# DōMe

BY ELEXA

**Always Connected.  Always Covered.**

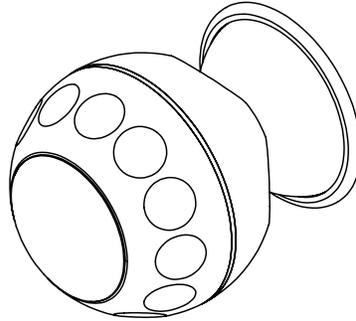# Motion Detector

DMMS1

User Manual

# Preface

As this is the full User Manual, a working knowledge of Z-Wave automation terminology and concepts will be assumed.  If you are a basic user, please visit www.domeha.com for instructions.  This manual will provide in-depth technical information about the Motion Detector, especially in regards to its compliance to the Z-Wave standard (such as compatible Command Classes, Association Group capabilities, special features, and other information) that will help you maximize the utility of this product in your system.

# Table of Contents

# Description & Features

The Dome Motion Detector is a Z-Wave Plus device that monitors areas for movement. It does this using a sensor which detects changes in infrared light. Similar to how lightbulbs "glow" in the "visible" light spectrum, humans and other mammals "glow" in the "infrared" light spectrum, so it is easy to detect this type of movement. The Motion Detector can either be wall mounted or placed on any flat horizontal surface.  The MOUNT uses a spherical magnet to hold the SENSOR, so it can point in any direction.   The Motion Detector also monitors ambient light levels and reports the data to your Z-Wave Hub.

## Key Features:

» Z-Wave Plus Certified

» Ambient Light Sensor

» FlexibleMounting Options

» 110° Extra-Wide Coverage Area

» Up to 150' wireless range, depending on environment

» Three-Year Battery Life

» Low Battery Indication

# Specifications

## Technical Specifications

| | |
|---|---|
| **Radio protocol** | Z-Wave Plus (500 series) |
| **Power supply** | Single CR123A 3.0V battery |
| **Max Current** | 35mA |
| **Power Consumption** | 0.15W |
| **Radio frequency** | 908.4 MHz US |
| **Z-Wave Range** | Up to 150' depending on environment |
| **Dimensions (L x W x H)** | SENSOR—1.75" Sphere |

Table 1 - Technical Specifications

## Package Contents:



| User Manual | SENSOR | MOUNT | Battery | 2x Screws | 2x Wall Anchors |
|---|---|---|---|---|---|

# Physical Characteristics

The names used in Figures 1 & 2 will be used throughout this manual.  Please refer to this page as needed.

MOUNT (WALL MOUNT)

MOUNT (MAGNET)

BATTERY

BATTERY TAB

SENSOR COVER
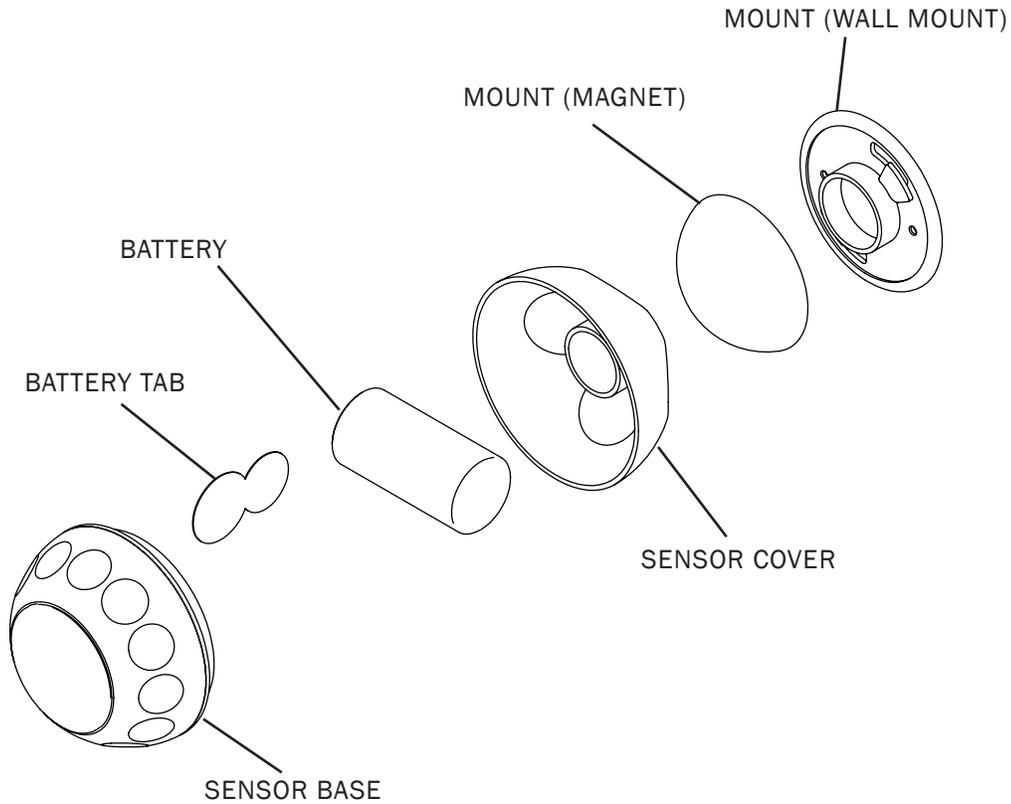
SENSOR BASE

Figure 1 - Motion Detector Exploded View

SENSOR LENS/LED INDICATOR

BUTTON    BATTERY COMPARTMENT

SCREW HOLES
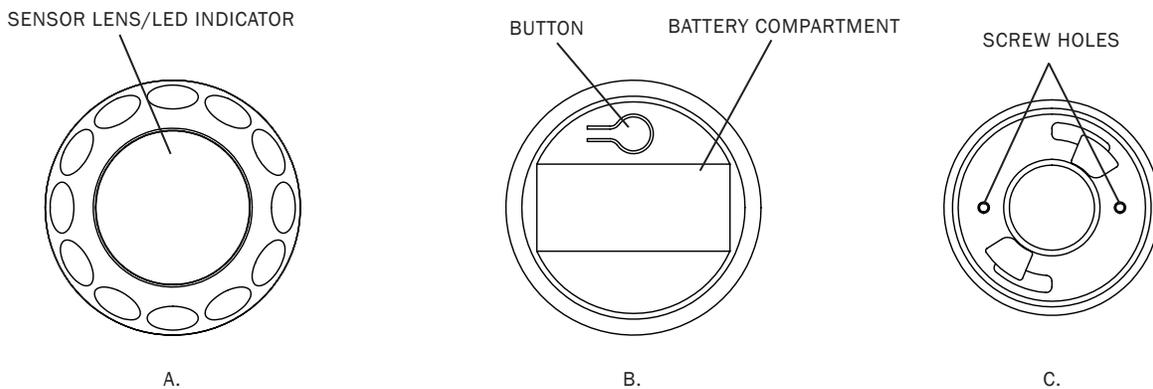
A.

B.

C.

Figure 2 - Parts of the A. SENSOR BASE Front, B. SENSOR BASE Rear, and C. MOUNT (WALL MOUNT)

# Inclusion & Exclusion

## Inclusion

Follow the instructions for your Z-Wave Certified Conto enter inclusion mode. When prompted by the controller:

1. The Motion Sensor should be within 10' of your Z-Wave controller for the inclusion process.  After successful pairing, the device can be brought to the desired location.
2. Remove the SENSOR COVER by twisting it counterclockwise.
3. Remove the BATTERY TAB.
4. Press the BUTTON quickly 3 times in a row.

The LED INDICATOR will flash five times indicating inclusion

## Exclusion

Follow the instructions for your Z-Wave Certified Conto enter exclusion mode. When prompted by the controller:

1. Remove the SENSOR COVER.
2. Press the BUTTON quickly 3 times in a row.

The LED INDICATOR will flash five times indicating exclusion/disconnection.

# Factory Reset & Misc. Functions

## Resetting the Motion Detector

If needed, the Motion Detector can be reset locally by following these steps. Only do this when your Z-Wave controller is disconnected or otherwise unreachable. Beware that resetting your device will disconnect it from the system:

1. Remove the SENSOR COVER and confirm that your Motion Detector is powered up.
2. Press and hold the BUTTON for at least 10 seconds then release. A flashing LED INDICATOR indicates a successful factory reset.
3. The Motion Detector's memory will be erased to factory settings.

## Waking Up The Motion Detector

Because the Motion Detector is a battery powered device, it wakes up on regular intervals to give battery and other status updates to the controller, as well as to accept configuration settings from the controller. This helps to extend the battery life. The device can be forced to wake up to submit these reports or accept new settings immediately by simply pressing and holding the BUTTON for two seconds. The LED INDICATOR will flash once indicating successful wake up.

# Physical Installation

## How to Use—Tabletop

You can use the facets on the Sensor Body to properly angle the Motion Sensor on a table top or bookshelf to monitor a room.

1. Remove the Magnetic Cradle and store it for later use if needed.

2. Make sure your device is powered on and that there is enough Z-Wave coverage in your installation location.

3. Follow Figure 3 and place the Sensor Body on a flat horizontal surface with an unobstructed view of the area you wish to monitor.
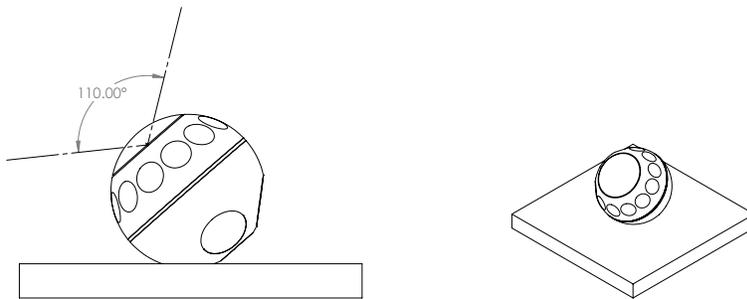


Figure 3 - Using the Motion Detector on a tabletop

## How to Use—Wall Mount

You can mount the Motion Detector on any wall with a central line-of-sight per-spective of the area you wish to monitor. See Figure 4 to visualize the Motion Sensor's coverage area and its optimal positioning.  It is best to mount the Motion Detector as high as possible to avoid limiting its effective range with obstacles like tables and chairs.



Figure 4 - Motion Detector Wall Mount Configurations

## Installation—With Double-Stick Tape

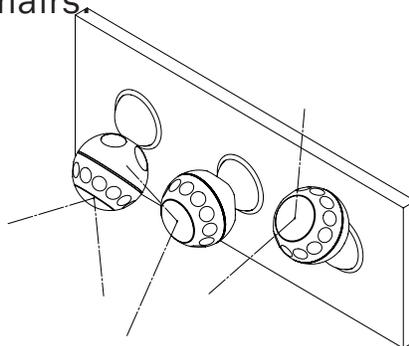1. Find a good location (Fig 4) with adequate Z-Wave coverage to mount your Motion Sensor.

2. Wipe your wall clean of any dirt and grease.

3. Peel-and-stick the MOUNT to your wall using the included double-stick tape.

4. Place the SENSOR on the MOUNT (MAGNET) at an angle to properly monitor your room, and the magnet will hold the SENSOR in place.

## Installation—With Screws

1. Find a good location (Fig 4) with adequate Z-Wave coverage to mount your Motion Detector.

2. Twist the MOUNT counterclockwise to separate the MOUNT (MAGNET) from the MOUNT (WALL MOUNT).

3. Hold the MOUNT (WALL MOUNT) to your wall and drive the included screws through the SCREW HOLES.

4. Reattach the MOUNT (MAGNET) to the MOUNT (WALL MOUNT).

5. Place the SENSOR on the MOUNT (MAGNET) at an angle to properly monitor your room, and the magnet will hold the SENSOR in place.

# LED Behavior

| Color | Behavior | This happens when... |
|-------|----------|---------------------|
| **Red** | Blink 5 times in 5 seconds (slow) | ...the Motion Detector was just powered on, but is not yet included in a system. |
| | Blink 5 times in 2.5 seconds (medium) | ...the BUTTON is pressed 3 times quickly (regardless of inclusion status.) |
| | Blink 5 times in 1.5 seconds (fast) | ...the Motion Detector is powered on, and already included in a system. |
| | Stay on for 2+ seconds straight | ...the BUTTON is pressed and held for 10+ seconds, resetting Motion Detector to factory settings. |
| | Blinks once | ...the SENSOR detects motion OR the **BUTTON is pushed once.** |

Table 2 - LED Blinking Behavior

# Button Behavior

| Action | Condition | Result |
|---|---|---|
| **Press and hold BUTTON for 2 seconds** | Motion Detector Already Included in System | Device sends a wake up notification to its controller, awaits further instructions, and blinks the LED Indicator once |
| **Push BUTTON 3 Times** | Motion Detector Already Included in System | Device sends node info to Group 1 |
| | Motion Detector Already Included, and Controller is in Exclusion Mode | Device is excluded from the system and removes the Home ID from its memory |
| | Motion Detector Not Yet Included in System, and Controller is in Inclusion Mode | Device enters inclusion mode |
| **Press and hold BUTTON for 10+ seconds** | Motion Detector Already Included in System | Device will be reset to factory settings, and a DEVICE_RESET_LOCALLY command will be sent to Node 1 |
| **Press and Hold for 10+ seconds** | Any condition (as long as the device has power) | The device's memory will erase to factory default settings and any associations, configuration parameters, and other locally saved data will be lost |

Table 3 - Button Behavior

# Compatible Command Classes

| Command Class | Notes |
|---|---|
| Device Reset Locally V1 (5A) | - |
| Powerlevel V1 (73) | - |
| Association Group Information V1 (59) | - |
| Battery V1(80) | - |
| Z-Wave Plus Info V2 (5E) | **Returned Value:** 01 06 00 0C 07 0C 07<br><br>**Z-Wave Plus Version:** 01<br>**Role Type:** 06 *(Slave Sleeping Reporting)*<br>**Node Type**: 00 *(Z-Wave Plus Node)*<br>**Installer Icon Type:** 0C 07 *(Home Security Alarm)*<br>**User Icon Type**: 0C 07 *(Home Security Alarm)* |
| Version V2 (86) | **Returned Value:** 03 04 05 03 50 42 00<br><br>**Z-Wave Library Type:** 03 *(Enhanced Slave)*<br>**Protocol Version**: 04 05<br>**Protocol Sub-Version:** 03 50<br>**Application Version**: 42<br>**Application Sub-Version**: 00 |
| Manufacturer Specific V2 (72) | **Returned Value:** 02 1F 03 01 06<br><br>**Manufacturer ID:** 02 1F<br>**Product Type**: 03<br>**Product ID:** 01 06 |
| Multilevel Sensor (31) | The Motion Detector monitors ambient light levels and reports this data to the main controller using the Multilevel Sensor command class. The light is measured everytime motion is detected and periodically (every 180 s by default; see Parameter 07.)  Each time the device wakes up or checks the light level, the Param 7 clock is reset.  A report is sent only if the light is at least 100 Lux more intense than the last **reported** value.<br><br>**Returned Value:** 03 0A XX XX<br>**Sensor Type**: 03 *(Luminance)*<br>**Precision/Scale/Size:** 0A *(Precision = 000; Scale = 01; Size = 010)*<br>**Sensor Data**: 00 00 ~ FF FF *(0 ~ 65,535 in Lux)* |

Table 4 - Command Classes

| Command Class | Notes |
|---|---|
| Association V2 (85) | **Group 1**<br>Group 1 is the "Lifeline" group, which can hold five devices. The Motion Detector sends this group a Notification Report and Binary Sensor Report whenever motion is detected and when it stops. It also sends a Multilevel Sensor Report incrementally based on time (see Param 7,) or when a relative change in light level is detected (see Param 9.) Finally, the Motion Detector sends this group Battery Reports and a Device Reset Locally notification to remove itself from the Z-Wave network.<br><br>**Group 2**<br>The Motion Detector sends a BASIC_SET command to Association Group 2 to directly trigger devices (like a siren, chime, etc.) when motion is detected and when it stops. Optionally, the Motion Detector can be set to only send this when ambient light levels fall below a predetermined level (see Configuration Parameters 5 and 8.) See Configuration Parameters 2, 3, 5, and 8 for more details regarding Association Group 2.<br><br>**Group 3**<br>Group 3 supports up to 5 members and the Motion Detector sends it a NOTIFICATION_REPORT when motion is detected and when it stops.<br><br>**Group 4**<br>Group 4 supports up to 5 members and the Motion Detector sends it a SENSOR_BINARY_REPORT when motion is detected and when it stops. |
| Notification V4 (71) | The Motion Detector sends a Notification Report whenever motion is detected. If no motion is detected for the amount of time set by Configuration Parameter 2, the device will send another Notification Report to the main controller.<br><br>**Returned Value:** 00 00 00 FF 07 XX 00 00<br><br>**V1 Alarm Type**: 00 *(Unsupported)*<br>**V1 Alarm Level**: 00 *(Unsupported)*<br>**Reserved**: 00 *(Reserved)*<br>**Notification Status:** FF *(Unsolicited Reporting is Enabled)*<br>**Notification Type**: 07 *(Home Security)*<br>**Event**:<br>　**Motion Detected**—08 *(Motion Detected, Unknown Location)*<br>　**No More Motion**—00 *(Event Inactive)*<br>**Sequence/Reserved/Event Parameters Length:** 00<br>**Notification Event Parameters**: 00 *(No Event Parameters)* |

Table 5 - Command Classes Continued

| Command Class | Notes |
|---|---|
| Binary Sensor (30) | The Motion Detector also sends a Binary Sensor Report when motion is detected or cleared.  See below for the Binary Sensor Report parameters sent:<br>**Sensor Type**: 0C *(Motion)*<br>**Motion Detected**: FF<br>**No More Motion**: 00 |
| Wake Up V2 (84) | The wake-up interval is set in seconds, and is 43,200 seconds (12 hours) by default.  The wake-up interval can be set to any value from 300s (5 minutes) to 16,777,200s (about 190 days) in 60-second increments. |
| Configuration V1 (70) | See ""Configuration" Command Class Parameters" on page 16. |

Table 6 - Command Classes Continued

# "Configuration" Command Class Parameters

Configuration parameters are sent using a standard syntax to ensure interoperability between all manufacturers' products. All values are represented using the hexadecimal number system.

Typical syntax is as shown below. Note that the value sent must be the exact size, in bytes, as accepted by the setting. The "extra" spaces should be filled with zeros (see the "value" column below.)

Example Configuration Parameter: **02 02 00 0A**

| Param # | Size | Value |
|---|---|---|
| 02<br>*(Param #2)* | 02<br>*(2 Bytes)* | 00 0A<br>*(10)* |

| Param # | Size | Name | Available Values | Default Value |
|---|---|---|---|---|
| 01 | This parameter sets the sensitivity of the Motion Detector. It is a unitless parameter ranging in values from 8 up to 255, with 8 being the highest sensitivity level and 255 being the lowest. After physical installation, make sure the farthest part of the coverage area is still "visible" to the Motion Detector by adjusting this parameter. | | | |
| | 01 | Sensitivity Level | 08 ~ FF<br>*(8 ~ 255)* | 0C<br>*(12)* |
| 02 | This parameters sets the amount of time after a motion event before the Motion Detector reports no activity to the main controller (see "Notification" and "Binary Sensor" command classes on page 14-15 for more information.) This also sets the amount of time before a BASIC_SET(00) command is sent to Association Group 2 to turn off any activated devices. This value must be higher than the value of Parameter 6, and if this parameter is reset to default settings, Parameter 6 will also be reset. See "Group 2" on page 14 for more information. | | | |
| | 02 | Motion Cleared Time Delay | 00 05 ~ 02 58<br>*(5 ~ 600 in Seconds)* | 1E<br>*(30 sec)* |
| 03 | This parameter sets the value sent by the BASIC_SET command to Association Group 2 (for more information, see "Group 2" on page 14.) | | | |
| | 01 | BASIC_SET Level | **00** *(0/Turn Off Device)*<br>**01 ~ 63** *(0-99)*<br>**FF** *(255/Turn On Device)* | FF<br>*(255/Turn On Device)* |

Table 7 - Motion Detector Configuration Parameters

| Param # | Size | Name | Available Values | Default Value |
|---|---|---|---|---|
| 04 | This setting enables or disables motion detection. | | | |
| | 01 | Enable/Disable Motion Detection | 00 *(Motion Detection Disabled)* 01 *(Motion Detection Enabled)* | 01 *(Motion Detection Enabled)* |
| 05 | If Parameter 8 is enabled, this setting sets the light level below which the Motion Detector will send BASIC_SET commands to Association Group 2 when motion is detected.  For more information, see "Group 2" on page 14. | | | |
| | 02 | Group 2 Ambient Light Threshold | 00 05 ~ 03 E8 *(5 ~ 1,000 in Lux)* | 00 64 *(100 Lux)* |
| 06 | After each motion event, the Motion Detector is disabled for the amount of time set by this parameter before it can send out another "Motion Detected" Notification Report/Binary Sensor Report.  This value must be lower than the value of Parameter 2, and if this parameter is reset to default settings, Parameter 2 will also be reset. | | | |
| | 01 | Retrigger Interval | 01 ~ 08 *(1 ~ 8 in seconds)* | 08 *(8 sec)* |
| 07 | This parameter sets the amount of time between each successive ambient light level reading that is sent.  This value must be less than the Wakeup Interval Time (which is 43,200 seconds or 12 hours by default.) | | | |
| | 02 | Light Sensing Interval | 00 3C ~ 8C A0 *(60 ~ 36,000 in seconds)* | 00 B4 *(180 sec)* |
| 08 | If this parameter is enabled, the Motion Detector will only send Basic Set commands to Associon Group 2 if the ambient light level is below the value set in Parameter 05.  For more information, see "Group 2" on page 14. | | | |
| | 01 | Enable/Disable Group 2 Ambient Light Threshold | 00 *(Group 2 Ambient Light Threshold Disabled)* 01 *(Group 2 Ambient Light Threshold Enabled)* | 0 *(Ambient Light Threshold Disabled)* |

Table 8 - Motion Detector Configuration Parameters Continued

| Param # | Size | Name | Available Values | Default Value |
|---|---|---|---|---|
| 09 | | This Parameter sets the minimum change in ambient light level (in lux) the Motion Detector must detect before a Multilevel Sensor Report is sent to the main controller. | | |
| | 01 | Ambient Light Sensitivity Level | 00 ~ FF<br>*(0 ~ 255 in Lux)* | 64<br>*(100 Lux)* |
| 0A | | If this parameter is enabled, the LED INDICATOR will flash everytime there motion is detected. If this is disabled, the LED INDICATOR will not flash to indicate motion events. | | |
| | 01 | Enable/Disable LED INDICATOR | 00 *(LED Disabled)*<br>01 *(LED Enabled)* | 01<br>*(LED Enabled)* |

Table 9 - Motion Detector Configuration Parameters Continued

# Troubleshooting

**Q: Help! My Motion Detector paired successfully, but my controller can't see it anymore after I installed it!**

A: The Z-Wave signal is probably weak in that area of your home. Remember that the 120' - 150' range doesn't take into account walls, furniture, and other obstacles. To boost your Z-Wave network coverage, add a few non-battery powered Z-Wave devices between the controller and the furthest device, like the Dome On/Off Plug or Water Main Shut-Off. You can even purchase dedicated Z-Wave extenders from 3rd party manufacturers.

**Q: There's so many words in this manual I don't understand. How can I learn more about Z-Wave?**

A: Remember you don't have to understand everything in this manual to start automating your home. Our Quick-Start Guides have all you need to start using any device. For more thorough information about Z-Wave home automation, visit www.domeha.com/support.

**Q: My Motion Detector keeps sending signals when there is no movement/it doesn't respond everytime it should.**

A: You most likely have to fine tune the sensitivity levels - contact your controller's manufacturer for further assistance. If you are still having issues, please visit www.domeha.com/support

**Q: I've tried multiple times, but I can't include the Motion Detector in my system.**

A: Make sure your device is getting power. Then, follow the procedure to Factory Reset on Page 8 and try going through the inclusion process again. If you are still having issues, please visit www.domeha.com/support

**Q: All of a sudden, my Motion Detector is offline.**

A: Make sure your device is getting power. If powered, make sure you still have Z-Wave network coverage. If you are still having issues, visit www.domeha.com/support.

# Warranty & Support

If you have questions, our trained Customer Service Department is happy to assist you 24 hours a day, 7 days a week. Contact Dome Customer Service as follows: • In North America dial: 1-855-249-1754 • Email Dome at support@domeHA.com DO NOT RETURN THIS PRODUCT TO THE STORE OR WEBSITE FROM WHICH IT WAS PURCHASED

If you believe the product is defective, has a missing or broken part or are having difficulty with it please contact Dome as listed above for a quick and efficient solution to the problem.

Legal Notices: 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.

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 the 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 device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Elexa Consumer Products, Inc. ("ECP") warrants to the original retail purchaser ("Purchaser") that the DOME Window/Door sensor (the "Product") will be free of defects in materials or workmanship under use for one (1) year from the date of purchase (the "Warranty period").

For the Purchaser only, if the Product fails to perform as specified during the Warranty Period due to defective parts or faulty workmanship, ECP will repair or replace the defective or damaged parts of the Product. Normal wear and tear is not covered nor is abnormal use, misuse, mishandling, faulty installation, improper shipping, damage caused by disasters such as fire, flood or earthquake, neglect, accident or tampering. This warranty covers only normal use in the United States or Canada.

To obtain warranty service during the Warranty Period, call Dome Customer Service (1-855-249-1754) or email: support@domeHA.com for instructions on sending damaged parts and documentation for a Return Material Authorization (RMA). Products returned to ECP for repair or replacement without authorization will be returned at the sender's expense. All warranty claims must be accompanied by a legible copy of the original receipt showing date and details of purchase. The RMA number must be clearly written on the side of the shipping container in which you return the Product or defective parts. Unless otherwise instructed by ECP, the Product must be sent freight prepaid to the following address:

Elexa Consumer Products, c/o Promac,
1153 Timber Dr., Elgin, IL 60123

ECP will repair or replace the defective parts and return them at ECP's cost by a shipping method selected by ECP. When contacting ECP to obtain an RMA, Purchaser may request expedited return shipping at Purchaser's expense.

THIS WARRANTY IS NOT TRANSFERABLE, AND, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW IS IN LIEU OF ALL OTHER WARRANTIES, REPRESENTATIONS AND CONDITIONS, EXPRESSED OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO OTHER PERSON OR REPRESENTATIVE IS AUTHORIZED TO MAKE ANY OTHER WARRANTY ON BEHALF OF ECP OR ASSUME FOR ECP ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS PRODUCT. IN NO EVENT WILL ECP BE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT, INCLUDING DAMAGES DUE TO ECP'S NEGLIGENCE.
THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE AND COUNTRY TO COUNTRY.

This marking on the product, accessories or literature indicates that the product and its electronic accessories should not be disposed of with other household waste.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.
Household users should contact either the retailer where they purchased this product, or their government office, for details of where and how they can take these items for environmentally safe recycling.
Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other wastes for disposal.
This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.