



## InHome™ Wireless Motion Sensor Installation Guide

Wires Not Included™

### Supported Models

This documentation applies to the following Card Access products:

WMS10  
WMS10-EXT

### Application Notes and Accessories

New accessories and application notes are constantly developed for the InHome Wireless Motion Sensor, so please see our web site for the latest in application notes and accessories by going to [www.cardaccess-inc.com/inhome](http://www.cardaccess-inc.com/inhome)

### Important Safety Instructions

**WARNING!** You should install this device in accordance with all national and local electrical codes.

**IMPORTANT!** Improper use or installation of this device can result in LOSS OF/DAMAGE TO PROPERTY.

**IMPORTANT!** You must operate this device in accordance with the instructions and specifications in this *Card Access InHome™ Wireless Motion Sensor Installation Guide*.

**IMPORTANT!** Using this product in any manner other than outlined in this document voids your warranty. Also, Card Access is NOT responsible or otherwise liable in any way for any damage resulting from the misuse of this product. See the section of this document entitled WARRANTY for details.

### Features

The Card Access InHome™ Wireless Motion Sensor works with your Control4® system and combines the features of a passive infrared (PIR) motion sensor with ambient light sensing detection into a single device. The product allows wireless generation of Control4 home automation events based on room or area occupancy. It integrates into Control4's home automation system as a standard Motion Sensor Proxy with additional programming variables for detected light levels and day/night (dawn/dusk) detection. LEDs provide indicators to confirm you have successfully connected the product to the Control4 system. Additional LED feedback and diagnostics are available to test positioning of the motion detector within a room ("walk test" mode).



Sensing motion and light inside and outside the home gives you automation control that responds to body heat and movement, or changes in ambient light levels.

With the InHome Wireless Motion Sensor you can extend home automation control based on occupancy for locations inside or outside the home, without the need to run control wires over long distances (or where you can't run any wires at all).

The InHome Wireless Motion Sensor enables home automation to adapt based on whether a person is present, such as:

- Automated control of lights based on room occupancy
- Alerts when someone enters front walkway
- Detection of outdoor light levels for dawn/dusk events
- Automated pathway lighting
- And any other control application you can devise and safely integrate

Government policy and high energy costs are driving consumers toward more environmentally-aware home power usage. The InHome Wireless Motion Sensor 'greens' up the Control4-automated home by enabling occupancy-based automation controls. Used in concert with additional Control4-enabled products (wireless switches, relays, dimmers and thermostats), the motion sensor can control HVAC, water heating and lighting systems to comply with environmental policies, conserve resources, and save money on utilities.

The InHome Wireless Motion Sensor does this all without the wire. Or, as we say: "Wires Not Included."

### What Is Included

You will find the following items inside the InHome Wireless Motion Sensor package:

- Bubble bag containing one (1) InHome Wireless Motion Sensor
- Wall Mount Swivel Bracket
- Installation Guide / Product Warranty / Product Registration document
- Two (2) wall mounting screws
- Two (2) plastic dry wall anchors
- 9V alkaline battery

### Specifications

The specifications for the Card Access InHome Wireless Motion/Light Sensor are as follows:

Motion Detection Method:	Passive Infrared
Coverage:	110°-160° Wide Angle Lens 10-50 ft (3m-15m) depending on sensitivity setting, mounting angle and temperature. Motion Sensors may be cascaded together to improve coverage.
Recommended Mounting Height:	7ft nominal (2.1m). Variable dependent upon desired application
Indicator:	Red LED to indicate motion upon initial power up or after a programming change is sent from Composer. Green LED for radio test.
Power Source:	9V alkaline (included) or lithium battery
Power Usage:	~17mA fully active
Estimated Battery Life:	1 to 2 years depending on usage (standard 9V alkaline battery), lithium battery will provide longer operation.
Device Temperature Range:	Operational -20°F to 158°F (-28°C to 70°C) Humidity 5% to 95% Non-Condensing Storage -20°F to 158°F (-28°C to 70°C)
Internal Light Sensor Measurement Range:	~0.1 lux to 10,000 lux
Dimensions (DxWxH):	1.8" x 2.5" x 3.4" (47.6mm x 63.5mm x 85.7mm)
Rain Resistance:	IP44 (Splash Proof) rated. The InHome Wireless Motion Sensor is NOT waterproof and must be kept out of direct contact with water. The product must NOT be immersed.
Communications:	Zigbee (IEEE 802.15.4) 2.4 GHz, 15-channel, spread spectrum radio

### 1. Battery Installation

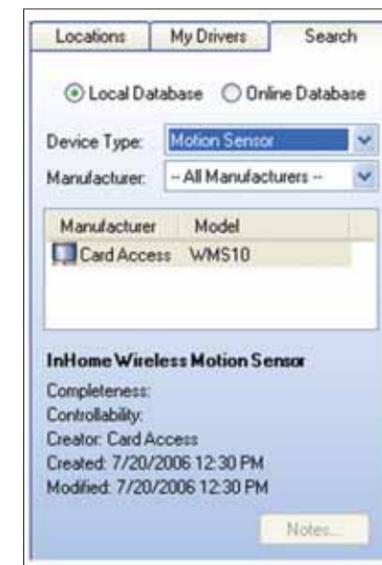
Install the 9V battery into the rear of the motion sensor (see figure below). After the battery is connected the motion sensor's red LED (visible through the motion sensor window) will blink for approximately eight (8) seconds while a wireless connection is established with the Control4 system. The motion sensor requires a warm up time of approximately 45 seconds before it can reliably detect motion. After powering up the unit, the walk test LED (red LED) is automatically enabled for five (5) minutes, allowing the red LED to indicate when motion is detected (See "walk test and adjustment" below). This allows the installer time to adjust the motion sensor positioning and perform walk tests to verify that motion detection is functioning as desired.



Insert 9V alkaline battery into the sensor.

### 2. Add to Composer Project

To add the InHome Wireless Motion Sensor to your Composer project, select the Search Tab, and choose 'Motion Sensor' in Device Type (see screenshot below). The InHome Wireless Motion Sensor is identified to the Control4 system in the same manner as all other Control4 devices. When prompted to identify the unit, depress the button inside the InHome Wireless Motion Sensor's battery compartment four (4) times. The green LED will blink twice to confirm the ID has been sent to the Control4 system and the MAC address of the device will be added to the appropriate field. To configure Composer Project events based on the InHome Wireless Motion Sensor's states, please refer to the Composer documentation.



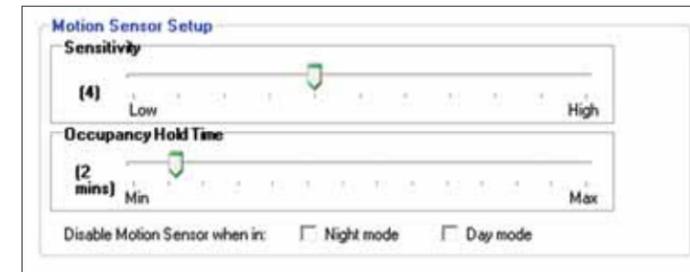
The button is located inside the battery compartment.

### 3. Operation

When motion is detected in the monitored area, the Wireless Motion Sensor sends a 'motion detected' event to the Control4 system. When no motion has been detected for the designated time period ('Occupancy Hold Time') a 'no motion' event will be sent to the Control4 system. Using the slider on the Properties Page in Composer, the Occupancy Hold Time may be adjusted to values ranging from five (5) seconds to 60 minutes. Use the Occupancy Hold Time for the length of time required for the duration of the event or for the amount of time for a device to be controlled. For example, if you are controlling a light in a particular room, set the Occupancy Hold Time for amount of time you want the light to stay ON after NO MORE MOVEMENT is detected. Then use the 'No Motion' alert event to shut off the controlled light. The higher the Occupancy Hold Time setting, the longer the battery life of the InHome Wireless Motion Sensor.

### 4. Low Battery Indication

Battery Low and Battery Critical events are generated by the Control4 system when the battery level on the Wireless Motion Sensor drops to a certain level. These events can be used by Composer scripts to signal the installer and/or the homeowner that battery replacement is needed.



### 5. Mounting

Select a mounting location for the InHome Wireless Motion Sensor. When choosing an appropriate location the following should be considered:

- A mounting height of six (6) to eight (8) feet is recommended.
- Reliability of ZigBee mesh network coverage
- Shielding the motion sensor from direct sunlight, if possible, for better motion sensing reliability
- Avoiding placement of the motion sensor near heat or cold producing devices (e.g. air conditioning or furnace vents, fans, ovens, heaters, etc.) as this may cause false triggers

The included wall mount swivel bracket is necessary to mount the Motion Sensor at the desired location. Once a location is selected, attach the wall mount swivel bracket to the location using the screws and wall anchors provided, (see diagram 1). Once the wall mount swivel bracket is mounted to the wall, slide the back of the sensor into the wall mount swivel bracket (see diagram 2). The mounting angle can be adjusted. Please refer to Section 3 "Walk Test and Adjustment" to determine the best mounting angle.



Diagram 1

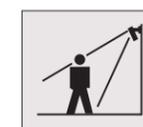


Diagram 2

**TIP:** If mounting the unit to drywall, you may need to mark and pre-drill two (2) 3/16-inch-mounting holes at the two screw hole locations. Press the plastic wall anchors (included) into the drilled holes.

**NOTE:** Make sure the InHome Wireless Motion Sensor is positioned for good ZigBee wireless reception by (1) ensuring it is within 150 feet of another ZigBee device and (2) avoiding other electrical equipment that may cause interference with the ZigBee signal (such as 2.4Ghz cordless telephones). If in doubt of ZigBee operation at the desired mounting location, you can use a Card Access InHome Wireless Contact Switch as a simple ZigBee functional tester to check for adequate operation.

### 6. Walk Test and Adjustment



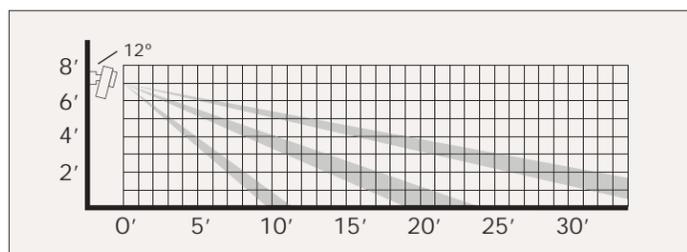
It is important to perform a Walk Test, after mounting the Wireless Motion Sensor, in order to determine if the sensor is properly detecting motion in the desired areas of the room or location. The Walk Test mode will indicate whether motion is detected by illuminating the red LED on the Wireless Motion Sensor. The Walk Test mode will automatically be

activated for a 5-minute period after the unit is first powered up, or any time the button in the Wireless Motion Sensor is pressed (see figure in section 2). Walk Test is also activated via Composer when programming configuration changes such as Sensitivity (made on the Properties page) are applied to the unit. The unit will remain in Walk Test Mode for approximately 5 minutes after any of these actions are executed and will exit the mode automatically.

The angle of the Wireless Motion Sensor may be adjusted, in order to control how far the Motion Sensor can “see”. To reduce the detection range, simply tilt the sensor downward. To increase the range, tilt the sensor upward. Range is maximized when the sensor is tilted to 12 degrees. (It is recommended that you do NOT adjust the Motion Sensor to less than a 12 degree angle). Maximum range may not be desired if the Motion Sensor is placed outdoors, since a false trigger may occur if the Motion Sensor is set to detect motion in the distance. Motion sensitivity is also adjustable on the Properties page in Composer (see Advanced Settings below for information on adjusting the sensitivity).

You should walk in the area that you would like the Motion Sensor to monitor to validate functionality. While in Walk Test mode, the unit’s red LED (visible through the Motion Sensor window) will illuminate if the Motion Sensor detects your movement. If the Motion Sensor does not cover the desired detection area, adjust the mounting angle and sensitivity accordingly.

You should also perform the walk test in the undesired detection area to ensure movement is not detected.

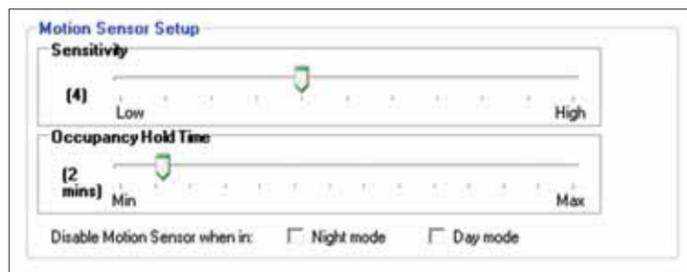


Detection area

You may use two or more InHome Wireless Motion Sensors to improve detection coverage in an area. Multiple motion sensors can cascade (or link) to act together as a single motion sensing device, thus increasing the detection coverage. The “motion detected” event will happen when any of the cascaded/linked Motion Sensors detect motion, and the “No motion detected” event will be sent when all of the cascaded/linked Motion Sensor Occupancy Hold Times have expired. This cascading process is done within the Composer software from the connections tab and is recommended if more than one Motion Sensor is used in the same general area.

## 7. Motion Sensor Sensitivity Adjustment

The sensitivity of the Motion Sensor is adjustable via the Properties page in Composer. Change the setting by moving the sensitivity slider higher (to the right) or lower (to the left). When the sensitivity is set lower, more movement is required to trigger the Motion Sensor. It is recommended to set the sensitivity to a middle value and perform a “Walk Test” (Described in Section 6 - “Walk Test and Adjustment”). If the walk test result is satisfactory, the sensitivity does not require further adjustment.



## 8. Advanced Settings

The Composer Properties Page allows for advanced configuration of Motion Sensor and Light Sensor properties.

Several characteristics of the InHome Wireless Motion Sensor can be programmed and are described in the following diagram:

 **NOTE:** The below property page and the associated descriptions are subject to change. For the latest description of the driver feature set and product operation go to [www.cardaccess-inc.com/inhome](http://www.cardaccess-inc.com/inhome)

*Indicates current motion sensor status*

*Indicates current battery level*

*Controls how long the Motion Sensor will look for absence of motion before triggering a No Motion Detected event*

*Instructs the Wireless Motion Sensor to send a periodic update of Motion status and light level. Only change if needed. Lower values can compromise battery life*

*Click to program settings into the device*

*Indicates current amount of light detected*

*Indicates current mode of operation (Day/Night)*

*Allows Motion Sensor function to be disabled when in Day or Night mode (also conserves battery life)*

*Controls light level and time required before Night mode is toggled*

*Instructs the Wireless Motion Sensor to send an updated light level to the Zigbee network when light level changes by at least the specified percent. Lower values can compromise battery life*

## 9. Troubleshooting

**If the InHome Wireless Motion Sensor is not working:**

- Reset the Wireless Motion Sensor by disconnecting the battery from the unit, waiting ten (10) seconds, and then reconnecting power.

**To check for proper radio operation, do the following:**

- Ensure that the motion sensor is in the desired location and has been added to a Composer Project.
- Press and hold the button (located under the battery cover) for at least 3 seconds. This will put the InHome Wireless Motion Sensor into “Radio Test Mode” for the next 3 minutes allowing for radio performance observation. This mode can only be used after you have registered the unit into the Composer Project. The test repeatedly sends a signal to the controller, waits for a response, and indicates success (green) or failure (red) by LED. The indicating LED will remain lit for approximately 3 seconds before repeating the test. An occasional red LED is normal. Excessive red LEDs may indicate RF interference or a range problem. If this is the case you may need to move the unit to achieve improved performance.

**Contact us:**

For help on the installation or operation of this product, email or call Card Access Product Support. Please provide your exact model number and the MAC ID/Serial Number for the device. You may contact Product Support by phone (801-748-4900, extension 15), by e-mail ([inhomesupport@cardaccess-inc.com](mailto:inhomesupport@cardaccess-inc.com)) or on the Internet at [www.cardaccess-inc.com/inhome/support](http://www.cardaccess-inc.com/inhome/support).

## Regulatory Compliance

The Card Access InHome Wireless Motion Sensor complies with standards established by the following regulatory bodies: Federal Communications Commission (FCC), Conformité Européenne (CE), and Restriction of Hazardous Substances (RoHS).

FCC  
FCC ID: MHIWMS

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.

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.

 **IMPORTANT!** Changes or modifications not expressly approved by Card Access, Inc. void the user’s authority to operate the equipment.

CE

We, Card Access, Inc. of 11778 South Election Road, Suite 260, Salt Lake City, Utah, 84020 USA, declare under our sole responsibility that the Card Access InHome Wireless Motion Sensor, Model Numbers WMS10 and WMS10-EXT, to which this declaration relates, are in conformity with the following standards and / or other normative documents:

EN60950, EN55022, EN55024

We hereby declare that the above named product is in conformity with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10(3) and detailed in Annex II of Directive 1999/5/EC has been followed.

## Restriction of Hazardous Substances (RoHS)

All parts in the Card Access InHome Wireless Motion Sensor meet the material restrictions of RoHS, as proposed by the RoHS Technical Adaptation Committee. This is based upon information provided by suppliers of the raw materials used by Card Access, Inc. to manufacture these products. As such, Card Access, Inc. makes no independent representations or warranties, expressed or implied, and assumes no liability in connection with the use of this information.

## Product Registration

Please visit [www.cardaccess-inc.com/inhome/registration](http://www.cardaccess-inc.com/inhome/registration) to register your new product. Along with your contact information, you must provide the following additional information:

- Product Name (Card Access InHome Wireless Motion Sensor)
- Model Number (WMS10 or WMS10-EXT)
- Date of Purchase
- Place of Purchase
- Serial Number (this is the “MAC ID” located on the sticker attached to the radio/logic board inside the battery compartment)

Please refer to the One-Year Limited Warranty for complete warranty information.

## One-Year Limited Warranty

This product is warranted to be free of defects in material and workmanship for one year from date of original purchase from Card Access, Inc. (“Card Access”).

Card Access will, at its election and as the purchaser’s or end user’s sole and exclusive remedy for any breach of the limited warranty set forth above, repair or replace this product if a defect in material or workmanship is identified and communicated to Card Access within the one-year period described above. Card Access is not responsible for removal or reinstallation costs. This warranty is not valid in cases where damage to this product is the result or arises out of misuse, abuse, incorrect repair or improper wiring or installation.

To notify Card Access of any breach of the foregoing limited warranty and to obtain warranty service, contact Card Access Customer Support by e-mail to [support@cardaccess-inc.com](mailto:support@cardaccess-inc.com) or by calling 801-748-4900, extension 15, to obtain a Return Materials Authorization (“RMA”) number and instructions for returning your defective product to Card Access.

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Some states/provinces do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of special, incidental or consequential damages, so these limitations and exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state/province to state/province.

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