PARADOX

PMD780M

Outdoor Dual-Side View Motion Detector

INSTALLATION MANUAL

FW Version: V1.02.000

Introduction

The Paradox PMD780M is an outdoor, M wireless, dual-side view 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.

The PMD780M detector is configurable to report as a single unit/Zone (two side detectors reporting to a single zone output) or as dual units/ two zones (each side reporting to a separate zone). The optics are specially designed to provide multiple narrow beams for excellent detection covering up to 12m (39.37 ft) for each side, and based on dual detection from two separate detectors on each side (a total of four detectors), to prevent false alarms.

Quick Installation - Experienced Installers

To install PMD780M:

1. Open the detector, remove the battery holder and PCB.
2. Fix the backplate.
3. Insert the battery holder and the PCB. Close the detector.
4. Slide up or down the white tab on the lens frame to adjust the detection range.
5. Push in or pull out the lens tray to set the angle to 0^0 or 3^0 with the wall.
6. Pair PMD780M with the console (Using the BlueEye application):
   - Go to: **Hardware** > **Add Devices** > **Wireless Devices Auto learn/Scan QR code or add devices manually** (by entering serial number).
     NOTE: *You can instantly pair PMD780M by pressing the **Learn** button, or by opening the tamper or a zone.*
7. Configure PMD780M (Using the BlueEye application):
   - Go to: **Hardware** > Tap PMD780M from the device list > Enter the necessary details > **Save**.

Built-in status indications of PMD780M:

- 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 the 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 (50 seconds) - PIR stabilization is in progress (after power-up).

NOTE: *The low battery voltage threshold of the PMD780M is 3.6V, and the battery is considered restored at 4.1V (on power-up only).*

Components of PMD780M

The following figure displays the components of PMD780M.

Components of PMD780M

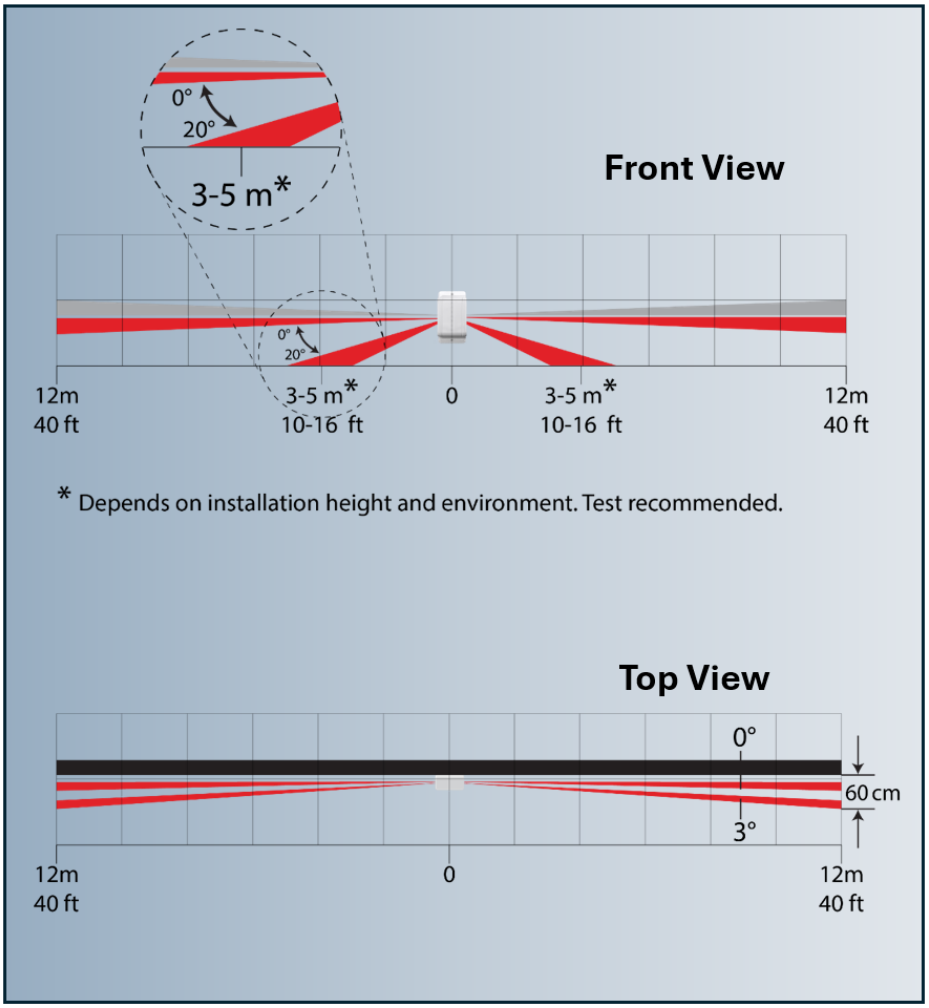
Detection Field

The detection patterns below show when the detector is installed at a height of 1.5 meters (4.9 feet) above the floor level. You can install it lower, but keep in mind that pets should not be in the protected area at a height equal to or higher than the installed height.

The NV780 can be installed at a height higher than pets, if any, in the protected area, usually 1 m to 1.5 m. When installed at 1.5m, the PMD780M creates a narrow detection beam pattern that detects up to 12m on each side. Detection can be reduced by moving the bottom beam down, reducing the range to about 3.5 m, as explained below:

When the bottom beam tab (white tab) is set to 0^0 (that is, the white tab is moved all the way up), the beam will be horizontal, parallel to the top beams, with a range of about 12 m. A moving person over 1.5 m will cross both beams and trigger detection. This is the optimal setting. To reduce the range, move the bottom beam down, up to 20^0, so that it touches the floor about 4 m from the detector. Move the beam down when you wish to reduce the range. Keep in mind that large pets may still trigger detection near the detector in this case.

NOTE: *EN approval applies only to the 12m range.*



NOTE: *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. Ensure no obstacles are blocking its detection field.*

Pet Immunity

The PMD780M 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

To mount the PMD780M motion detector:

1. Release the screws from the bottom and top of the PMD780M detector.
2. Remove the front cover, and then remove the main unit from the backplate.

3. Fix the backplate on the wall.
   NOTE: *As 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.*
4. Reattach the main unit to the backplate.
5. Remove the battery tab (present only if the battery is included with the product) from the battery holder. Ensure that three ***AA*** Lithium batteries in the compartment are installed with the correct polarity.
   NOTE: *Power input: 4.5Vdc = 3 x1.5VDC AA lithium batteries.*
6. Connect **Battery Connector**.
   The PMD780M is powered on.
7. Adjust the **detection range** of the lower beams.
   a. Gently push the white tab away from the lens holder (in the direction of the arrow shown in the image below).

   b. Slide the white tab up or down to set the detection range to one of the values below:
      - 0^0 – 12m (***Lower beams are horizontal and parallel to the top beams***); Slide the white tab all the way up for 0^0.
      - 5^0 – 10.5m
      - 10^0 – 7.5m
      - 15^0 – 5.25m
      - 20^0 – 3m to 5m (***Lower beams angle down toward the floor, covering a closer area to the detector***); Slide the white tab all the way down for 20^0.
   c. After adjusting the white tab, lock the white tab into the lens holder.
8. To adjust the beams with respect to the wall:

- For the beams parallel to the wall (0^0 from the wall) – Align the lens holder's top mark **0** with the top edge of the lens tray.

- For the beams at a 3^0 angle from the wall – Align the lens holder's top mark **3** with the top edge of the lens tray (or push down the lens holder to the bottom of the lens tray).

9. Reattach the front cover and tighten it using the screw at the bottom.

NOTE: *Maintain at least 40cm (15.7") clearance from the protected area (door or window).*

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 PMD780M 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.

Pairing PMD780M with the Wireless M Console

The pairing and configuration settings of PMD780M are managed through the BlueEye application.

Prerequisites

Ensure that:

1. The PMD780M 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 PMD780M

To pair the PMD780M with the wireless console by an installer:

1. In BluEye, when in the **Hardware** tab, tap **Add Devices** > **Wireless Devices Auto learn**. 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 for immediate pairing.

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:

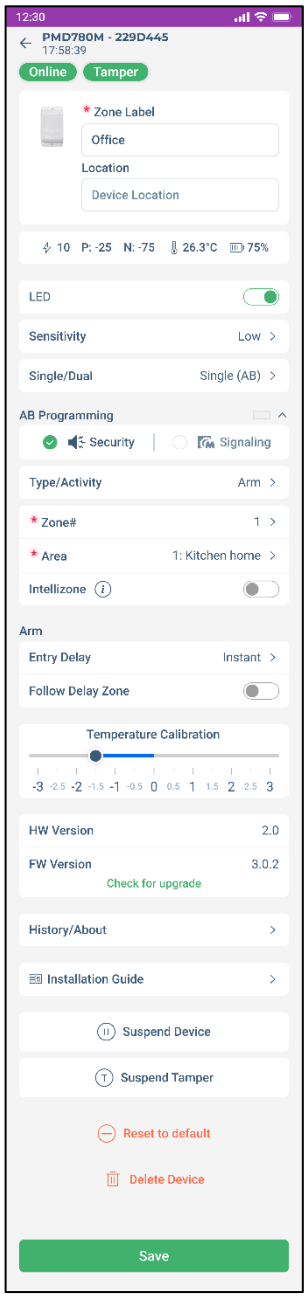
- **When the previously used device is not online with another wireless console:** Start auto-learn. Open the device or press the **Learn** button momentarily for immediate pairing, or wait up to 6 minutes for automatic pairing.

- **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 PMD780M

To configure the PMD780M settings:

1. When in the **Hardware** tab, tap **PMD780M** 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 PMD780M, along with their descriptions.

Table 1

Parameter		Description
LED		Determines whether the LED indications for the device are enabled or disabled.
Sensitivity		There are two sensitivity levels, **High** (default) and **Low**. • **High** sensitivity mode detects smaller, subtle movements; useful for high-security areas or when precise detection is needed. • **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.
Single/Dual		• **Single** (Default) – The detector reports as a single unit without separating the left and right sides. Any motion detected across the whole field of view will trigger an alarm. • **Dual (A and/or B)** – The detector divides its field of view into two separate zones – one on the left and the other on the right.
Zone Programming	**Zone#** and **Area**	Assign a zone and area number.
	Security	Configures the zone as a security input.
	Signaling	Any system input (from 200 selectable) can be assigned as a signaling input for home automation and PGM activation without being configured as a security zone. Inputs may be signaling-only or signaling plus a security zone. Signaling inputs appear in orange and signaling zones in green.
	Type/Activity	Select the type of zone. The following are the different zone types: • Arm • Arm/Sleep • Arm/Stay • Arm/Sleep/Stay

		• **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.
	Entry Delay	When this option is enabled, opening a zone triggers an entry delay in any arming mode. • **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. • 5 sec • 10 sec • 15 sec • 30 sec • 45 sec • 1 minute • 1.5 minute You can select the delay duration from the available options.
	Intellizone	When the **Intellizone** option is enabled for a device, the system will trigger an alarm under one of the following conditions, within the configured Intellizone Timer window (default: 30 seconds): • **Two separate openings** are detected within the timer period. • A **trigger from an Intellizone**, followed by a **trigger from any other zone** within the timer period. • The **same zone remains open** throughout the timer period. Intellizone is not available for any 24H zones.
Temperature Calibration		Allows manual calibration of the device's reported temperature to match the actual ambient temperature.
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 PMD780M, the device displays various LED indications based on specific events. The following table lists the LED indications and their corresponding event.

Table 2

LED Indication	Event
Red Blinking 3 times	Not connected to the console (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 (50 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.

NOTE: *If the device is already paired and online, delete the device first, then perform the reset on the device, and pair it again. Otherwise, the reset will have no effect.*

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.

IMPORTANT: The firmware upgrade can be done only when the system is disarmed.

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 PMD780M:
   - 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.

IMPORTANT: All nodes adjust their transmission power to save battery life. The adjustment depends on the surrounding noise level and is updated at intervals set by the supervision timer or during a node status update.

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 **High**, and **Detection Energy** set to **Fast,** then crossing two beams is detected as a movement. With the **Sensitivity** set to **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 PMD780M 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 PMD780M enters a ***cool-down*** mode to conserve battery life. The cool-down time is 3 minutes. 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.

Dual Tamper Protection

The PMD780M 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 PMD780M 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	4 x dual low-noise rectangular elements
Coverage	3m (9.8ft) – 12m (39.37ft) on each side at 1.5m / 4.9 ft. height
Detection Speed	0.2m / sec.– 4m/sec. (0.6 ft/sec.– 13.1 ft /sec.)
RF Frequency	868 (865.05 - 867.95) MHz or 914 (902.25 - 927.55) MHz May vary by region.
RF Power	868 MHz up to +14 dBm radiated, 914 MHz up to +22 dBm in permitted countries.
Humidity Range	95% max.
Transmission Time	Less than 20 ms
Supervision Time	20 minutes, 10 minutes (Default), and 3 minutes
Status Indicators	Battery, temperature, TX/RX values
Battery	3 x AA lithium, 6+ years of battery life with normal usage.
Installation Environment	Outdoor
Firmware Upgrade	Remotely over the air, via BlueEye
Operating Temperature	-20°C to +40°C (-4°F to 104°F)
Auto Learn	Yes
Colors	White
Dimensions	11W x 21H x 7D cm (4.3" W x 8.2" H x 2.7" D)
Weight	0.45 kg
Certification	CE, EN 50131-2-2, EN 50131-6, EN 50131-5-3, FCC 15.247, Security Grade – 2, Environmental Class – IVA Type of Power Supply – Type C Certification Body: Applica Test & Certification

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: KDYPMD780M
IC: 2438A-PMD780M

- This Class B digital apparatus complies with Canadian ICES-003.
- -Cet appareil numerique de la classe B est conforme à la norme NMB-003 du Canada.

IC Statements

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-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.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

AVERTISSEMENT – CONFORMITÉ AUX NORMES D'EXPOSITION AUX RF: Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps.

Warranty

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

Patents

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