



# nuwave PD-29 Wireless Presence Detection Monitor User Manual

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**nuwave PD-29 Wireless Presence Detection Monitor**



## Introduction

Before installing the AirSentric PD-29 Presence Detection Monitor please give this manual a thorough read through. The manual provides all of the important information to help you successfully install the monitor and set up your online monitoring account. Please retain this manual for future reference. The PD29 is an all-in-one audio, light and motion sensing device design specifically for occupancy detection. It is a combination of three separate sensors which detects sound levels in dBA, illuminance in Lux and PIR motion. The PD29 can be used in conjunction with other products from NuWave and from the AirSentric range. The device monitors sensor data online using NuWave's HEX software platform and API.

## Hardware Configuration

The AirSentric PD-29 Presence Detection Monitor comes equipped with a Zigbee wireless module, which enables multiple monitors to be installed in a single environment/area. Each unit then communicates back to a single internet enabled network point – the Data Hub – which connects to the online monitoring account.

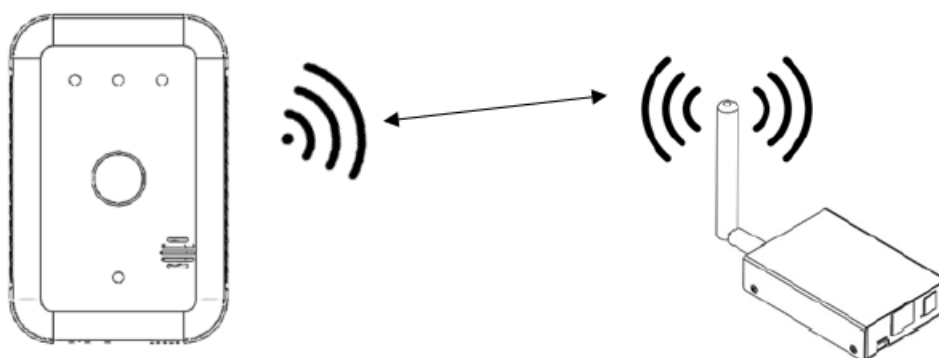


Figure 1 → PD29 wireless setup with Ethernet gateway unit

## Hardware Installation

### Requirements for Installing the PD29 System

In order to install the system, there must be access to the following;

- Access to a power connection
- Access to a wired internet connection for the gateway
- Once power is supplied and the data gateway is connected the unit will need to be added to your online monitoring account.

**Note:**

- Do not place your PD29 monitor near any heat source such as a radiator or at a window or direct sunlight as this can have an impact on sensor readings
- Place PD29 within range of your wireless network.
- Place in an open space – avoid placing in areas where objects or furniture could obstruct readings.

**Power Supply**

The PD29 Sensor includes a 12V power supply adapter. The adapter converter can operate at 100 – 240VAC (47-63Hz) and is compatible with the mains power network of most continents.

**Mounting Location**

The PD29 can be wall mounted, using the included mounting plate. anchor points on the baseplate. It is recommended that where possible all 4 mounting holes are used when securing the unit to a wall.

Please note: The unit is designed to be wall mounted vertically

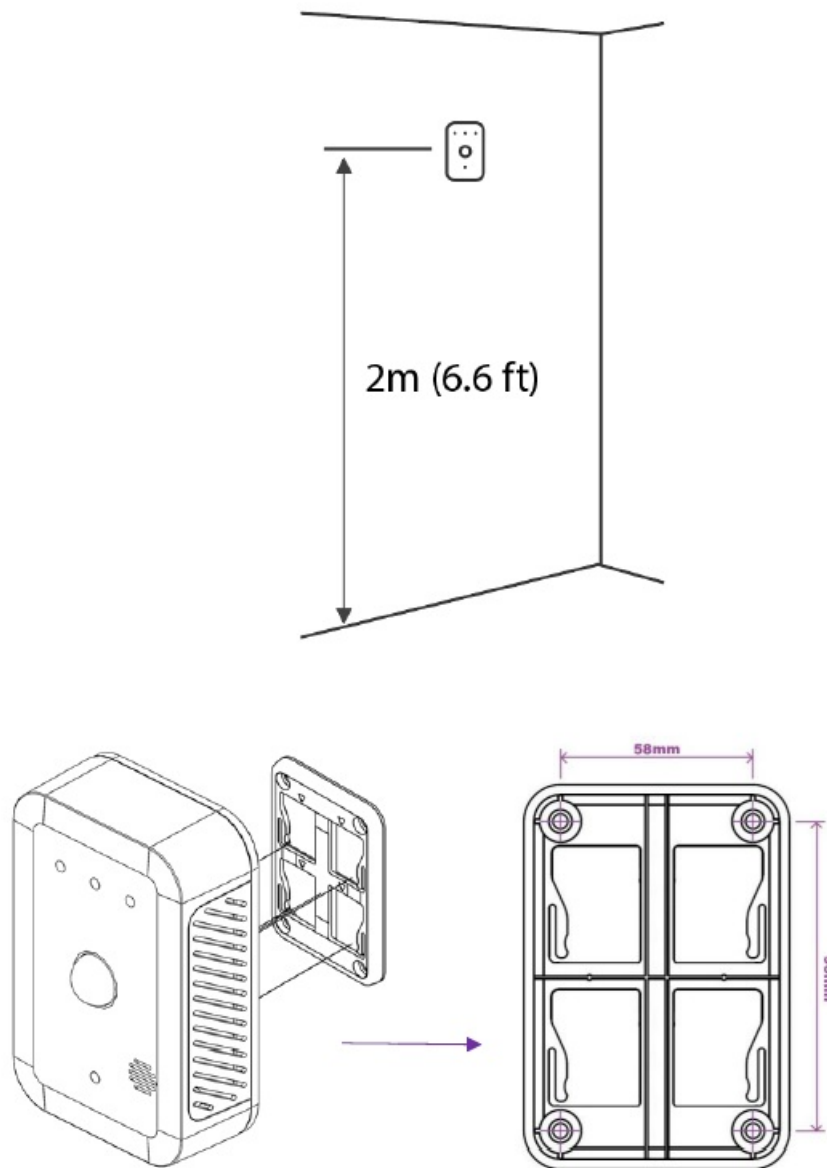
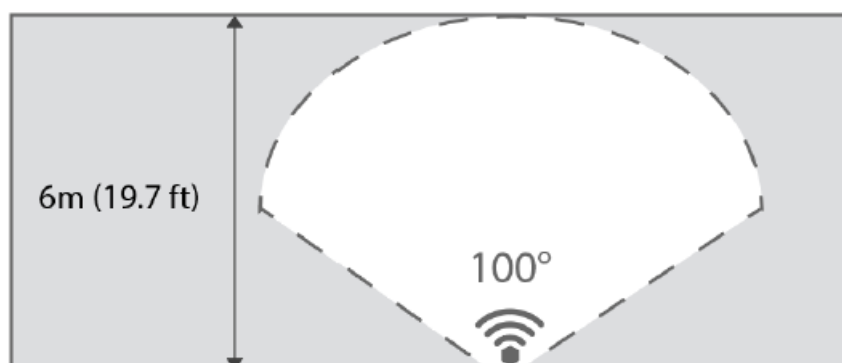


Figure 2 → Wall mounting points for the PD29

### Operating Range and Specification Motion Sensor

- Range: Up to 19.7 ft (6 m)
- Detection Angle: 100°
- Motion Output: 0-100
- Motion Resolution: 1



## Sound Level Sensor

- Audio Output: 30 – 130 dBA
- Audio Accuracy: +/- 1.5 dBA

## Light Sensor

- Ambient Light output: 0 – 88000 Lux
- Ambient Light sensitivity: 188 µLux

## Internet Connection

### Wireless Ethernet Gateway Connection

Your wireless monitor will need to be in range of the gateway – this can vary per building from 20 metres to 100 metres depending on building fabric

- To set up the Gateway please connect the Ethernet cable provided to the DATA HUB and then connect to an Ethernet point or a spare Ethernet port on your router.
- Power on the device after connecting the supplied power supply. The device will power on automatically and establish a connection with the PD29 Sensor.

**Please note:** It can take up to 5 minutes for the gateway to pair with the monitor. You can check its status by viewing the sensor's dashboard for data arriving online.

### Network Configuration

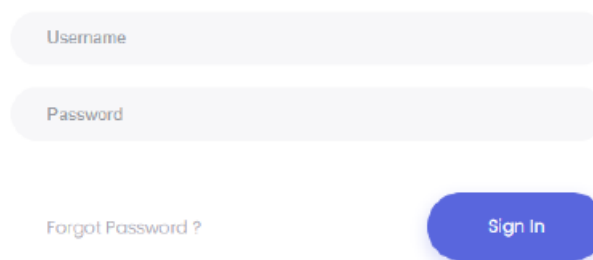
The DATA HUB will also by default automatically configure itself to your network settings using DHCP. It is possible to configure the sensor to connect to a static IP address. Please see page 12 of this manual to complete this step.

## Online Software Setup

### Online Account Setup

To set up your online account to remotely monitor your IAQ monitor please navigate to <https://hex2.nuwavesensors.com/> on your computer internet browser. On the webpage you will be prompted to sign in or create an account. As this is your first time to access the account please click 'Create Account' just under the sign in section.

### Login to HEX account



A login form for the HEX account. It features two light blue rounded rectangular input fields. The first field is labeled 'Username' in a small, light blue font. The second field is labeled 'Password' in a small, light blue font. Below the password field, there is a link that says 'Forgot Password ?' in a small, light blue font. To the right of the password field is a blue rounded rectangular button with the text 'Sign In' in white.

### Account Registration

Please complete the form in order to complete the sign-up process. If you have any issues, please contact support at: [info@nuwavesensors.com](mailto:info@nuwavesensors.com) quoting the serial number of your monitor and gateway (found on the

sticker on the back of both devices).

Username

Required. 150 characters or fewer. Letters, digits and @/./+/-/\_ only.

Email

Password

- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

Password confirmation

Enter the same password as before, for verification.

Organisation or Business Name

Register

## Setting up Your Sensor Using the Online Account

### Adding a Sensor

After logging in for the first time the first page you will see is the Home Page – where you can add a new sensor and view the list of installed sensors. To add your new sensor, click 'Add Sensor' and complete the form based on your sensor details;

- Sensor Id: Please enter the 16-digit sensor ID – this is the code on the sticker on the back of your sensor.
- Sensor Name: Example; Cleanroom 2A
- Sensor Group: Completing this field allows you to create groups of sensors based on your preference – example; 1st Floor. You can also leave this blank if you do not wish to create a group.

Manage Sensors

[Home](#) > [Manage Sensors](#)

+

[Click Here to add a new sensor](#)

Sensor Settings

Sensor Id

000D6F0000123456

Sensor Name

Utility Room

Add Sensor

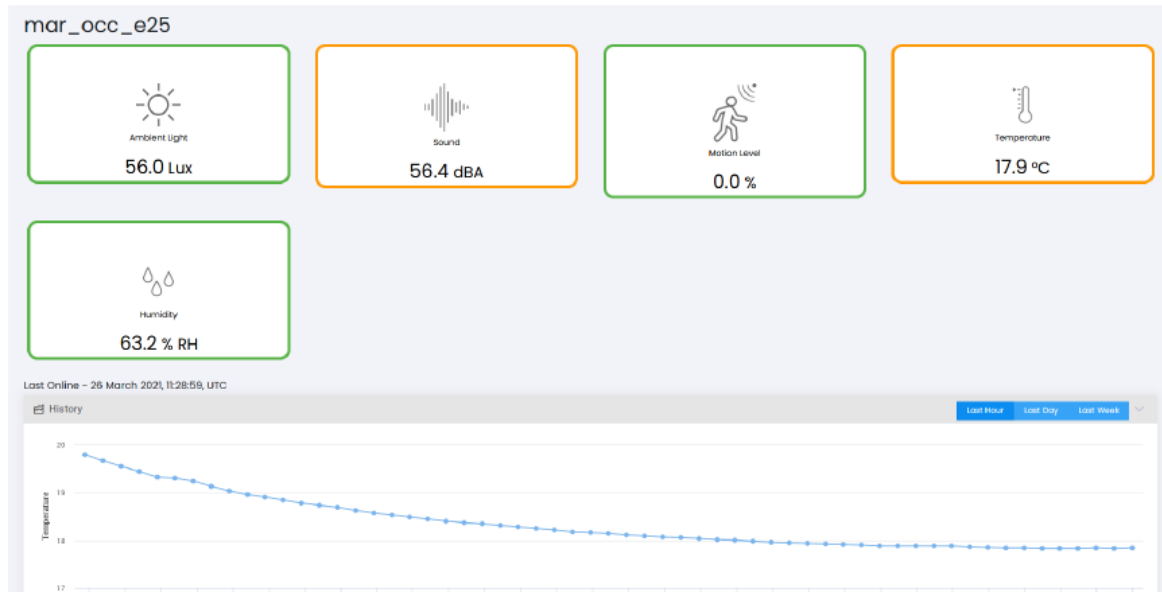
Once you have completed the above form click 'Add Sensor' button at the end of the form and your sensor will be added. To add another sensor at any time please repeat the steps above.

## Viewing and Managing Sensor Data

After setting up the sensor and gateway correctly as well as adding your sensor after logging in you should now start to see data arriving on the sensor monitoring page. If you do not see data arriving after a period of 15 minutes please refer to the gateway configurations setting in the troubleshooting section of this manual (page 21).

### Sensor Status:

Here you can view the current sensor readings as well as the current temperature and humidity reading from your monitor.



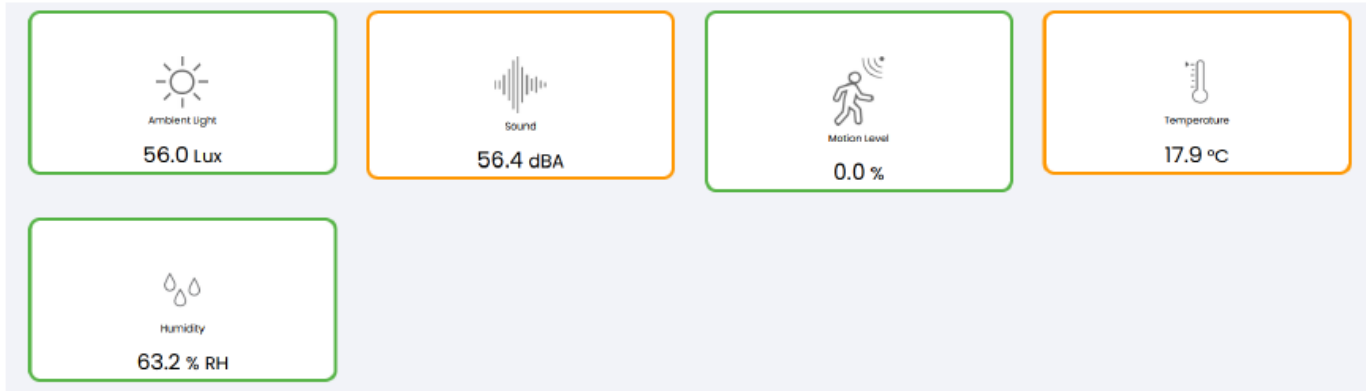
### Graphing Options:

Data arriving on the website will be visible on the sensor graph. You can change between graph views of 1 hour, 12 hour or 24 hours.



### Sensor Indexes

Each sensor widget has a colour coded band that changes in response to sensor measurements and indicates the measurement intensity level in the case of the environmental sensors what is considered to be comfortable and healthy.



#### Motion Sensor:

The index values are displayed based on a 0-100 motion intensity range. The values are based on the level of motion recorded in the previous 60 seconds. 0 = no motion detected in the previous 60 seconds 100 = motion detected for all of the previous 60 seconds A measurement in between indicates varying levels of motion detected.

| Motion Intensity | Index Values |
|------------------|--------------|
| Low              | 0-1          |
| Moderate - High  | 1-50         |
| High             | 50-100       |

#### Sound Sensor:

The index values are displayed based on a dBA Sound Level. ,The values are based on the average level of sound recorded in the previous 60 seconds.

| Sound Level     | Index Values |
|-----------------|--------------|
| Low             | 30-50 dBA    |
| Moderate - High | 50-80 dBA    |
| High            | 80-130 dBA   |

#### Light Sensor:

The index values are displayed based on ambient light output measured in Lux. The values are based on the average Lux levels recorded in the previous 60 seconds.

| Light (Lux) Level | Index Values |
|-------------------|--------------|
| Low               | 0-500 Lux    |
| Moderate - High   | 500-1000 Lux |
| High              | > 1000 Lux   |

#### Temperature & Humidity:

The following index is used to determine the optimal values for temperature and humidity based on building occupant comfort levels and what is considered to be healthy for the respiratory system.



|                      | OK            | Fair            | Poor            |
|----------------------|---------------|-----------------|-----------------|
| H <u>u</u> midity    | 35 - 65%      | 25% - 35% /     | <25% / >80%     |
|                      |               | 65% - 80%       |                 |
| T <u>e</u> mperature | 18 °C - 24 °C | 15 °C - 18 °C / | <15 °C / >28 °C |
|                      |               | 24 °C - 28 °C   |                 |

### Export CSV data:

For a longer-term view of the data or for detailed analysis you can download a CSV file of your data at any time. Due to download file size limitations this is limited at 1 weeks' worth of data per download. The link to download your data will be e-mailed to the e-mail address registered with the account.

### Sensor Management Settings

At the bottom of each sensor you will find the sensor management settings. From here you can manage settings such as re-naming the sensor.

**Note:** To save and changes make sure and click 'Submit Change' at the bottom of the form.


### User Profile Settings

On the settings page you can edit and manage your user account details including;

- Change Password
- Change e-mail address associated with the account
- Address Location

Once any changes have been made click the 'Save Changes' button.

Home > Pages > Account Settings > User settings Actions



NuWave Sensors

- User Settings
- Gateway Settings
- Help

### PROFILE ACCOUNT

User Info Change Avatar Change Password

First Name

Last Name

E-mail address

Location Address

Account Activation Key

## API

NuWave Sensors offers a RESTful API to monitor devices connected to our HEX monitoring software. Resources regarding the API for your installed monitors is available at the following link address:

<https://hex2.nuwavesensors.com/api/docs/>

## Gateway Network Configuration

The DATA HUB gateway is configured to use DHCP by default. This automatically detects network settings on most standard networks and the sensor will be able to send data online without changing any settings.

If you need to configure a port on your network for the gateway the port and server address details are as follows:

- Remote Port Number: 58122
- Remote Server Address: gateway2.nuwavesensordata.com

You can also edit the network settings and assign a static IP using the gateway web interface of the gateway which is accessible using an internet browser. To access the gateway you must know the IP address which can be found using the MAC address of the gateway (located on the bottom of gateway).

When prompted, enter the following username and password;

- Username: admin
- Password: 'admin' or 'alpha'

If you have any issues, please contact [info@nuwavesensors.com](mailto:info@nuwavesensors.com)

|                 |   |   |
|-----------------|---|---|
| Current Status  | <p>Module Name: <b>Gateway</b></p> <p>Firmware Revision: 3010</p> <p>Current IP Address: 192.168.1.108</p> <p>MAC Address: d8-b0-4c-c0-0e-7f</p> <p>Run Time: 9day: 1hour: 17min</p> <p>TX Count(ETH) : 58985642/ bytes</p> <p>RX Count(ETH) : 0/ bytes</p> | <p>help</p> <ul style="list-style-type: none"> <li>• <b>Run time:</b><br/>run time means the minutes since latest reboot</li> <li>• <b>TX/RX Count:</b><br/>TX/RX count give us a calculation of the total byte we have been received or send.</li> </ul> |
| Local IP Config |   |   |
| TTL1            |   |   |
| Web to Serial   |   |   |
| Misc Config     |   |   |
| Reboot          |   |   |

|                 |  |  |
|-----------------|--|--|
| Current Status  | <p>IP type: DHCP/AutoIP ▾</p> <p>Static IP: 192 · 168 · 0 · 7</p> <p>Submask: 255 · 255 · 255 · 0</p> <p>Gateway: 193 · 168 · 0 · 100</p> <p>Save Cancel</p> | <p>help</p> <ul style="list-style-type: none"> <li>• <b>IP type:</b><br/>StaticIP or DHCP</li> <li>• <b>StaticIP</b><br/>Module's static ip</li> <li>• <b>Submask</b><br/>usually 255.255.255.0</li> <li>• <b>Gateway</b><br/>Usually router's ip address</li> </ul> |
| Local IP Config |  |  |
| TTL1            |  |  |
| Web to Serial   |  |  |
| Misc Config     |  |  |
| Reboot          |  |  |

|                 |   |  |
|-----------------|---|--|
| Current Status  | <p>Baud Rate: 19200 bps</p> <p>Data Size: 8 bit</p> <p>Parity: None ▾</p> <p>Stop Bits: 1 bit</p> <p>Flow Control and RS485: None ▾</p> <p>Local Port Number: 23</p> <p>Remote Port Number: 58122</p> <p>Work Mode: TCP Client ▾ None ▾</p> <p>Remote Server Addr: <a href="http://gateway2.nuwavesensordata.com">gateway2.nuwavesensordata.com</a></p> <p>Timeout: 0 seconds (&lt; 256, 0 for no timeout)</p> <p>UART packet Time: 0 ms (&lt; 256)</p> <p>UART packet length: 0 chars (&lt;= 1460, 0 for no use)</p> <p>Sync Baudrate(RF2217 similar): <input type="checkbox"/></p> <p>Save Cancel</p> | <p>help</p> <ul style="list-style-type: none"> <li>• <b>baud:</b><br/>300~1024000bps(300 and 485 can only up to 115200bps)</li> <li>• <b>flowcontrol and RS485</b><br/>default RS485</li> <li>• <b>local port</b><br/>1~65535. when TCP Client, set this to 0 means use random local port</li> <li>• <b>remote port</b><br/>1~65535</li> <li>• <b>packet time</b><br/>1~255ms,default 10ms;when baud &lt;=4800bps, pls set packet time to 50 ms</li> </ul> |
| Local IP Config |   |  |
| TTL1            |   |  |
| Web to Serial   |   |  |
| Misc Config     |   |  |
| Reboot          |   |  |

|                 |   |   |
|-----------------|---|---|
| Current Status  | <div> <div>Module Name: <input type="text" value="Gateway"/></div> <div>UPnP port number: <input type="text" value="6432"/></div> <div>weberver port number: <input type="text" value="80"/></div> <div>Module Id(use for indentify modue): <input type="text" value="1"/> (1~65535)</div> <div>Module Id type: <input type="text" value="0"/> (0/1/2/3)</div> <div>MAC Address: <input type="text" value="d8-b0-4c-c0-0e-7f"/></div> <div>User name: <input type="text" value="admin"/></div> <div>Pass word: <input type="password" value="admin"/></div> <div> <input type="button" value="Save"/> <input type="button" value="Cancel"/> </div> </div> | help  |
| Local IP Config |   | <ul style="list-style-type: none"> <li>• <b>module name</b><br/>max length is 15 char</li> </ul>              |
| TTL1            |   | <ul style="list-style-type: none"> <li>• <b>Web port</b><br/>default 80</li> </ul>                            |
| Web to Serial   |   | <ul style="list-style-type: none"> <li>• <b>ID and ID type</b><br/>we could use it for D2D</li> </ul>         |
| Misc Config     |   | <ul style="list-style-type: none"> <li>• <b>Mac address</b><br/>user could modify this MAC address</li> </ul> |
| Reboot          |   |   |

## Important Precautions

Caution! This device is recommended for use indoors and in a dry location only.

- Take care when using PD29 to route the power cable in a way that reduces the risk of injury to others, such as by tripping or choking.
- Do not cover or obstruct vents around the PD29 sensor.
- only use the power adapter supplied with PD29.
- Do not insert anything through the vents.
- Do not inject gas, dust or chemicals directly into the PD29 sensor.
- Do not use this device near water.
- Do not drop or subject the device to undue shock.
- Do not place in insect-infested areas. Insects can block vent openings to the sensors.

PD29 is designed to be maintenance free, but you should keep it clean and avoid dust build up – especially around the air vents of the sensor which can reduce performance.

To clean PD29:

1. Turn off mains power and remove the power adapter plug from PD29.
2. Wipe the outside with a clean, slightly damp cloth. Don't use soap or solvents!
3. Very gently vacuum around the vents of the PD29 sensor to remove dust obstructing the vent openings.

### Note:

- Never use detergents or solvents on your PD29 sensor or spray air fresheners, hair spray or other aerosols near it.
- Do not place PD29 in water or let water get inside the PD29 sensor.
- Do not paint your PD29 sensor.

## Recycling and disposal

The WEEE symbol on this product means that PD29 should be disposed of separate from ordinary household waste at the end of its life in accordance with local regulations. Please take PD29 to a collection point designated

by your local authority to be recycled to help conserve natural resources.

## **Product Warranty**

### **Limited Product Warranty**

THIS LIMITED WARRANTY CONTAINS IMPORTANT INFORMATION ABOUT YOUR RIGHTS AND OBLIGATIONS, AS WELL AS LIMITATIONS AND EXCLUSIONS THAT MAY APPLY TO YOU AS PART OF THE TERMS AND CONDITIONS OF SALE IN EFFECT AT THE TIME THAT YOU PURCHASE A NUWAVE SENSOR TECHNOLOGY LIMITED PRODUCT.

#### **What this warranty covers?**

NuWave Sensor Technology Limited ("NuWave") warrants to the original purchaser of this PD29 sensor (the "Product") shall be free of defects in design, assembly material, or workmanship under normal use for a period of one (1) year from the date of purchase (the "Warranty Period"). NuWave does not warrant that the operation of the Product will be uninterrupted or error-free. NuWave is not responsible for damage arising from failure to follow instructions relating to the Product's use. This Limited Warranty does not cover software embedded in the Product and the services provided by NuWave to owners of the Product. Refer to the licence agreement accompanying the software for details of your rights with respect to their use.

### **Remedies**

NuWave will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product). Any replacement hardware product will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer. In the event that NuWave is unable to repair or replace the product (for example, because it has been discontinued), NuWave will offer either a refund or a credit towards the purchase of another product from NuWave in an amount equal to the purchase price of the product as evidenced on the original purchase invoice or receipt.

#### **What is not covered by this warranty?**

The warranty is null and void if the Product is not provided to NuWave for inspection upon NuWave's request, or if NuWave determines that the Product has been improperly installed, altered in any way, or tampered with. The NuWave Product Warranty does not protect against floods, lightning, earthquakes, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances such as brownouts, non-authorised program or system equipment modification, alternation or other external causes.

### **How to Obtain Warranty Service**

Please review the online help resources at [nuwavesensors.com/support](http://nuwavesensors.com/support) prior to seeking warranty service. To get service for your PD29 sensor you must take the following steps;

1. Contact NuWave Sensors customer support. Customer Support contact information can be found by visiting [www.nuwavesensors.com/support](http://www.nuwavesensors.com/support)
2. Provide the following to the customer support agent;
3. The serial number found on the back of your PD29 sensor
4. Where you purchased the product
5. When you purchased the product
6. Proof of payment
7. Your customer service representative will then instruct you on how to forward your receipt and your PD29 as well as how to proceed with your claim.

NuWave reserve the right to review the damaged NuWave product. All costs of shipping the Product to NuWave for inspection shall be borne by the purchaser. Damaged equipment must remain available for inspection until the claim is finalised. Whenever claims are settled NuWave reserves the right to be subrogated under any existing insurance policies the purchaser may have.

### Implied Warranties

EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) SHALL BE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some jurisdictions do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you.

### Limitation of Damages

IN NO EVENT SHALL NUWAVE BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY NUWAVE PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

### Statutory Rights

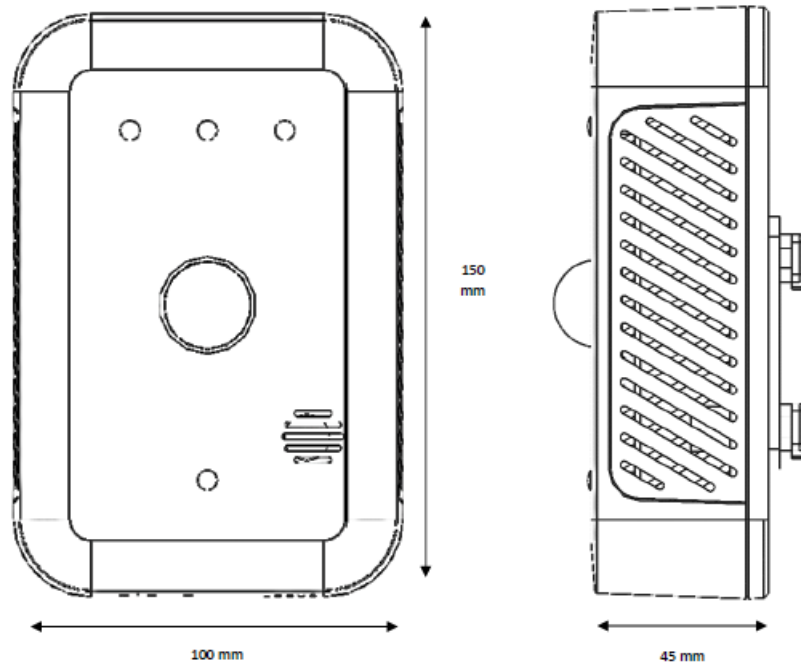
This warranty gives you specific legal rights, and you may have other rights, depending on your jurisdiction. These rights are not affected by the warranties in this Limited Warranty.

## Appendix

### Troubleshooting

| Problem                                 | Possible Issue                      | Solution  |
|---|-------------------------------------|---|
| No data arriving online after 5 minutes | Outside of wireless range           | The wireless range of the sensor can vary greatly depending on the building fabric and can vary by as much as 20m to 100m. To test this please plug the PD29 SENSOR in close range to the DATA HUB. Data should arrive online after about 5 minutes. In this case the Data Hub will need to be re-positioned closer to the sensor location. |
|   | Ethernet Cable not firmly connected | Power off both the DATA HUB and PD29 SENSOR by plugging out the power supplies.<br><br>Please ensure that the Ethernet cable is firmly connected to both the DATA HUB gateway and the port on your broadband router. Apply power to both devices and check to see if data arrives after 5 minutes.  |

### PD29 Dimensions



## PD29 Specifications

|               |                           |                                    |
|---------------|---------------------------|------------------------------------|
| Motion Sensor | Motion Sensor range       | 6m (19.7 ft)                       |
|               | Motion Sensor Output      | 0-100                              |
|               | Motion Sensor Resolution  | 1                                  |
| Light Level   | Ambient Light output      | 0 – 88000 Lux                      |
|               | Ambient Light sensitivity | 188 $\mu$ Lux                      |
| Sound Level   | Sound Level Range         | 30 – 130 dBA                       |
|               | Sound Sensor Accuracy     | +/- 1.5 dBA                        |
| Temperature   | Temperature Range         | 0 to 50 °C                         |
|               | Temperature Accuracy      | (at -10 to 85 °C) $\pm$ 1 °C (max) |
| Humidity      | Temp Sensor Stability     | < 0.01 °C/Y                        |
|               | RH Range                  | 5 to 95% RH continuous             |
|               | RH Accuracy               | (at 0-90% RH) $\pm$ 5% RH (max)    |
|               | RH Sensor Stability       | < 0.25 %RH/yr                      |

|                 |                       |   |
|-----------------|-----------------------|---|
| Size and Weight | Size                  | Size (LxWxD) - 4in (100mm) x 6in (150mm) x 1.8in (45mm) |
|                 | Weight                | 340g (enclosure weight without power adapter)           |
| Connectivity    | Zigbee                | Zigbee using GY36 Gateway (30m / 100ft range)           |
| Power           | Power Supply          | 100-240V International Adapter, DC 12V +/- 10%, 420mA   |
|                 | Power Consumption     | 250mA @ 12V   |
|                 | Operating Temperature | 0°C to 50°C ( 32 F to 122 F)                            |

|             |   |
|-------------|---|
| Accessories | Wall Mount Bracket is supplied                                |
| Calibration | Cloud Dashboard with no subscription fee for standard account |
| Software    | API available   |

## Documents / Resources



[nuwave PD-29 Wireless Presence Detection Monitor](#) [pdf] User Manual  
PD-29, Wireless Presence Detection Monitor, PD-29 Wireless Presence Detection Monitor, Detection Monitor