PARADOX

PMD85M

Outdoor Motion Detector with Pet Immunity

INSTALLATION MANUAL

Version - 1.0

Introduction

The Paradox PMD85M is a digital outdoor, dual-optic high-performance Passive Infrared (PIR) motion detector. It communicates with the Paradox M systems using 2-way wireless communication, featuring the latest Gaussian Frequency Shift Keying (GFSK) technology with frequency and encryption hopping. This ensures superior wireless range, enhanced encryption, supervision, reliability, and extended battery life. This motion detector comes with different lenses such as PMD85M Standard, PMD85ML1 (Horizontal), and PMD85ML2 (Vertical), each designed for specific detection requirements. For more information, see the Detection Field section in this manual.

The PMD85M also features patented animal immunity, enabling it to identify humans while ignoring animals weighing up to 40 Kg (90 lbs).

Quick Installation - Experienced Installers

To install PMD85M:

1. Open the detector, and then remove the battery holder and PCB.
2. Fix the backplate.
3. Insert the battery holder and the PCB. Close the detector.
4. Perform a walk test.
5. Pair **PMD85M** with the console (Using the BlueEye application):
    - Go to: **Hardware** > Tap **+** on the top-right of the page >**Auto learn devices**. **NOTE**: *You can instantly pair PMD85M by pressing the **Learn** button, or by opening the tamper or a zone.*
6. Configure PMD85M (Using the BlueEye application):
    - Go to: **Hardware** > Tap **PMD85M** from the device list > Enter the necessary details > **Save**.

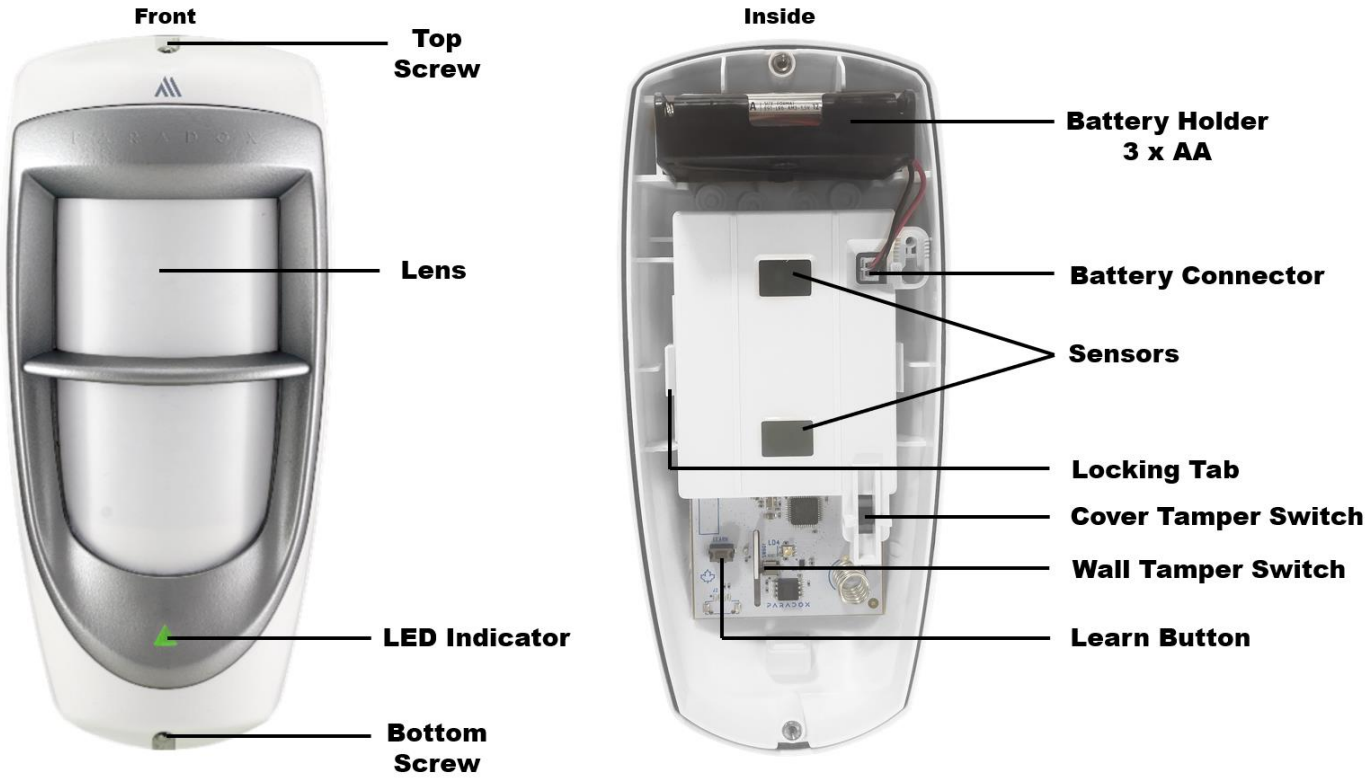
Built-in status indications of PMD85M:

- Red Blinking 3 times - Not connected to the console; the device is defaulted (new or unpaired).
- Red (3 seconds) - Not connected to the console; but the device is paired.
- Green (3 seconds) - Detection and transmission occurred (maximum twice within 3 minutes)

- Green Blinking - Two detections within 3 minutes and goes to ***Cool-down*** mode.
- Red/Green - After tamper is detected, the device blinks red and green alternately for 3 seconds. After the tamper is resolved and the device is closed, the device blinks green for 3 seconds.
- Green Blinking (30 seconds) - PIR stabilization is in progress (after power-up).

Components of PMD85M

The following figure displays the components of PMD85M.



Components of PMD85M

Detection Field

The optimal installation height for the detector is 2.1m (7 ft). Mounting the detector at a lower height may reduce its detection range while mounting it higher could reduce the performance of the lower detection beams.

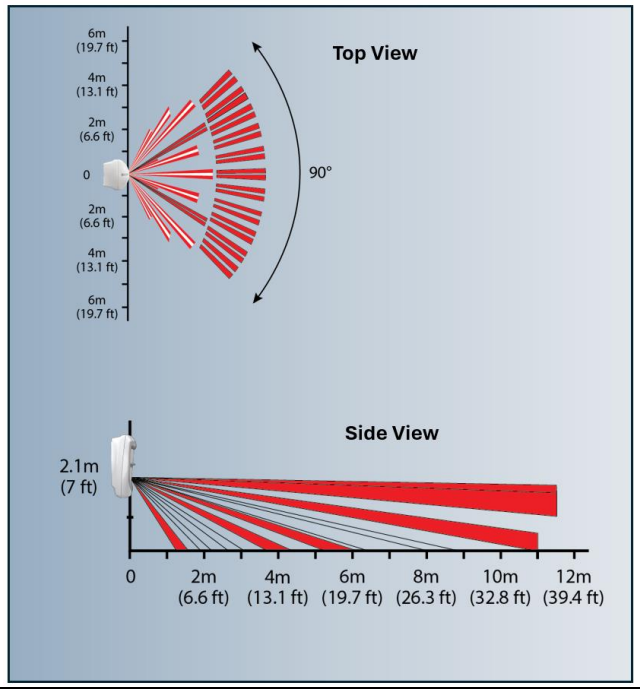
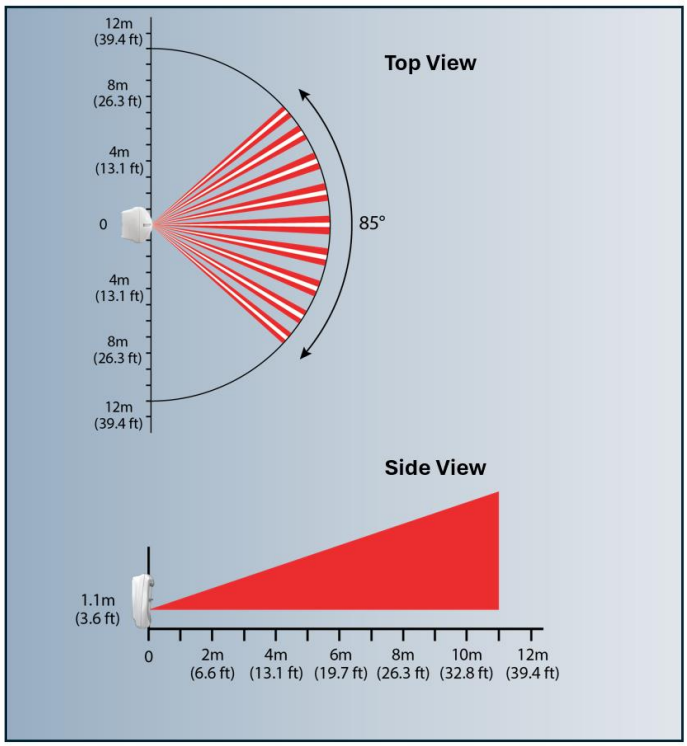
NOTES:

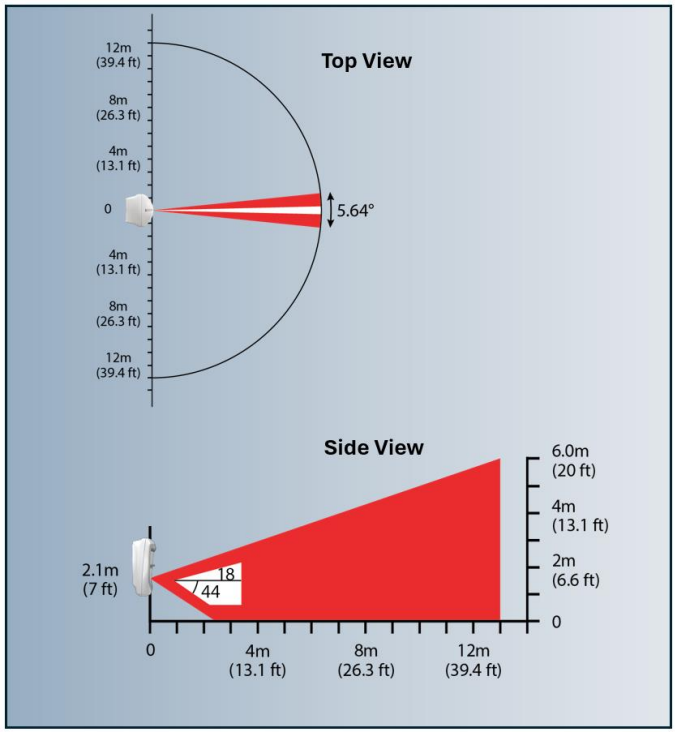
- *The PMD85M has additional optical filters to secure against detection from direct sunlight or car headlights, however, try to locate the detector avoiding direct sunlight or in front of cars approaching headlights.*
- *The PMD85M can be installed on the wall or, if needed, using the Paradox Heavy Duty Swivel Mount Bracket (SB85).*

The different lenses of PMD85M provide varying coverage areas and are designed for specific types of motion detection based on the layouts and use cases.

The following table lists the different types of lenses and their specifications.

Lenses	Coverage Angle & Pet Immunity	Distance	Installation Height	Specifications

PMD85M (Standard)	• 90^0 • Pet Immunity - 40kg (90lbs)	11m x 11m (35ft x 35ft)	2.1m (6.89ft)	• Standard detection range • Used for covering medium-sized areas, both in residential and commercial settings. 
PMD85ML1 (Horizontal Curtain Beams)	• 85^0 • Pet Immunity - Multi/large pet	11m x 11m (35ft x 35ft)	1.1m(3.6ft)	• Provides narrow and focused horizontal curtain beam patterns. • Ideal for environments where you need to monitor a narrow and extended area such as long hallways, driveways, or corridors. 

PMD85ML 2 (Vertical Curtain Beams)	• 5.640 • Pet Immunity - NA	13m (43ft) x 2 beams	2.1m (6.89ft)	• Provides narrow vertical curtain beams. • Ideal for monitoring doorways, windows, or the perimeter of a space where you need to detect movement passing through a vertical plane. 

Pet Immunity

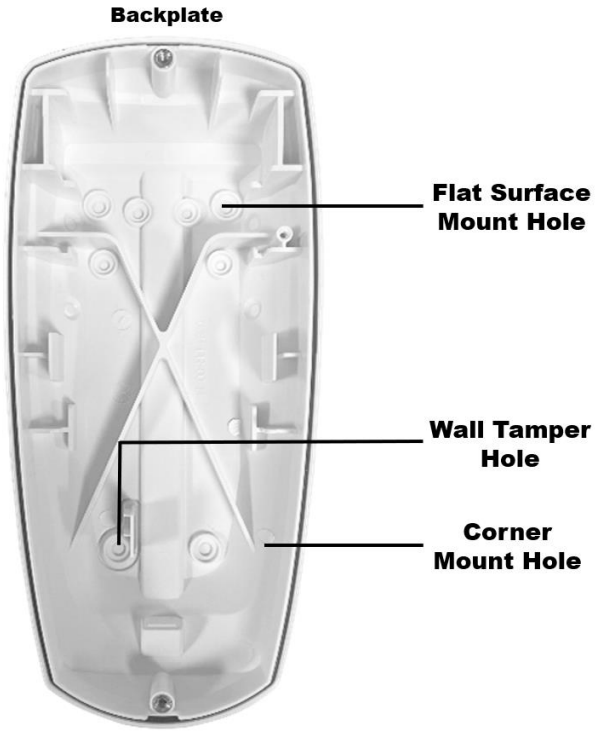
The PMD85M detector offers pet immunity for animals weighing up to 40 kg (90 lbs). When an animal of this size moves close to the ground, it cannot cross enough beams at once to trigger an alarm. This minimizes false alarms caused by pets while maintaining accurate detection of human intrusions.

Physical Mounting

CAUTION: *Avoid placing the detector within proximity of sources of interference such as direct sunlight, reflective surfaces, and moving cars.*

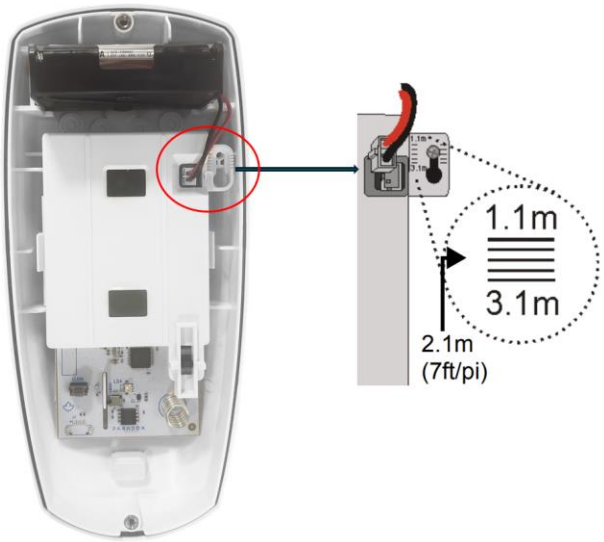
To mount the PMD85M motion detector:

1. Release the front screws (top and bottom) from the PMD85M motion detector and remove the front cover.
2. Remove the battery holder from the backplate.
3. Release the screw from the device board and pull apart the locking tabs to lift the board.
   CAUTION: *Do not touch the sensors on the device board, as this may lead to malfunction. If contact occurs, clean the sensor surface using a soft cloth moistened with pure alcohol.*
4. Fix the backplate on the wall.
   NOTE: A*s per the EN security standards, one screw must be secured in the tamper hole. The use of double-sided tape does not trigger a wall tamper alarm.*



5. Reattach the device board to the backplate and tighten the screw.
6. Remove the battery tab (present only if the battery is included with the product) from the battery holder. Ensure that the three ***AA*** Lithium batteries in the compartment are installed with the correct polarity.
7. Insert the battery holder into the backplate.
8. Connect **Battery Connector**.
   The PMD85M is powered on. After the PMD85M detector is powered on, it enters a walk-test mode for 15 minutes. For more information, see the Walk Test section in this manual.
9. Reattach the front cover and tighten it using the screw at the bottom.

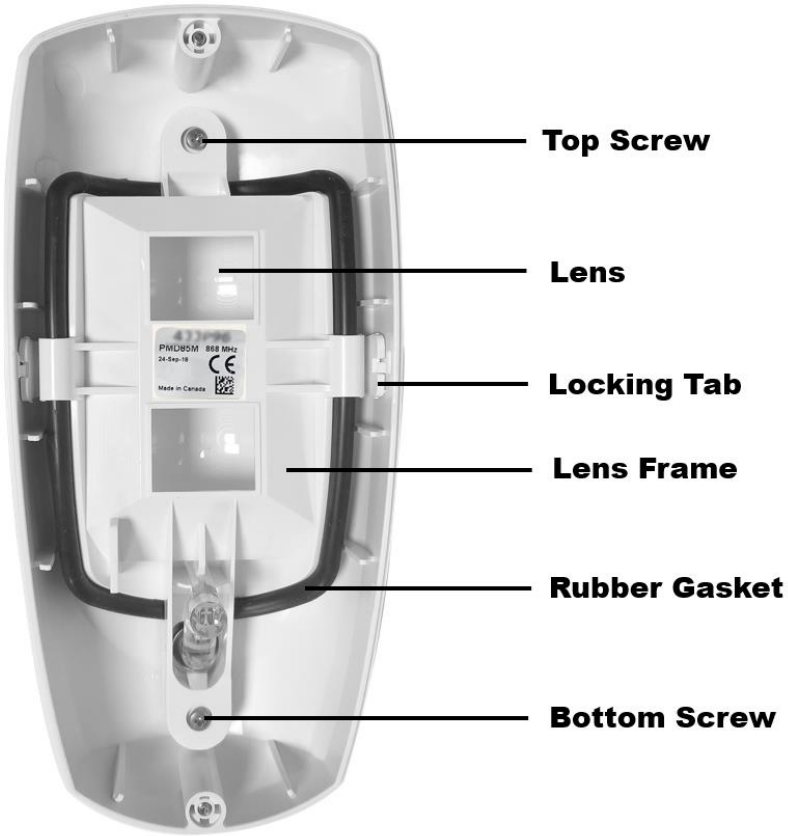
If needed, adjust the height of the device board to match the installation height after mounting the detector. For example, if the detector is installed at a height of 2.1m (7 ft), the device board should be adjusted to 2.1m (7 ft) height.
NOTE: *Any device board adjustments should be followed by a walk test.*



Power-up Sequence

During the power-up sequence, the LED will flash five times red if the device is not paired to the console or five times green if paired to the console. The PMD85M waits between 0-10 seconds before connecting/pairing with the console. If the cover of the device is open, green and red LEDs will flash quickly.

Changing the PMD85M Lens



To change the PMD85M lens:

1. Remove the top and bottom screws from the inside of the front cover that hold the lens frame in place
2. Push and lift the locking tabs on both sides using a flathead screwdriver.
3. Gently lift out the lens frame, remove the lens, and then replace it with a new one.
4. Align the lens tabs with the rubber gasket and secure it back into place. **NOTE**: *Ensure that there are no gaps between the lens and the rubber gasket that could allow water to leak into the PMD85M.*
5. Reattach the lens frame and secure it with screws.

Pairing PMD85M with the Wireless M Console

The pairing and configuration settings of PMD85M are managed through the BlueEye application.

Prerequisites

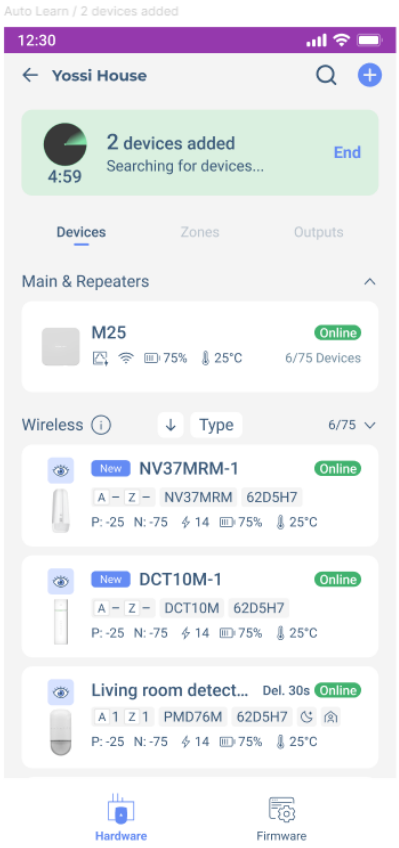
Ensure that:

1. The PMD85M is within the range of the console.
2. The BlueEye application is installed on your mobile and connected to the site.
3. The M console is powered on (Paradox logo color - white, red, or green).

Pairing PMD85M

To pair the PMD85M with the wireless console by an installer:

1. In BlueEye, when in the **Hardware** tab, tap **+** on the top-right of the page, and then tap **Auto learn wireless devices**.
   The wireless console searches for new devices and a rotating radar icon is displayed. All unpaired devices pair within 6 minutes and appear at the top of the device list with a ***new*** tag and voice announcements. You can open the front cover of the detector and press the **Learn** button momentarily, or open the tamper or a zone.



To identify the device that you want to pair, you can either open or close the zone, or trigger the device tamper, and then check the device's screen in the BlueEye application to see the corresponding display. When you open or close the zone, an eye icon displayed beside the device name shows opening and closing. When you trigger the device tamper, a T symbol appears on the device name in the BlueEye application.

Pairing Previously Used Devices

You can pair used devices under the following conditions:

- **When the previously used device is not online with another wireless console:** Start auto-learn. Open the device or press the **Learn** button momentarily for immediate pairing, or wait up to 6 minutes for automatic pairing.

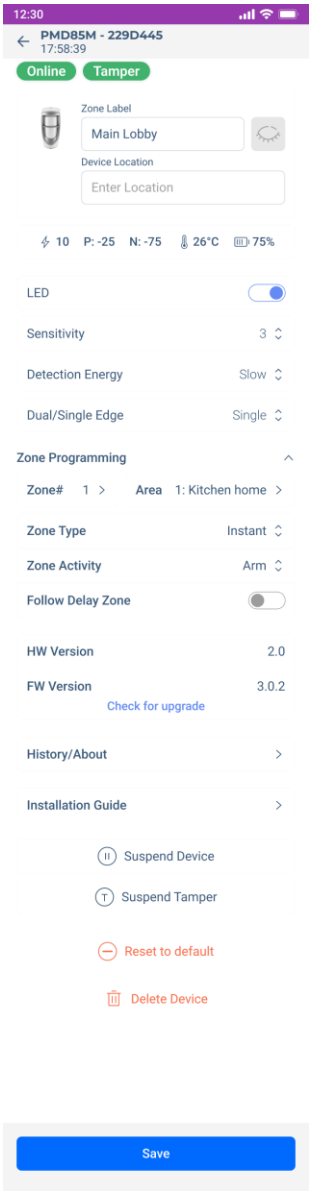
- **When the previously used device is online with another wireless console:** Press and hold the **Learn** button for 8 seconds to reset the device to its default settings. Reset is indicated by the LED flashing red three times. Once the reset is complete, initiate auto-learn.
  NOTE: *Ensure the device is not connected or paired with the previous console before resetting the device.*

Configuring PMD85M

To configure the PMD85M settings:

1. When in the **Hardware** tab, tap PMD85 from the device list if the device is already paired.

2. On the page that opens, enter the necessary details for the parameters and then tap **Save**. For details about each parameter displayed on the page, see Table 1.



The following table lists the parameters displayed for configuring the PMD85M, along with their descriptions.

Table 1

Parameter	Description
Zone Label	Enter a name for the zone.
LED	Determines whether the LED indications for the device are enabled or disabled.
Sensitivity	The sensitivity levels range from **1 - Low** to **5 - High**. Default is 3. • **5 - High** – High sensitivity mode detects smaller, subtle movements; useful for high-security areas or when precise detection is needed.

		• **1 - Low** – Low sensitivity mode requires larger movements to trigger detection. It is recommended in areas where the incidence of false alarms from vibrations may be greater.
Detection Energy		Adjust the energy level required to trigger an alarm. • **Slow** is the standard setting for normal detection. • **Fast** (Default)– You can use this option if there is a risk of false alarms due to factors such as strong sunlight reflections, air conditioning drafts, or moving curtains.
Dual/Single Edge		This setting determines the Digital Signal Processing (DSP) operational mode of the detector. • **Single**: Best for normal environments with little interference. • **Dual** (default): Offers better protection against false alarms, especially when the detector is near sources of interference.
Zone Programming	**Zone#** and **Area**	Assign a zone and area number.
	Zone Type and **Zone Activity**	Select the type of zone – Instant, Delay, 24 hours when the device is active in the Arm, Stay, or Sleep modes. The following are the different zone types: • **Instant** – When in any armed status, an immediate alarm occurs. However, a delay period can be added to the **Instant** zone when arming in the Stay and Sleep modes. • **Delay** – When a zone is opened, it triggers an entry delay in any arming mode. • **24 hours** – Always armed. The system remains in alarm as long as this zone is open. The system can be armed even if the 24-hour zone is in alarm.
	Follow Delay Zone	This zone is instant and becomes a delay zone if a delay zone is opened first.
About		This tab displays details such as the installation date, production date, last programming date, battery replacements, battery history, and upgrade history.
Suspend Device		Disables monitoring of the device in the system.
Suspend Tamper		Disables tamper monitoring for the device.
Reset to Default		This will reset the device to the factory default settings. **NOTE**: *Only an installer can reset the device.*
Delete Device		This option deletes the device from the system completely. After deletion, the system generates a push notification only if the owner registration is complete, not during installation. **NOTE**: *Only an installer can delete the device.*

LED Indications

After configuring PMD85M, it displays various LED indications based on specific events.
The following table lists the LED indications and their corresponding event.

Table 2

LED	Magnet
Red Blinking 3 times	Not connected to the console; the device is defaulted (new or unpaired).
Red (3 seconds)	Not connected to the console, but the device is paired.
Green (3 seconds)	Detection and transmission occurred (maximum twice within 3 minutes
Green Blink	Two detections within 3 minutes and goes to ***Cool-down*** mode.

Red/Green	After tamper is detected, the device blinks red and green alternately for 3 seconds. After the tamper is resolved and the device is closed, the device blinks green for 3 seconds.
Green Blinking (30 seconds)	PIR Stabilization is in progress (after power-up).

Resetting

Press and hold the **Learn** button for 8 seconds to reset the device to its default settings. Reset is indicated by LED flashing red three times.

Upgrading Firmware

To upgrade the firmware:

1. In the **Hardware** tab, tap on the device > **Check for Upgrade**.
2. If an upgrade is available, tap **Upgrade** when prompted.
   The process may take a few minutes. Keep track of the progress in the BlueEye application to ensure that the upgrade is completed successfully. Both the Installers and owners can perform the upgrade.

Signal Strength and Transmit Power Monitoring

The BlueEye application provides insights into each device's received signal strength and transmission power to optimize performance.

To view the RSSI and transmit power range:

1. When in the **Hardware** tab, tap the ⓘ icon next to the **Wireless** tab.
   A pop-up window with the RSSI and transmit power range is displayed.
2. Maximum power transmitted by PMD85M:
   - 868 MHz: +14 dBm
   - 914 MHz: +22 dBm

Tap on any listed device to view signal strength and additional device metrics. The following parameters are displayed for each device:

- **P** - Received signal strength at the panel

- **N** - Received signal strength at the device
-  - Transmit power of the device.
-  - Current temperature reading of the device.
-  - Battery level of the device

A higher P and N value indicates stronger and clearer communication between the console and the device.

- If **P** is low, the console struggles to receive signals from the device.
- If **N** is low, the device struggles to receive signals from the console.

NOTE: *Values below -93 with maximum Tx power are not recommended values, and RPT5M can be used to extend the range.*

Power transmission impacts only **P**:

- When **power transmission** increases, the **P** value at the console generally improves, as a stronger signal is sent.
- If **P** value is good, the device can reduce its transmission power to save battery life.

Walk Test

After powering on the detector or opening/closing the cover (if already powered on), the detector enters a walk-test mode for 15 minutes. Perform the following walk test to ensure the motion detector detects movement in the intended area.

Steps:

1. Walk across the detection field, moving in and out of the detector's range.
2. Observe LED Indications.
3. If the motion detector doesn't pick up movement as expected, adjust its height or location and re-test.

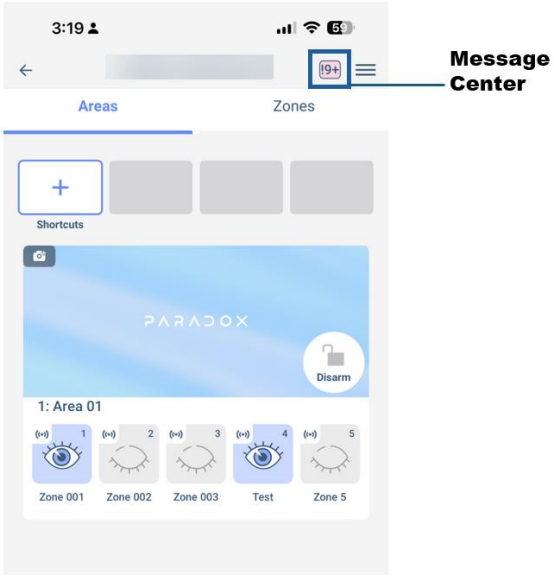
With **Sensitivity** set to **5 - High**, and **Detection Energy** set to **Fast,** then crossing two beams is detected as a movement. With **Sensitivity** set to 1 - **Low,** the amount of movement required to generate detection is doubled. The detector exits the walk-test mode after 15 minutes. To reactivate it, open the cover of the device to trigger the tamper switch, and then close the cover.

Cool-Down Mode

The PMD85M motion detector indicates detection with a 3-second green LED display (or 3-second red if the detector is not paired or connected to the console). After two detections within 3 minutes, the PMD85M enters a ***Cool-down*** mode to conserve battery life. During this period, it is indicated by a green blink (or red if not paired), but this signal will not be transmitted to the console. The detector exits the ***Cool-down*** mode after 3 minutes.

Dual Tamper Protection

The PMD85M motion detector is equipped with dual tamper protection (wall and cover). If the system is armed, any tamper activation immediately triggers a system alarm. When the system is disarmed, a tamper activation generates a report to the CMS, sends a push notification, and displays a tamper trouble alert in the BlueEye application.



Technical Specifications

The following table lists the technical specifications of PMD85M along with their descriptions.
NOTE: *The specifications are subject to change without prior notice.*

Table 3

Specification	Description
Wireless Type	GFSK two-way with frequency and encryption hopping
Sensor Type	Dual element infrared (x2)
Coverage	90° - 11m (36 ft) x 11m (36 ft)
Detection Speed	0.2m to 3.5 m/s (0.6 ft to 11.5 ft/s)
RF Frequency	868 (865.05 - 867.95) MHz or 914 (902.25 - 927.55) MHz Other countries might change
RF power	868 MHz up to +14 dBm radiated, 914 MHz up to +22 dBm in permitted countries.
Transmission Time	Less than 20 ms
Supervision Time	20 minutes, 10 minutes (Default), and 3 minutes
Status Indicators	Battery, temperature, TX/RX values
Battery Lithium	3 x AA, up to 5 years of battery life
Installation Environment	Indoor
Firmware Upgrade	Remotely over the air, via BlueEye
IP Rating	IPX4
Operating Temperature (with lithium batteries)	-20°C to +40°C (-4°F to 104°F)
Auto Learn	Yes
Colors	White
Dimensions	8.3W x 17.5H x 7.4D cm (3.29W x 6.9H x 2.9D in.)
Weight	0.27 kg
Certification	CE, EN 50131-2-2, EN 50131-6, EN 50131-5-3, FCC 15.247

FCC Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

WARNING – RF EXPOSURE COMPLIANCE: This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.

FCC ID: KDYPMD85M
IC: 2438A-PMD85M

- This Class B digital apparatus complies with Canadian ICES-003.

IC Statements

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Warranty

For complete warranty information on this product, see the Limited Warranty Statement document, or contact your local Paradox distributor.

Patents

US, Canadian, and international patents may apply. Paradox is a trademark or registered trademark of Paradox Security Systems (Bahamas) Ltd.