

1. Overview

The MP-902 PG2 is a smart, wireless outdoor curtain PIR detector with anti-masking. It is supported by the PowerMaster alarm system and uses PowerG two-way communication protocol.

The detector has the following features:

- Two channel Pyro (patented) thermal sensor output
- Microprocessor-controlled temperature compensation
- White light protection
- Adjustable pet immunity selector with three options: no pet, a small pet weighing less than 3 kg or 6.6 lb, or a pet weighing less than 18 kg or 40 lb.
- Adjustable detection sensitivity
- Parabolic and elliptical optics (patented)
- Target Specific Imaging™ (TSI) technology distinguishes between humans and pets weighing up to 18 kg or 40 lbs
- True Motion Recognition™ algorithm (patented) distinguishes between the true motion of an intruder and any other disturbances which may cause false alarms.
- Cross-direction detection: both directions, left to right, and right to left.
- Active smart anti-masking ability recognizes spray and dust (patented)
- No vertical adjustment is needed.
- Long-life battery which is due to the ultralow current consumption
- Front and back tamper protection (patented)
- Supports temperature and light level reports according to the PowerG panel version

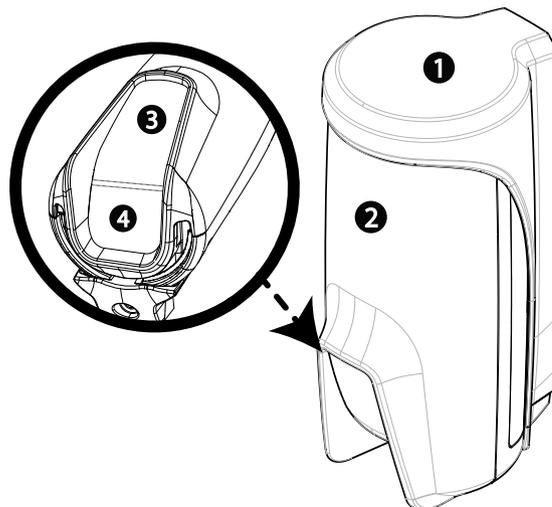


Figure 1: MP-902 PG2

1. Bracket
2. Detector
3. Indication LED
4. PIR optical window

Note: For UL installations, only use the device with UL listed control units.

2. Installation advice

Qualified service persons only can install the MP-902 PG2. Before you install the device, consider the following points:

Do:

- Install the MP-902 PG2 according to the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681.
- Mount the detector so that the expected movement of the intruder will cross the PIR beam.
- Mount the device on a vertical surface and as straight as possible.
- Mount the device upright. See Figure 2.
- Direct the detector at a stable surface, such as a wall or fence, to provide a curtain detection boundary for better detection.
- Mount the device at a height that agrees with your pet immunity preference. See [Setting the pet immunity](#) for more information.
- Consider weather conditions that can trigger false alarms, such as moving tree branches or leaves, and other related environmental conditions
- Locate the device at least 20 cm from all persons during normal operation to comply with FCC and ISED Canada RF exposure compliance requirements

Do not:

- Install the device over sloped ground. See Figure 3.
- Install the device close to tree branches as weather conditions can cause movement, resulting in false alarms
- Install the device in hazardous locations
- Install the device in areas with a pollution degree higher than pollution degree 2
- Install the device in circuits above overvoltages category II
- Obscure the field of view of the detector
- Co-locate or operate the antennas used for this product in conjunction with any other antenna or transmitter
- Mount the device on surfaces where surface vibration can occur

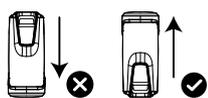


Figure 2:

Mounting orientation



Figure 3: Flat ground installation

Notes:

- PIR beams can extend past the set range coverage distance if you direct the detector at an open space.
- To calibrate the detector sensitivity to identify persons more accurately, set the detector detection range. For more information, see [Configuring the detector parameters](#).
- To protect a window, mount the detector on an upper corner of the window frame so that the PIR beams are parallel with the glass pane.

3. Mounting the MP-902 PG2

To mount the MP-902 PG2, complete the following steps:

1. Use the uppermost and middle holes in the device bracket to mark two holes in the mounting surface. See Hole Number 1 and Hole Number 2 in Figure 4.
2. Optional: To avail of tamper protection, use the bottommost hole in the break-away segment of the bracket to mark a third hole in the mounting surface. See Hole Number 3 in Figure 4.
3. Drill the required holes in the mounting surface according to the markings and insert the wall plugs. See Figure 5.
4. Fasten the bracket to the mounting surface with screws. See Figure 6.
5. Insert the batteries into the detector and close the battery cover. For more information, see [Inserting or replacing the batteries](#).
6. Insert the top of the detector into the bracket. As you insert the detector, choose a slot in the bracket that positions the detector to cover the area that requires protection. See Figure 7 and Figure 8.

Note: When you complete Step 6, a blinking LED indicates the start of the tamper self-calibrating procedure.

Note: When the detector is resting on the unscrewed bracket, it can be rotated freely to a more exact final position. See Hole Number 1 in Figure 9.

7. While the LED is blinking, tighten the bottom screw to close the bracket. See number 2 in Figure 9.

Note: If the yellow LED stops blinking before the screw is tightened adequately, remove the detector from the bracket and wait three seconds. Repeat Step 6 to start the self-calibrating procedure.

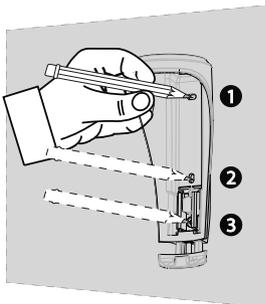


Figure 4:
Marking the screw holes

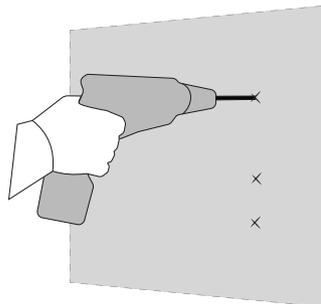


Figure 5:
Drilling the screw holes

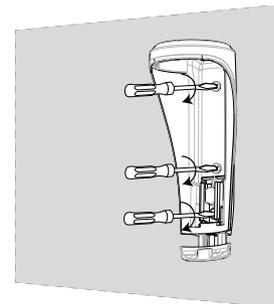


Figure 6:
Fastening the bracket

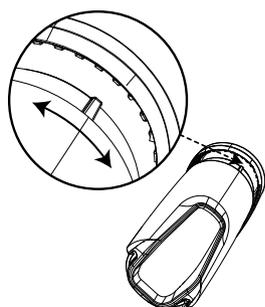


Figure 7:
Rotation slot

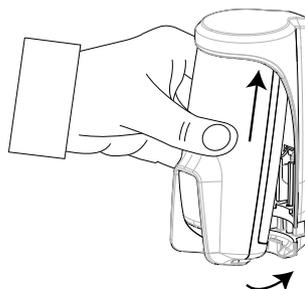


Figure 8: Slotting into the device

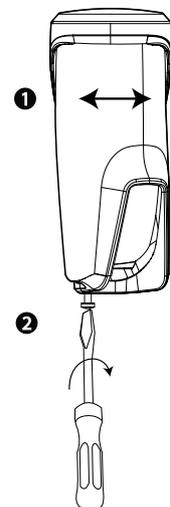


Figure 9:
Closing the bracket

4. Enrolling the MP-902 PG2

To enroll the MP-902 PG2, from the **Installer** menu, select **02:ZONES/DEVICES**, and complete the steps in the following procedure:

Notes:

- Use only in conjunction with UL/ULC listed control panels for UL/ULC listed installations.
- If you enroll the MP-902 PG2 in PowerMaster panels with version 19.4 or lower, the detector enrolls as an outdoor PIR motion detector. The device enrolls in the panel with the device ID, **130-xxxx**, and the name, **Motion Outd.**

1. From the installation menu, click **02:ZONES/DEVICES**.
2. Select **ADD NEW DEVICES**.
3. When the panel displays **ENROLL NOW** or **ENTER ID:xxx-xxxx**, enroll the device with one of the following methods: pull the enrollment tab or insert the batteries to power on the device and start the auto-enrollment process.

Note: If the device does not automatically enroll, press the enrollment button or enter the device **ID:xxx-xxxx** in the panel. The device ID is printed on the label.

4. To change the device number, click the arrow button or type the zone number.
5. To configure the location, zone type and chime parameters, select **Z0x.LOCATION**, **Z0x.ZONE TYPE**, and **Z0x.SET CHIME**, and set the configurations you require.
6. From the **MODIFY DEVICES** menu, select **PARTITIONS**.
7. Enter the partition numbers you want to assign the device to with the keypad.

Note: You can assign a single partition, or multiple partitions.

Notes:

- After you enroll the detector, you can configure the detector parameters and assign partitions. See [Configuring the detector parameters](#) for more information.
- **PARTITIONS** appears only if the panel supports partitioning and the feature was enabled prior to this procedure. For more information, refer to *Partitioning* in the PowerMaster installation guide.

5. Configuring the detector parameters

5.1. Modifying the MP-902 PG2

To modify the MP-902 PG2, enter the **DEVICE SETTINGS** menu and follow the configuration instructions as described in Table 2.

Table 2: Modifying the device

Option	Configuring instructions
Alarm LED	Activate or deactivate the alarm LED indication. Optional settings: LED ON (default) and LED OFF .
PIR range	Select one of the three ranges, according to your installation preference. See Setting the detector range .
Outdoor anti-mask	Enable or disable the outdoor anti-masking feature. Optional settings: Disabled (default) and Enabled .
Alarm hours	Set the motion detector to alarm always or only when it is dark. Note: For UL/ULC installation, only use the alarm hours feature for night protection as a supplement to the protection already covering the area. Optional settings: Day and night (default) and Night only .
Alarm direction	Define the detection direction. The alarm direction function can reduce the probability of false alarms by more than half when the detector is protecting a door or a gate. With this function, the device can differentiate between property inhabitants exiting, and potential intruders entering the premises. Note: This feature is only available in PowerMaster panels version 20.2 and higher. Optional settings: Both (default), Left to right , Right to left . See Figure 10 for the alarm direction diagram. In Figure 10, Number 1 shows a Right to left detection pattern and Number 2 shows a Left to right detection pattern. The right and left directions refer to the point of view of the installer while observing the detector in its fixed position.
VERY HOT > 35°C (>95°F)	Define whether or not the control panel reports a VERY HOT alert when the temperature rises above the threshold value for at least the duration of time specified in the alert delay value. The alert restore occurs when the temperature drops 1°C or 1.8°F below threshold for at least the duration of the restore delay value. Note: The default threshold value for VERY HOT is 35°C or 95°F. The default alert delay value and the default restore delay value is 10 minutes. Optional settings: See Table 3.

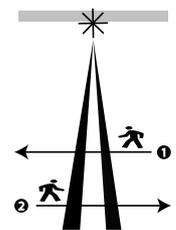


Figure 10:
Detection direction

COLD < 19°C (<66°F)*	Define whether or not the control panel reports a COLD alert when the temperature drops below the threshold value for at least the duration specified in the alert delay value. The alert restore occurs when the temperature rises 1°C or 1.8°F above the threshold value for at least the duration of the restore delay value. Note: The default threshold value for COLD is 19°C or 66°F. The default alert delay value and default restore delay value is 10 minutes. Optional settings: See Table 3.
FREEZING < 7°C (<45°F)*	Define whether or not the control panel reports a FREEZING alert when the temperature drops below the threshold value for at least the duration specified in the alert delay value. The alert restore occurs when the temperature rises 1°C or 1.8°F above the threshold value for at least the duration of the restore delay value. Note: The default threshold value for FREEZING is 7°C or 45°F. The default alert delay value and default restore delay value is 10 minutes. Optional settings: See Table 3.
Disarm activity	Define the length of time that the sensor continues to detect motion during the disarm process. Optional settings: NOT Active (default), YES – no delay , YES + 5 s delay , YES + 15 s delay , YES + 30 s delay , YES + 1 min , YES + 2 min , YES + 5 min , YES + 10 min , YES + 20 min , YES + 60 min

Notes:

- To generate an alarm or restore transmission, the temperature must pass beyond the **threshold** value for the required duration.
- The user can give access to the installer to remotely enable or disable the indication LED.

5.2. Configuring the temperature alerts

Configure each of the four temperature alerts: **VERY HOT**, **COLD**, **FREEZING**, and **FREEZER**. Table 3 describes the temperature configuration setting options.

Table 3: Temperature configuration settings

Option	Configuring instructions
Threshold	Displays the last saved threshold value. To change the default value, click the back or next button to decrease or increase the value and click OK .
Disable /Enable	Defines whether or not the panel will report an alert or not.
Alert delay	Define the amount of time to pass before an alert is reported when the temperature exceeds the defined default duration. The alert delay time values are: Immediately, 1 min, 2 min, 10 min, 15 min, 20 min, 30 min
Restore delay	Defines the amount of time to pass before a restoration alert is reported when the temperature returns below the threshold value. The restore delay time values are: Immediately, 1 min, 2 min, 10 min, 15 min, 20 min, 30 min

5.3. Setting the detector range

From the PowerMaster panel installer menu, select **02:ZONES/DEVICES** and follow the menu path displayed in Table 4 to configure the device detection range.

Note: If you enroll the MP-902 PG2 in PowerMaster panels with version 19.4 or lower, the detector enrolls as an outdoor PIR motion detector. The device enrolls in the panel with the device ID, **130-xxxx**, and the name, **Motion Outd.**

Table 4: Setting the detector range

Panel	Device type	Menu path and options	Range
V20.2 and higher	MP-902 PG2 S.OutCurtain ID: 129-xxxx	>02:ZONES/ DEVICES> >DEVICE SETTINGS> >PIR RANGE> Long Medium Short	 8 m 5 m 3 m
V19.4 and lower	TOWER-20AM Motion Outd. ID: 130-xxxx	>02:ZONES/DEVICES> >DEVICE SETTINGS> >PIR SENSITIVITY> High Low One region	 8 m 3 m 8 m

Notes:

The range refers to Number 2 in Figure 11.

The * symbol signifies the detector point of view and the beginning of the PIR curtain.

- 1. 2 m (6.56 ft)
- 2. 8 m (26.25 ft)
- 3. 0.75 m (2.46 ft)
- 4. 1.9 m (6.23 ft)
- 5. 0.25 m (0.82 ft)

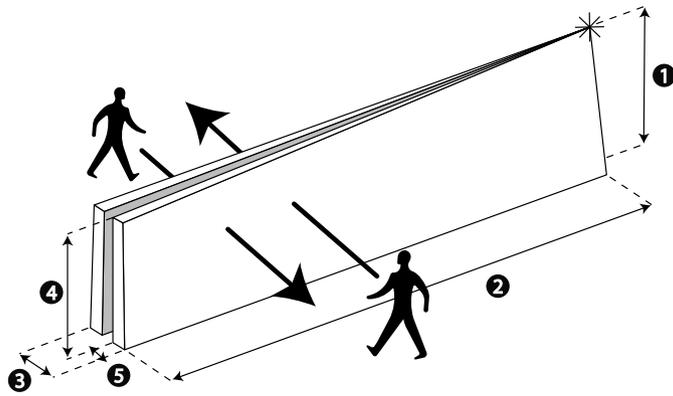


Figure 11: Detection beam pattern

6. Inserting or replacing the batteries

Warning: If you replace the batteries with an incorrect type, there is a risk of explosion.

Note: When you replace the batteries, wait one minute after the batteries are removed before you insert the new batteries.

To insert or replace the batteries, complete the following steps:

1. Unscrew the bottom screw of the bracket and remove the detector. See Figure 12 and Figure 13.
2. Press on the snap located at the top of the battery cover with your thumb to open the battery cover. See Figure 14.
3. Optional: To replace the batteries, remove the old batteries and insert the batteries with the (+) and (-) symbols matching the illustration found in the battery compartment. See Number 2 in Figure 15.
4. Optional: To activate the batteries of a new device, pull the battery tab while holding the batteries in place with your thumb. See Figure 16.
5. To close the battery compartment, insert the bottom section of the battery cover first and then press and hold the snap while closing the top part of the cover. See Number 1 and Number 2 in Figure 17.
6. Insert the device into the bracket and tighten the bottom screw of the bracket. For more information, see Step 6 and Step 7 in [Mounting the MP-902 PG2](#)

Note: Dispose of used batteries according to the manufacturer instructions and according to local rules and regulations.

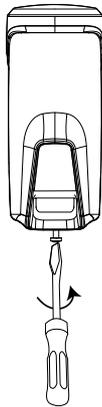


Figure 12: Unscrewing the bracket

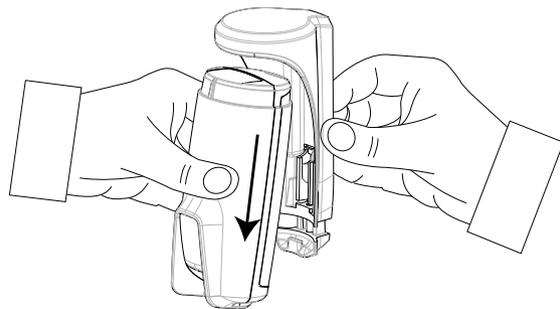


Figure 13: Removing the detector from bracket



Figure 14: Opening the battery cover

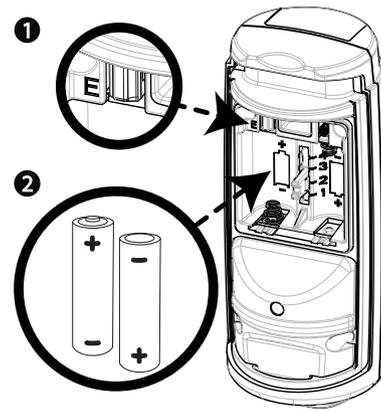


Figure 15: Enrollment button and battery polarity

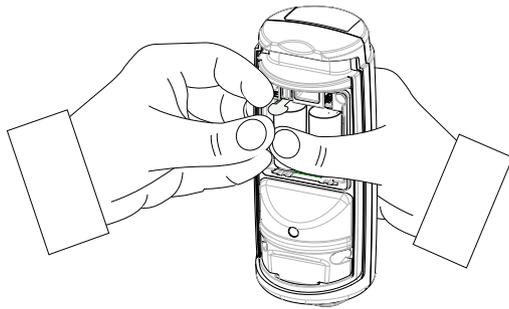


Figure 16: Pulling the battery tab

1. Enrollment button
2. Battery polarity

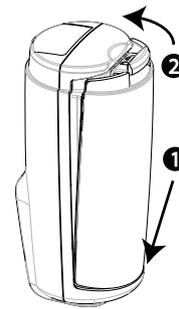


Figure 17: Closing the battery cover

7. Setting the pet immunity

The pet immunity feature allows pets to pass through the PIR curtain without triggering a false alarm.

The pet immunity selector is located in the battery compartment. See Figure 18.

Remove the battery cover and the right-hand side battery before you configure the pet selector. See [Inserting or removing the batteries](#) for more information.

Choose the device mounting height and configure the pet immunity selector according to the following guidelines:

- If you do not have a pet and do not expect other pets or rodents to enter the protected area, set the pet immunity selector to Setting 4 and mount the detector at a height of 1.6 m/5.25 ft to 2 m/6.56 ft. The best mounting height for this setting is 2 m or 6.56 ft.
- If you have a small pet that weighs less than 3 kg or 6.6 lb, or if there are rodents in the area, set the pet immunity selector to Setting 2 and mount the detector at a height of between 1.8 m or 5.9 ft and 2 m or 6.56 ft.
- If you have a pet that weighs less than 18 kg or 40 lb, set the pet immunity selector to Setting 1 and mount the detector at a height of 2 m or 6.56 ft.

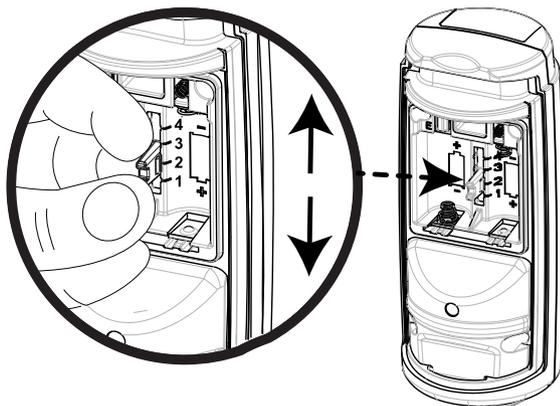


Figure 18: Pet immunity selector

Pet immunity selector

- Setting 1: Pet < 18 kg or 40 lbs (default)
- Setting 2: Small pet < 3 kg or 6.6 lb or rodents
- Setting 3: No function
- Setting 4: No pet

Note: Setting 3 in the pet mask selector has no function.

8. Performing a walk test

Before you permanently mount the device, temporarily mount the device and perform a walk test.

Note: The walk test is considered a local diagnostic test.

1. Insert the batteries or close the battery cover to start the device's 90 second stability period.

Note: The LED flashes red during this period.

2. Walking through the far end of the detector's PIR curtain.

Note: The LED lights red each time it detects motion and then blinks three times.

3. Compare the LED blink response to the reception value in Table 5.
4. Repeat the test until you receive a strong signal.

Note: If you receive a poor signal, relocate the device until you receive a good or strong signal strength.

5. When you receive a good or strong signal, repeat the process from the other direction. See Figure 10.

The device automatically enters normal mode 15 minutes after you complete the walk test procedure.

Notes:

- Perform a walk test of the coverage area at least once a week to ensure that the detector is working correctly.
- For detailed diagnostics test instructions, refer to the control panel installation guide.
- The MP-902 PG2 can be configured to detect movement with the following settings: **Left to right**, **Right to left**, and **Both**. For more information, see the alarm direction setting in [Modifying the device](#).

Table 5: Walk test signal strength indication

LED response	Reception
3 Green blinks	Strong
3 Orange blinks	Good
3 Red blinks	Poor
No blinks	No communication

9. LED operation

Table 6 provides the types of LED indications and their corresponding events.

Table 6: LED indication significance

LED Indication	Event
Red LED blinks	Stabilization (Warm-up 90 s)
Red LED on 0.2 s	Tamper open/close
Red LED on 2 s	Intruder alarm
Yellow LED on	Anti-masking detection, diagnostic mode
Yellow LED blinks slowly (0.2 s on, 30 s off)	Anti-masking, normal mode
Yellow LED blinks	Back tamper self-calibration

10. Temperature Display

To ensure that the zone temperature and light data display are on the correct panel, refer to 6.2 *Conducting a Periodic Test* in the relevant wireless panel installation guide.

11. Compatible receivers

This device can be used with PowerMaster panels that use PowerG technology.

- For UL installations, the detector is for use with UL listed control units only.
- Only devices operating in band 912-919 MHz are UL/UIC listed.

12. Specifications

GENERAL	
Detector type	Special two-channel PIR outputs
OPTICAL	
Lens data	Mirror type, common parabolic-elliptic surface
Detector mirror max. coverage	Up to 8 m or 26.2 ft/6°
Detection ranges	Select 3 m, 5 m or 8 m. Alternatively, select 9.8 ft, 16.4 ft, or 26.3 ft. See Table 4.
Sensitivity	The minimum difference between the temperature of the ambient background and a person is 3°C at 0.3 m/s.
ELECTRICAL	
Power supply	Type C
Internal battery	Two 3 V lithium battery, type CR-123A. Note: For UL installations, use Panasonic and GP only.
Nominal battery capacity	1450 mAh
Battery life (typical use)	Minimum: 1 year Typical use: 3 years Note: The measurement of battery life with typical use is not verified by UL.
Low battery threshold	4 V
Battery power test	The power supply is type C in accordance with EN50131-6 Documentation - Clause 6. The battery power test is performed when the batteries are first inserted and periodically every several hours.
Current consumption	Quiescent average: 30 µA Maximum during transmission: 150 mA
FUNCTIONAL	
Alarm period	2 seconds
Pet immunity	Up to 18 kg (40 lb)
Pet configurations	<ul style="list-style-type: none"> • Setting 1: Pet < 18 kg or 40 lbs (default) • Setting 2: Small pet < 3 kg or 6.6 lb or rodents • Setting 3: No function • Setting 4: No pet
WIRELESS	
Frequency	Europe and rest of world: 433-434 MHz, 868-869 MHz USA and Canada: 912-919 MHz Note: Only devices in frequency band 915 MHz are UL/ULC listed.
Max Tx power	10 dBm @ 433 MHz, 14 dBm @ 868 MHz
Communication protocol:	PowerG
Supervision	Signals at 256 second intervals.
Tamper alert	Reports when a tamper event occurs and following any subsequent messages until the tamper switch is restored.
MOUNTING	
Mounting type:	Wall mounting
Mounting height:	1.6 - 2 m (5.25 - 6.56 ft)
Horizontal adjustment:	-90° to +90° in 10° steps
ENVIRONMENTAL	
RF immunity	20 V/m up to 1000 MHz, 10 V/m up to 2700 MHz
Operating temperatures	-35°C to 60°C (-31°F to 140°F) Note: For UL/ULC installation, the operating temperature has been evaluated up to 66°C.
Humidity	Average relative humidity of up to approximately 75% non-condensing. For 30 days per year the relative humidity may vary between 85% and 95% non-condensing. For UL installations: 5% to 93% with no condensation
Storage temperatures	-35°C to 60°C (-31°F to 140°F)
PHYSICAL	
Size (diameter)	145 mm x 71 mm x 62 mm (5.7 in. x 2.8 in. x 2.45 in.)
Weight (with battery)	283 g (10 oz)
Color	White

13. Compliance with standards

	<p>The MP-902 PG2 complies with the following standards: Europe: EN 300220, EN 301489, EN 50130-4, EN 62368-1, EN 60950-22, EN 50131-2-2 Grade 2, Class IV IP55, EN 50130-5, EN 50131-6 Type C.</p> <p>The PowerG peripheral devices have two-way communication functionality, providing additional benefits as described in the technical brochure. This functionality has not been tested to comply with the respective technical requirements and should therefore be considered outside the scope of the product's certification.</p>
	<p>Hereby, Visonic Ltd. declares that the radio equipment type MP-902 PG2 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: http://www.visonic.com/download-center.</p> <p>USA: FCC- CFR 47 Part 15 Canada: IC RSS - 247 USA: UL639 Canada: ULC-S306</p>

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). 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.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme sile brouillage est susceptible d'en compromettre le fonctionnement.

To comply with FCC Section 1.1310 for human exposure to radio frequency electromagnetic fields and IC requirements, implement the following instruction:

A distance of at least 20cm. between the equipment and all persons should be maintained during the operation of the equipment.

Le dispositif doit être placé à une distance d'au moins 20 cm à partir de toutes les personnes au cours de son fonctionnement normal. Les antennes utilisées pour ce produit ne doivent pas être situés ou exploités conjointement avec une autre antenne ou transmetteur.

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:

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

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

- Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada.

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



W.E.E. Product Recycling Declaration

For information regarding the recycling of this product you must contact the company from which you originally purchased it. If you are discarding this product and not returning it for repair then you must ensure that it is returned as identified by your supplier. This product is not to be thrown away with everyday waste.
Directive 2002/96/EC Waste Electrical and Electronic Equipment.



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