Sensor from the list and click on the  icon (Settings);
  - c. In the pop-up window, choose "Disconnect device";
  - d. Demount the Sensor and move it to another room/building;
  - e. Make sure that the Sensor is at an allowable distance from the Control Gateway;
  - f. Install the Sensor in a new room (Use a new 3M tape, if required);
  - g. In the User Account, select the Location where you want to move the Sensor;
  - h. Initiate the Sensor search by the Control Gateway through the Perenio Smart application according to par. **C. "CONNECTION TO THE CONTROL GATEWAY"**.

**NOTE.** The User can manually disconnect the Sensor from the Control Gateway. To do this, press and hold the Reset button on the Sensor until the LED flashes (It usually takes no more than 5 seconds).

To check that the Sensor was successfully disconnected, you should update the list in the Devices tab (Pull the screen down until the progress icon appears and the data is updated). If the sensor is disconnected, it will disappear from the list of connected devices.

## 2.11 History and Push-Notifications

All notifications and other messages including changes in **Perenio<sup>®</sup>** device statuses are displayed in the History tab. At the same time, the most important events are shown online in the notification window (🔔) in the User Account. Available types of notifications are as follows:

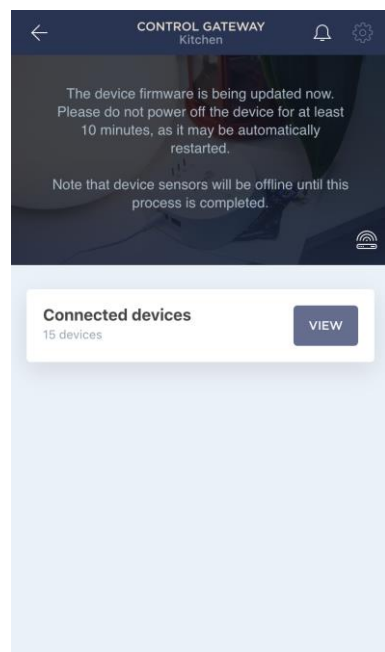
- Alarms (These are always received like push-notifications on a smartphone, as well as recorded in the notification window and in the History tab in the Mobile Application);
- Important messages (These are recorded in the notification window in the Armed Mode, as well as always recorded in the History tab);
- Standard events (These are recorded in the History tab only).

**Alarms.** The most important messages such as device actuation notifications when in the Armed mode, including all alarms from both the Smoke Sensor and the Leak Sensor (even if in the Disarmed mode), as well as changes in the Control Gateway Online/Offline status.

**Important messages.** Notifications of the start and completion of the Control Gateway firmware update process, as well as low battery notifications and changes of the Armed/Disarmed mode for the Location.

**Standard events.** Various news and other information from *Perenio IoT*, as well as alerts from both the Door&Window Sensor and the Motion Sensor when in the Disarmed mode.

## 2.12 Upgrading the Control Gateway Firmware



*Perenio IoT* strives to constantly improve the quality of its products, so an automatic software (firmware) update can be launched during the first activation of the Control Gateway, as well as during its normal operation.

In this case, the User will see a corresponding notification in the Control Gateway control panel in his/her User Account.

**IMPORTANT!** It is not allowed to disconnect the device from the power source for at least **10 minutes** after the firmware update process is started.

During the firmware update process, it will be impossible to view data on the Control Gateway, as well as sensors connected thereto. Also, the device may reboot repeatedly.

The User is allowed to disconnect the device and/or perform reset to factory settings only after receiving an appropriate push-notification to the his/her smartphone that the update process is successfully completed, and after the CG becomes online (The black screen disappears).

**NOTE.** In the event of any power failures during the firmware update process, the CG malfunctions may occur. In this case, you need to contact our Technical Support Service to restore factory settings.



## 2.13 Battery Replacement

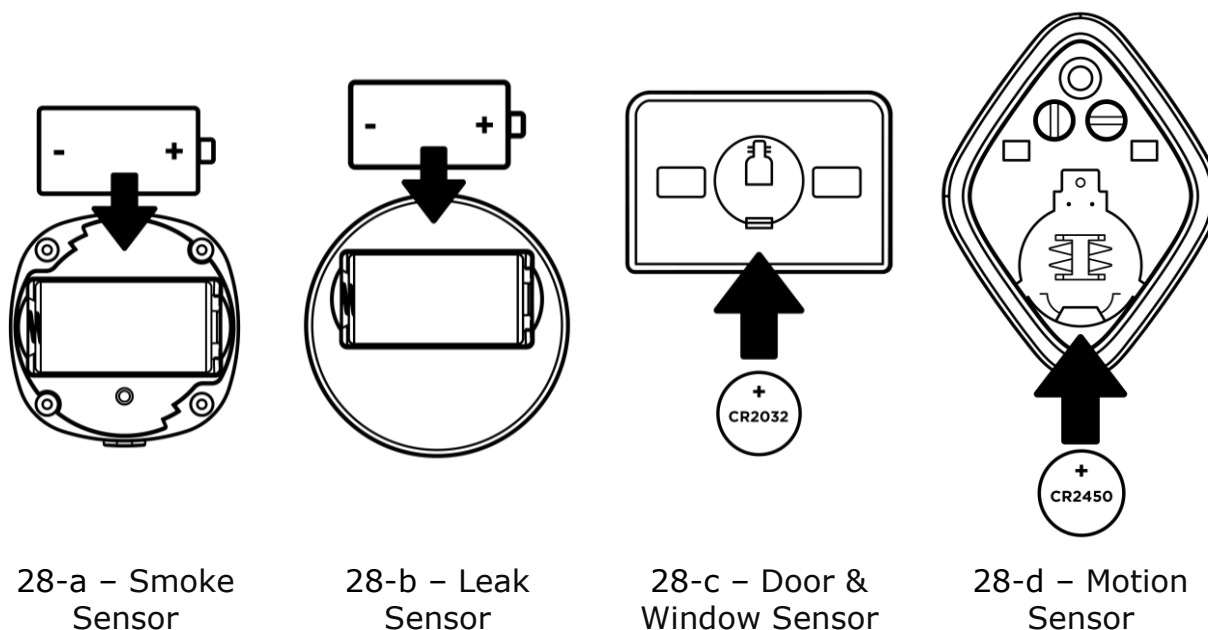
Sensors can operate with one battery for the following maximum periods:

- Smoke Sensor: Not more than 36 months;
- Leak Sensor: Not more than 16 months;
- Door & Window Sensor: Not more than 24 months;
- Motion Sensor: Not more than 24 months.

The battery level can be controlled via the Mobile App (Smoke Sensor panel).

In order to properly replace a discharged battery, the User observe the following rules:

- Make sure that the new battery is the same as the original (supplied with the Sensor);
- When replacing the battery, the User shall observe the polarity (See Figure below).



**Figure 28** – Positioning of the battery in Sensors

After battery replacement, the LED of the Sensor will blink.

### 3 Maintenance and Repair

**Perenio® PEKIT01** Smart Security Kit does not require special maintenance in the normal course of operation. However, in order to maintain the proper state and stable operation of devices it is recommended to perform the following actions from time to time:

- Clean the device casing from dirt and dust at least once every six months;
- Examine and adjust the position of the sensors from time to time;
- Test the Smoke Sensor alarm at least once a week;
- Replace the Smoke Sensor every 10 years;
- Check for updates of the Perenio Smart app;
- Check for the power adapter condition and replace it in a timely manner;
- Check for the battery condition and replace it in a timely manner;
- Repair mechanical damages to devices (in Service Centers).

**Perenio® PEKIT01** Smart Security Kit repairs shall be carried out in Service Centers, because casings will have to be opened in the case of any element failure.

In the case of warranty repairs or replacement, the User shall provide the Seller with the sales receipt and the purchased device.

For details on the replacement and repairs of **Perenio®** Smart Security Kit, please contact your local Company representative or the Tech Support Department at **perenio.com**.

## 4 Warranty Obligations

The warranty period for the Control Gateway and Sensors shall be **Twenty-Four (24) months** from the date of sale to the End User.

The warranty period for components and accessories shall be as follows:

- External chargers and removable batteries: Six (6) months from the date of sale to the End Customer;
- Non-removable batteries: Corresponds to the warranty period for basic devices;
- Remote controls, fasteners, supports, cables and other accessories: Six (6) months from the date of sale to the End Customer;
- General-purpose batteries (such as AAA, CR123A, CR2450, etc.) shall not be covered by the warranty of the Manufacturer of IP Cameras, the Smart Hub and sensors.

The Warranty Card shall be deemed valid provided that it is correctly and completely filled in by the Seller. Upon the purchase, the Customer shall check that both the Serial Number and the Model name of the device correspond to those indicated in the Warranty Card.

Incomplete or illegible Warranty Card shall be deemed not valid. In this case, it is recommended to contact the Seller and ask for a duly filled in Warranty Card. It shall be also allowed to provide the original of the sales/cashier's receipt or such other documentary evidence of the fact and the date of sale of the device. The date of sale shall be the date indicated on the sales/cashier's receipt or other relevant document. If the date of sale is not possible to be determined, the start of the warranty period shall be the date of manufacture of the device.

The Manufacturer shall guarantee that all materials, components and assemblies of **Perenio<sup>®</sup>** devices are free from defects under normal operation within the warranty period. The limited warranty shall be applied to the first End Customer of **Perenio<sup>®</sup>** devices only and cannot be transferred to a subsequent customer.

For warranty replacement, the device must be returned to the Seller along with its receipt. Warranty obligations for **Perenio<sup>®</sup>** devices shall be provided in the country of their purchase only.

## WARRANTY SERVICE PROCEDURE

In the case of any alleged defect or deficiency of the device detected, the Customer shall contact the Authorized Service Center before the warranty period expiration and provide the following:

1. The device with an alleged defect or deficiency.
2. The Warranty Card filled out in accordance with the applicable legal requirements, or the original of the document confirming the purchase of the device, including clear indication of the name and the address of the Seller, as well as the date when this device was sold.

## LIMITATION OF LIABILITY

**Perenio®** devices SHALL NOT BE SUBJECT TO a free warranty service in the case of identification of at least one of the following damages or defects:

- Any damage caused by force majeure, accidents, and willful or careless acts (omissions) of the Customer or third parties;
- Any damage caused by the impact of other objects including but not limited to exposure to moisture, dampness, extreme temperatures or environmental conditions (or jumps in such conditions), corrosion and oxidation, as well as penetration of food or liquid, and the effects of chemicals, animals, insects and byproducts thereof;
- In the event when the device (accessories and/or components) was unsealed (the seal integrity was violated), modified or repaired by any party other than the Authorized Service Center, including repair works using unauthorized spare parts;
- Any defects or damage caused by improper or unintended use of the device, including operation contrary to available manuals;
- Any defects caused by attempts to connect to incompatible software;
- Any defects caused by natural wear and tear of Products, including bags, casings, batteries or Installation and Operation Manuals;
- In the event when the Serial Number (Name Plates), the date of manufacture or the Model name on the device casing was in any way removed, erased, affected, altered or made illegible;
- In the case of violation of operating procedures and conditions, as well as the device installation instructions described in relevant Manuals;
- Cracks, scratches and other defects caused as a result of transportation and/or operation of the device by the Customer or acts of negligence on their part;
- Mechanical damages that occurred after transferal of the device to the Customer including damage caused by sharp objects, bending, squeezing, falling, etc.;
- Any damage caused by non-conformity with the standards of power supply, telecommunication and cable networks or similar external factors.

THE PRESENT LIMITED WARRANTY IS AN EXCLUSIVE AND THE ONLY PROVIDED GUARANTEE THAT SHALL REPLACE ANY OTHER EXPRESS AND IMPLIED GUARANTEES. THE MANUFACTURER SHALL PROVIDE NO GUARANTEES, WHETHER EXPRESS OR IMPLIED, BEYOND THE DESCRIPTION CONTAINED IN THE PRESENT DOCUMENT, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE CUSTOMER MAY USE DEFECTIVE OR INAPPLICABLE DEVICE AT HIS/HER OWN DISCRETION. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR DAMAGE TO OTHER PROPERTY CAUSED BY DEVICE DEFECTS, THE LOSS OF USABILITY OR TIME OR FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGE OR LOSS INCLUDING BUT NOT LIMITED TO COMMERCIAL LOSS, LOSS OF PROFITS, LOSS OF CONFIDENTIAL OR OTHER INFORMATION, AS WELL AS DAMAGES CAUSED BY BREAKS IN COMMERCIAL OR PRODUCTION ACTIVITIES DUE TO THE FACT THAT THE DEVICE WAS RECOGNIZED AS FAULTY, DEFECTIVE OR NOT ALLOWED FOR USAGE.

The present limited warranty shall provide the Customer with certain legal rights. The Customer may also have other rights in accordance with the local consumer protection laws that vary from country to country and may not coincide with this limited warranty. For full understanding of the Customer's rights, you shall read local acts.

**NOTE.** The Manufacturer does not produce equipment for *Vital Tasks*. Vital Task Products shall include life support systems, medical equipment, implantation-related medical devices, commercial transportation, nuclear equipment or systems, and any other fields of application where equipment failures may do harm to a humans' health or cause their deaths, as well as result in a property damage.

## 5 Storage, Transportation and Disposal of Devices

**Perenio®** Smart Security Kit may be shipped by any kind of covered vehicles (by rail, or road or in sealed heated airplane compartments, etc.) in accordance with the requirements of current regulatory documents applicable to fragile goods sensitive to moisture.

Similar conditions shall apply to the device storage at the Seller's warehouse.

It is also required to comply with the temperature and humidity conditions of storage and operation specified in the Table of technical specifications of the present Manual.

For disposal of devices and/or batteries, the User shall observe rules of the Directive on Waste Electrical and Electronic Equipment (WEEE) according to which all electric and electronic products, as well as batteries must be disposed of separately at the end of their service life. Such devices and accessories must not be disposed of together with unsorted municipal waste due to their potential to cause harm to the environment.

For the device disposal purposes, it shall be returned to the point of sale or to the local processing center.

For detailed information on recycling of the present device, please contact your waste management company.

**NOTE.** The User must comply with the temperature and humidity conditions of storage and transportation specified in the Table of technical specifications of the present Installation and Operation Manual.

## 6 Other Information

### Manufacturer

|              |                                                          |
|--------------|----------------------------------------------------------|
| Name         | <i>Perenio IoT spol s r.o.</i>                           |
| Address      | Na Dlouhem 79, Ricany – Jazlovice 251 01, Czech Republic |
| Contact Info | perenio.com, info@perenio.com                            |

### Importing Company

#### Croatia

|         |                                          |
|---------|------------------------------------------|
| Name    | <i>ASBISc-CR d.o.o.</i>                  |
| Address | Slavonska avenija 24/6, 10000 Zagreb, RH |

#### Czech Republic

|         |                               |
|---------|-------------------------------|
| Name    | <i>ASBIS CZ, s.r.o.</i>       |
| Address | Obchodní 103, Čestlice, 25101 |

#### Poland

|         |                                        |
|---------|----------------------------------------|
| Name    | <i>ASBIS POLAND Sp. z o.o.</i>         |
| Address | Ul. Krasnowolska, 17A, 02-849 Warszawa |

### Quality Claims Acceptance and Warranty Service Company

#### Croatia

|         |                                          |
|---------|------------------------------------------|
| Name    | <i>ASBISc-CR d.o.o.</i>                  |
| Address | Slavonska avenija 24/6, 10000 Zagreb, RH |

#### Czech Republic

|         |                               |
|---------|-------------------------------|
| Name    | <i>ASBIS CZ, s.r.o.</i>       |
| Address | Obchodní 103, Čestlice, 25101 |

#### Poland

|         |                                        |
|---------|----------------------------------------|
| Name    | ASBIS POLAND Sp. z o.o.                |
| Address | Ul. Krasnowolska, 17A, 02-849 Warszawa |

## Info on Certificates and Declarations

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certificates | Verification of Conformity to EC Council Directive 2014/53/EU (Report No. 50138967 001 as of 27/04/2018 and Report No. 50138967 002 as of 25/05/2018) by TUV Rheinland; Certificate of Constancy of Performance #1008-CPR-MC 69257986 0001 as of November 10, 2017; EU-Type Examination (Module B) Certificate #18-210982 as of May 5, 2018                                                                                        |
| Declarations | TUV Test report #50102219 001 as of September 29, 2017 (EN 15604:2005/AC:2008); Declaration of Conformity to RoHS and REACH as of April 19, 2018; Test Verification of Conformity #GFT-OP-11b as of March 7, 2017; EMC Test Report #STS183222E01 as of March 27, 2018; Test Report #STS183222A01 as of March 29, 2018; Radio Test Report #STS183222W01 as of March 31, 2018; Radio Test Report #STS183222W02 as of March 31, 2018. |

Addresses of Service Centers are available at [perenio.com](https://perenio.com) in the 'Support' Section.



## 7 Troubleshooting

Table 8 below shows typical errors and problems that may occur in the process of connection and configuration of the Smart Security Kit.

Table 8 – Typical Errors and Troubleshooting Methods

| Item No                          | Problem                                                                      | Possible Reasons                                                 | Solution                                             |
|----------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------|
| Perenio® PEACG01 Control Gateway |                                                                              |                                                                  |                                                      |
| 1                                | Initial connection of the CG to Wi-Fi failed                                 | Incorrect settings of the Control Gateway                        | Restore factory settings (See par. 2.2 herein)       |
| 2                                | The Control Gateway does not power up                                        | Failure of the power supply of incorrect power supply range      | Check power supply connections or power supply range |
| 3                                | The CG does not activate in the app when Ethernet-connected                  | Connection via an Ethernet cable is temporary unavailable        | Connect the CG via the Wi-Fi.                        |
| 4                                | The Sensor is not detected by the Control Gateway                            | The sensor is too far away from the CG                           | Reduce the distance between devices                  |
|                                  |                                                                              | Low battery level of the sensor                                  | Replace the sensor battery                           |
| Perenio® PECSS01 Smoke Sensor    |                                                                              |                                                                  |                                                      |
| 1                                | An alarm immediately after the sensor is powered on                          | High dust content of the sensor or high vapor content in the air | Clean the sensor from dust or ventilate the room     |
| 2                                | Short beeps after the sensor is powered on, as well as absent or faint alarm | Low battery level of the sensor                                  | Change the battery                                   |

| Item No | Problem                                 | Possible Reasons                   | Solution                                          |
|---------|-----------------------------------------|------------------------------------|---------------------------------------------------|
| 3       | Absent or poor alarm                    | Low battery level of the sensor    | Change the battery                                |
| 4       | No alarm after pressing the test button | The battery is improperly inserted | Observe the polarity of the battery in the sensor |
|         |                                         | Low battery level of the sensor    | Change the battery                                |

#### **Perenio® PECLS01 Leak Sensor**

|   |                                                     |                                                                      |                                                                                      |
|---|-----------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1 | No alarms in the case of leakage                    | Two leakage detectors are not in a full contact with the liquid      | Level the sensor properly on a horizontal surface                                    |
| 2 | Alarms in the absence of leaks                      | The surface between leakage detectors contains liquid                | Dry the surface in the area of leak detectors                                        |
| 3 | The sensor changes status to "offline" unexpectedly | Low battery level of the sensor, or it is out of the ZigBee coverage | Change the battery or reduce the distance between the Sensor and the Control Gateway |

#### **Perenio® PECWS01 Door & Window Sensor**

|   |                                                  |                                                        |                                                                                                                            |
|---|--------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1 | The faulted status of the sensor or false alarms | The gap between the Sensor and the Magnet exceeds 2 cm | Check that the gap between the Sensor and the Magnet in the closed position of the door/window and fastening of the device |
|   |                                                  | Damage of the Sensor or the Magnet                     | Call the service center                                                                                                    |
| 2 | The sensor does not activate                     | Low battery level                                      | Change the battery                                                                                                         |

| Item No                                          | Problem                                | Possible Reasons                                                               | Solution                                                                       |
|--------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>Perenio<sup>®</sup> PECMS01 Motion Sensor</b> |                                        |                                                                                |                                                                                |
| 1                                                | The sensor triggers unexpectedly       | Low battery level of the sensor or heat emission in the sensor field of vision | Change the battery or remove thermal objects from the sensor area of detection |
| 2                                                | The sensor does not connect to the CG  | Too long distance or obstacles between the sensor and the CG                   | Remove obstacles or reduce the distance between the sensor and the CG          |
| 3                                                | Reset to factory settings doesn't work | Low battery level                                                              | Replace the battery                                                            |

## 8 Glossary

|                      |                                                                                                                                                                                                                                                                                                               |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3M Tape</b>       | Double-sided mounting tape which is a rubber or acrylic adhesive applied on both sides of the foam. It is used in order to avoid drilling holes and using fasteners                                                                                                                                           |
| <b>ABS</b>           | Modern synthetic polymer with a high level of impact resistance and elasticity                                                                                                                                                                                                                                |
| <b>CG</b>            | The <b>Perenio®</b> PEACG01 Control Gateway                                                                                                                                                                                                                                                                   |
| <b>DSP</b>           | The Digital Signal Processor is a special microprocessor designed to ensure digitized signal handling (usually, in real time mode)                                                                                                                                                                            |
| <b>IoT</b>           | The Internet of Things is a system of Internet-connected devices able to collect and exchange data coming from built-in services                                                                                                                                                                              |
| <b>IP21</b>          | The class of protection of the device casing indicating that its internal parts are protected from penetration of fingers or objects longer than 80 mm, as well as solid bodies larger than 12 mm. Such device is protected from vertically falling drops and condensation and is suitable for unheated rooms |
| <b>IP67</b>          | Degree of protection of the casing indicating that the device is fully protected from the penetration of dust and is suitable for short immersion in water under conditions established by the manufacturer                                                                                                   |
| <b>Location</b>      | General designation of a building or premises where the <b>Perenio®</b> Control Gateway                                                                                                                                                                                                                       |
| <b>MicroSD</b>       | A small-sized electronic memory device that is used for storage of digital information                                                                                                                                                                                                                        |
| <b>NTSC</b>          | The color analog television system adopted in the USA, Japan, South Korea and some other Asian countries                                                                                                                                                                                                      |
| <b>Perenio Smart</b> | Software developed by <i>Perenio IoT</i> for remote control of wireless Cameras from smartphones                                                                                                                                                                                                              |
| <b>PIR Sensor</b>    | The passive infrared sensor with a pyroelectric sensing element that responds to changes in heat emission                                                                                                                                                                                                     |
| <b>QR Code</b>       | The quick response code which represents a matrix barcode containing information about the object to which it is linked                                                                                                                                                                                       |

**RTC**

The Real Time Clock is an electronic circuit for tracking the current time, date, day of the week, etc. As a rule, such a circuit has a self-contained power supply, which ensures operation even when the main device is turned off

**Viewing Angle**

The area that falls into the field of viewing of the Sensor

**ZigBee**

A network protocol designed for secure transmission of data at low speeds, which is recognized for an extremely low power consumption