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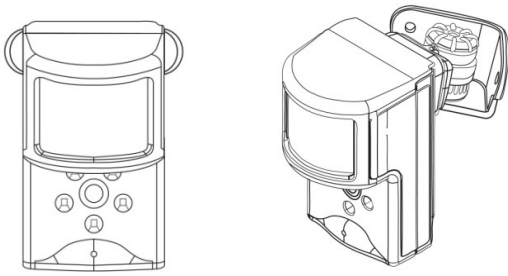
Client: Alarm.com  
Model: ADC-IS-221-LP  
Standards: FCC 15.247/IC RSS-210  
ID's: YL6-143IS221/91111A-143IS221  
Report #: 2015133

**Appendix K: Manual**

Please refer to the following pages.

# Alarm.com Image Sensor

# Installation Guide



## PRODUCT SUMMARY

The Image Sensor is a pet immune PIR (passive infrared) motion detector with a built-in camera. The sensor is designed to capture images during alarm or non-alarm events when motion is detected. Users can also initiate image capture on-demand to *Peek-In* on their property. Images are stored locally and uploaded either automatically when motion is captured during alarm events or manually when requested by the user. Once uploaded, images are available for viewing on the Alarm.com Website or an Alarm.com Smart phone app. The sensor is battery powered, all wireless and simple to install and operate. Both an Alarm.com module and a subscription to an Alarm.com service plan are required.

### Highlighted Features

- Battery operated
- Communicates wirelessly to the security control panel
- 35 feet by 40 feet detection coverage area
- Configurable PIR sensitivity and pet immunity settings
- Image: QVGA 320x240 pixels
- Color Images (except in night vision)
- Night vision image capture with infrared flash (black & white)
- Tamper detection, walk test mode, supervision

### Service Plan Options

Image capture features require either an Alarm.com Basic or Advanced Interactive Service Plan and one of the following Image Sensor add-ons:

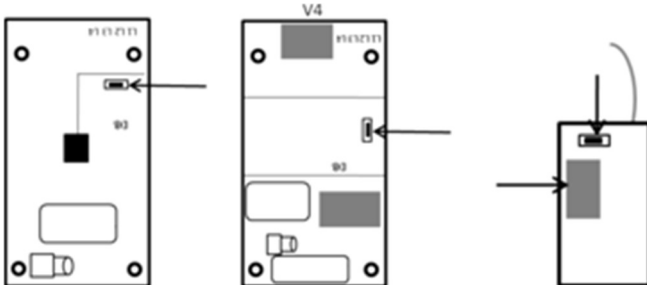
- **Image Sensor Alarms**- Includes upload of images from alarm events only.
- **Image Sensor Plus**- Includes upload of images from alarm events *and* non-alarm events. Users can configure *Daily View* schedules to receive images automatically each day or *Peek-In* to initiate an on-demand image capture immediately, or when the next motion occurs. Users can also request images that are captured automatically while the system is *Armed Away* or following a *Disarm* from an *Armed Away* state. Up to 40 captured events can be uploaded per month. Additional image uploads may be added in increments of 20 at an additional charge. The first five Alarm event images will be uploaded even if the monthly image quota has been achieved.

## HARDWARE COMPATIBILITY

- **Security Control Panel:** Interlogix Simon XT v1.3 or higher or XTi v 1.0 or higher
- **Alarm.com Module:** Simon XT Module with firmware 146 or higher (XTi requires module with firmware 151 or higher)
- **Required Daughterboard:** Image Sensor daughterboard (attached to compatible Alarm.com module)
- **Available Zones:** One zone per Image Sensor installed. On the Simon XT only, one additional zone is required for the required daughterboard. Up to three Image Sensors may be added per system. (Note: *The Alarm.com GSM Module V4 is required to use both Image Sensor and emPower™.*)

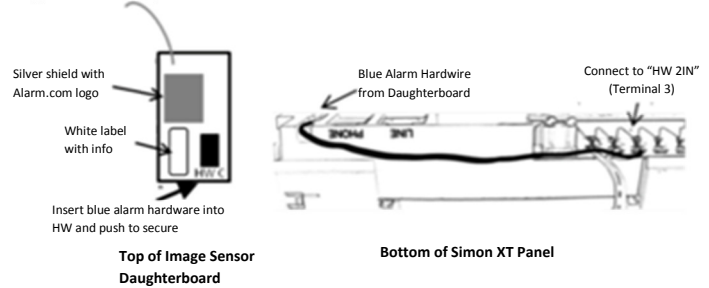
## HARDWARE INSTALLATION

1. **Create Alarm.com Customer Account**- Select service plan (including Image Sensor add-on) and register the Alarm.com module serial number on the Alarm.com Dealer Website ([www.alarm.com/dealer](http://www.alarm.com/dealer)).
2. **Install Image Sensor Daughterboard**- Locate the connector on the back of the daughterboard. Remove the green backing from the daughterboard mounting adhesive. While the module is powered down, align the daughterboard and module connector. Press to secure. (NOTE: *Verify module compatibility before attaching. Once attached, daughterboard is difficult to remove and removing may damage hardware.*)



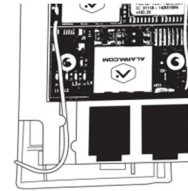
### 3. Install Alarm.com Module Inside Control Panel

4. **FOR SIMON XT ONLY, Connect Daughterboard Alarm Wire** - On the XTi panel, the blue alarm hardware is not required and should not be connected. For XTi panels, skip to step 5. When using the Simon XT panel, you must connect the included blue wire from the "HW" hardware output located on the daughterboard (use "HW" not "C") to the "HW2 IN" (terminal 3) slot on the Simon XT panel to enable local alarm activations. Once an Image Sensor has been enrolled into the panel, a hardware zone will automatically be programmed as "Sensor 39: ISHW." To ensure alarms are tripped properly on Image Sensors according to their enrolled group, the hardware sensor group is automatically configured. Do NOT alter the sensor group of Sensor 39 ISHW. (Note: *On the Simon XT, the panel screen will display "Sensor 39: ISHW Alarm" regardless of which Image Sensor tripped the alarm. The Alarm.com Website & notifications, and the central station report will indicate the specific Image Sensor that tripped the alarm.*)

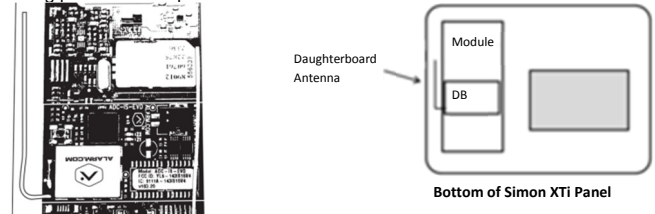


5. **Route Daughterboard Antenna** - It is important to be sure that daughterboard antenna is pulled away from the Alarm.com module. Follow the panel-specific antenna routing guidelines to optimize sensor range.

**Simon XT** - The antenna should be pulled down off the Alarm.com module and routed in a "J" shape to the left towards the corner of the panel (when looking at the panel from behind).



**Simon XTi** - Bend the antenna at a 90° angle ¼ of an inch from the edge of the daughterboard. The daughterboard antenna should rest inside the panel's plastic casing parallel to the panel.



6. **Register Module and Test** - Power up the panel and initiate a comm-test to ensure the Alarm.com module is properly installed and communicating with the Alarm.com NOC.

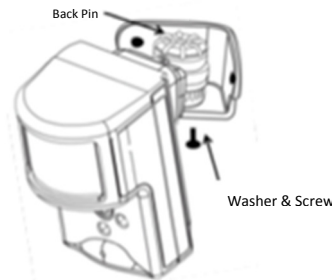
### 7. Enroll Sensor in Panel

- Simon XT** - To enroll the sensor on a Simon XT, follow these steps at the control panel:
- a. Begin with the batteries removed from the sensor.
  - b. On the panel, scroll until the screen displays "System Programming," and press OK.
  - c. Enter the installer code (default 4-3-2-1), and press OK.
  - d. Scroll up to "Interactive Services," press OK.
  - e. Scroll down to "Image Sensor Setup," press OK.
  - f. Scroll to "Image Sensor Learn Mode," press OK. The screen should display "Power up or reset I.S. now."
  - g. Insert the batteries into the sensor. Wait (approximately 20 seconds) for the control panel screen to display: "I.S. [x] Added as Sensor [y]." The LED on the sensor will turn solid for ~5 seconds once the sensor has enrolled.
  - h. Perform another panel comm-test to be sure that Alarm.com receives the updated device equipment list. This will speed up the sensor initialization process.

The sensor is now learned into the panel. Sensors are enrolled in group 17 by default. To change the sensor group, use the *Sensors* menu in System Programming. Image Sensors may be enrolled in groups 15, 17, 20, or 25. (No chime issued for group 25.) On the Simon XT a mix of sensor groups 15/17 and 20 are not supported. If Image Sensors are in group 15 or 17, they cannot also be in group 20, and vice versa. After enrollment, be sure to keep the sensor and panel powered so the sensor can complete an initialization process with the Alarm.com Network Operations Center. This process will take several minutes. Images cannot be captured until initialization is complete.

**Simon XTi** - To enroll the sensor on a Simon XTi, follow these steps at the control panel:

- a. Begin with the batteries removed from the sensor.
- b. On the panel, scroll until the screen shows "Programming" and press "Enter".
- c. Enter the installer code (default 4-3-2-1), and press OK.
- d. Press "Interactive Services".
- e. Press "Image Sensor".
- f. Press "Add". The screen will display "Reset or power-up sensor to enroll..."
- g. Insert the batteries into the sensor. Wait (approximately 20 seconds) for the control panel screen to display: "IS[x] successfully added as sensor [y]" The LED on the sensor will turn solid for ~5 seconds once the sensor has enrolled.
- h. Perform another panel comm-test to be sure that Alarm.com receives the updated device equipment list. This will speed up the sensor initialization process.



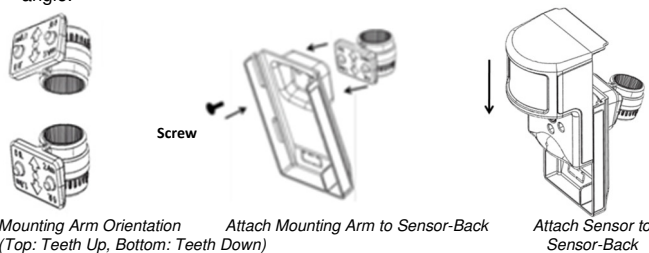
The sensor is now learned into the panel. Sensors are enrolled in group 17 by default. To change the sensor group, use the *Sensors* menu in Programming. Image Sensors may be enrolled in groups 15, 17, 20, or 25. (No chime issued for group 25.) After enrollment, be sure to keep the sensor and panel powered so the sensor can complete an initialization process with the Alarm.com Network Operations Center. This process will take several minutes. Images cannot be captured until initialization is complete.

**8. Choose Sensor Location and Mount**

- a. **Determine sensor mounting location** based on installation scenario and criteria noted in the "Installation Guidelines." For best image capture, the target capture areas should be centered in the frame. (e.g. If customer wants to capture people coming through door, the doorway should be centered in camera/PIR view.)
- b. **Verify RF communication prior to mounting**-To verify RF signal strength, tamper sensor and place near mounting location. Activate PIR for 2 minutes. On a Simon XT, check signal strength report at panel under "System Programming" → "Interactive Services" → "Image Sensor Setup" → "Image Sensor Settings" → "Image Sensor #[X]" → [signal information]. On the XTi, check signal strength under "Programming" → "Interactive Services" → "Image Sensor" → "Image Sensor Status" → "[X][Sensor Name]" Signal Strength.

**The sensor performs best when the signal strength is above 40%. The signal strength must be greater than 30% for sensor to function properly.** Signal strength can fluctuate depending on environmental conditions and interference, so be sure that the signal is consistently in range.

- c. **Determine desired mounting angle** for customer scenario; attach mounting arm to sensor-back and re-attach sensor to sensor-back. The mounting arm attaches to the back of the sensor enabling the sensor angle to vary based on the application. To obtain the full 35' x 40' coverage area, the sensor should be mounted on the wall at a 6° downward angle. This corresponds to a "teeth up" orientation of the mounting arm. For most smaller areas in residential installations, mount the arm with the "teeth down" for a deeper angle (18°). Secure the back of the sensor to the mounting arm with the provided screw. If the camera will be mounted perpendicular to the wall, mount the sensor without the mounting arm/bracket directly on the wall, at a 12° angle.



- d. **Choose applicable mounting bracket** for customer scenario. The sensor hardware packet contains two mounting brackets for different mounting scenarios. Use the provided large screws and anchors to attach the bracket to the wall.



Mark location of bracket holes on mounting surface at a height of 8 feet for maximum coverage area. (Leave at least 3 inches of clearance above the sensor to allow for battery replacement without uninstalling the mounting bracket.)

- e. **Place sensor with arm on mounting bracket.** Adjust the horizontal positioning of the sensor to point towards the desired coverage area. To adjust positioning, lift the mounting arm at least 1/3 of the way off the bracket and rotate the arm.
- f. **Secure the mounting arm location** by sliding lock pin into the hole. Use the washer and remaining small screw to secure the lock pin by screwing upwards through the bottom of the hole in the mounting bracket. (Note: To make it easier to adjust PIR/camera field of view in step 10, complete this step after horizontal sensor positioning is finalized.)

**9. Complete PIR Testing & Verify RF Coverage**

Verify that PIR coverage adequately covers area by performing a walk test. (See "Programming" section for more details.) Verify that the sensor signal strength is strong while mounted. **The signal strength must be above 30% for the sensor to function properly.**

**10. Test Image Capture**

To conserve the customer's monthly image upload quota, automatic alarm uploads are disabled for the first four hours after any new sensor (Image Sensor or other) is installed into the system. Installers can verify sensor positioning and test image captures on installed sensors via a dedicated installer test mobile site, without having to access the customer's account or deducting from the customer's monthly upload quota. If possible, installers should also test night vision captures to ensure sensor infrared flash will not be reflecting off surfaces and washing out images. While on-site, visit: [www.alarm.com/imagesetup](http://www.alarm.com/imagesetup)

In order to request images from the sensors, confirm the module serial number and enter a one-time use test authorization code. On the Simon XT, request a test authorization code at the control panel through "System Programming" → "Interactive Services" → "Test Auth Code." Hit "OK" to retrieve a code. On the XTi, request a code through "Programming" → "Interactive Services" → "Advanced" → "Auth Code". The panel will beep and display the code once it has been retrieved. The images requested via the test site can be viewed from the test site and will also be displayed in the customer's *Image Gallery* on the Customer Website.

On the Simon XTi panel, test images can also be requested and viewed directly on the panel. To request test images, go to "Programming" → "Interactive Services" → "Image Sensor" → "Test" → press "Peek-In" next to the Image Sensor to test. An image will be requested from the sensor and sent to the control panel for viewing and will also be displayed in the customer's *Image Gallery* on the Customer Website. On the Simon XTi panel, any image captured by the images sensors may be manually requested and displayed at the control panel via the 'Image List' menu under 'Interactive Services' → 'Image Sensor'. Installers can use this menu to request alarm image captures or any other captures that occurred during the install. Images requested from this menu are displayed at the control panel only and are not shown in the customer's online *Image Gallery* or counted against the customer's monthly upload quota unless the customer also requests that these images be uploaded to Alarm.com.

(Note: If the installer needs to continue testing beyond the 4 hour window, disable alarm auto-uploads first from the Alarm.com Dealer Website or the image uploads will be deducted from the customer's monthly quota.)

**PIR Lens and Camera Coverage Diagrams**

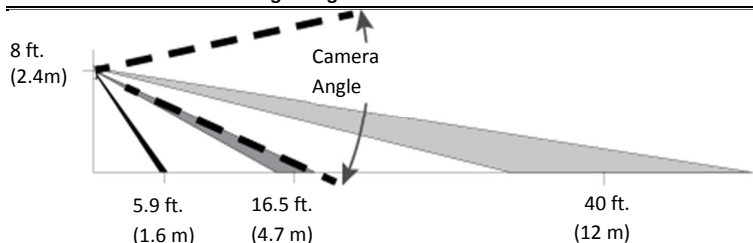


Figure 1. Side View: PIR Lens Coverage

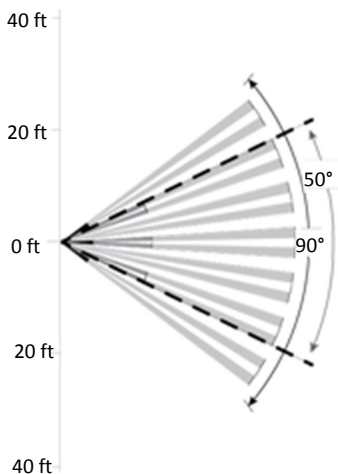


Figure 2. Top View: PIR Lens Coverage

As indicated in Figure 2, the camera coverage area is narrower than the PIR coverage area. When installing, mount sensor where subjects are likely to be centered in or across PIR and camera field of view.

## INSTALLATION GUIDELINES

Before permanently mounting the Image Sensor, evaluate potential locations and consider the following factors to ensure optimal performance and false alarm protection:

**Range-** Is the location close enough to the security panel to ensure adequate signal strength?

**False Alarm Immunity-** Is installation location false alarm prone? Reduce the risk of motion-triggered false alarms by making sure the location is free of vibration and the device does not face a local heat source, window, or areas with high pet activity. (Also, make sure area is free of elevated surfaces where pets may climb.)

**Capture Orientation-** Is the location ideally suited for detecting motion and capturing images when there is an intruder or activity? Consider where the subject is likely to enter the area and whether or not they will be facing the sensor.

**Lighting Conditions-** How good is the artificial and natural light? Will daytime and nighttime lighting conditions ensure adequate image quality?

- If possible, locate sensor within 100 ft of the panel especially if there are many walls between the sensor & panel, or if the panel and sensor are located on different floors. While the transmitter may have an open air range of 400 ft, installation site conditions can reduce range considerably.
- Avoid facing the sensor toward or close to areas that may affect communication such as metallic objects or electronics likely to produce interference. Verify sensor RF communication at panel, even if within recommended distance.
- For optimal detection capabilities, mount the sensor where someone will most likely walk across the sensor coverage area as opposed to directly towards the sensor.
- By default, the Image Sensor is set to "Normal" sensitivity. A more sensitive motion profile ("High") and a less sensitive profile providing pet immunity for pets up to 40 lbs ("Low") can be selected at the control panel or through the Alarm.com Dealer Website.
- The Image Sensor is designed for indoor use only and should not be installed outdoors. For proper operation in pet immune applications, the room should be kept between 60° and 110° F.
- To maximize night vision image quality, do not orient sensor towards surfaces that will create glare when infrared flash occurs. Avoid orienting the sensor such that the ceiling or adjacent walls are in the camera field of view.
- The sensor must be mounted on a flat wall surface (do not set on shelf) free of vibrations.

## PROGRAMMING

The Image Sensor is enrolled into the control panel via the Interactive Services menu, which is visible when the Alarm.com Image Sensor compatible module and daughterboard are used. Additional programming options available for configuring and testing include:

### A. PIR Sensitivity Settings

By default, the Image Sensor is configured with a standard motion sensitivity profile ("Normal"). The sensor can also be set to a more sensitive motion profile ("High") and a less sensitive profile with pet immunity for pets up to 40 lbs ("Low"). The sensitivity can be configured through the control panel or Alarm.com Dealer Website.

On the XT panel, enter the "Image Sensor Settings" menu under "Image Sensor Setup" and scroll to the sensor to configure, press "OK." Scroll to "PIR Sensitivity," press "OK." The panel will display the current motion profile. Press "OK" and scroll to the new motion profile and press "OK" to select. Then press "Status" to exit out of the menu and save the change.

On the XTi panel, enter the "Status" menu under "Image Sensor" and press the "Set" button for the Image Sensor to configure. Select the new profile and press "Set".

(Note: Using the high sensitivity profile increases the risk of false alarms, especially if the sensor is facing windows or sources of heat. When mounting the sensor near windows or heat sources use caution and select the "Low" PIR sensitivity setting.)

### B. PIR Activation and Test Mode

During normal operation, the PIR can be activated at most once every three minutes while the system is disarmed. There is a 30-second delay after powering before PIR detection is active. For the first 3 minutes after a sensor is enrolled in a network, the sensor will enter PIR test mode and the sensor LED will illuminate for 3 seconds upon each motion activation (at most every 8 seconds). For additional testing time, put the sensor into test mode via the control panel or by tampering the sensor.

On the XT panel, scroll to "Image Sensor Settings" in the "Image Sensor Setup" menu. Enter "Image Sensor Settings" and scroll to the sensor to test, press "OK." Scroll to "Image Sensor [y] Test PIR," press OK. The screen will display "I.S. [y] in test for next 3 min" to indicate the test mode command has been sent.

On the XTi panel, enter the "Test" menu under "Image Sensor" and press "PIR". The screen will display a confirmation to indicate the test mode command has been sent.

(Note: It may take up to 30 seconds for test mode to take effect after requesting "Test PIR" at the panel.)

### C. Tamper and Malfunction Reports

By default, trouble conditions (malfunction, tamper & low battery) are displayed on the panel LCD. Sensor low battery messages are displayed between 7am and 10pm only. Enable or disable trouble condition messages on the control panel LCD via the Alarm.com Dealer Website. Trouble conditions are always reported to the Alarm.com Customer Website and customers will receive tamper/low battery/malfunction notifications if they are subscribed, regardless of the panel setting.

A built-in accelerometer detects movement or re-positioning of the Image Sensor and will initiate a tamper whenever a change in sensor orientation is detected. This occurs even if the sensor back plate remains in place. The tamper automatically clears after the sensor is returned to the upright position and no movement has been detected for 5 minutes. A tamper can also be cleared by resetting the sensor.

### D. Sensor LED

By default, the image sensor LED does not illuminate when activated by motion unless the sensor is in test mode. The LED can be enabled via the Alarm.com Dealer Website for each Image Sensor on a customer's account. When enabled, the LED illuminates for 3 seconds upon motion activations (at most every 3 minutes while disarmed).

### E. Image Capture Settings

Capture settings are configured automatically for each sensor based upon the customer's Image Sensor service plan so it is important to subscribe the customer to a service plan before enrolling the sensor.

#### Alarms & Image Sensor Plus Plan:

- Captures motion-activated images while the system is *Armed Away* to catch potential intruders before the alarm sounds. Continues to capture images until the system is *Disarmed*. On the Alarms Plan, these images are not sent or available to the customer unless there is an alarm event. On the Plus Plan, the customer has an option of requesting any images captured, even if an alarm is not triggered.
- Captures motion-activated images on an instant alarm (panic, etc.) or an alarm from *Armed Stay* after an initialization period (up to a 30 second delay).
- Automatically transmits up to 5 motion-activated image events (with 2 images/event) to Alarm.com and sends images to recipients as selected by the customer. Images are automatically selected for transmission, which begins when the panel issues an alarm locally (pending alarm) and ends when the panel is *Disarmed*, or after 5 minutes (whichever comes first).

#### Plus Plan Only:

- Captures the first motion event after the panel is *Disarmed* from *Armed-Away*.
- Customers have the ability to request non-alarm images (such as entry delay or post-disarm) to be uploaded and sent to them (up to their monthly upload quota).
- Customers can request property *Peek-In* images to be taken and sent to them right away or on the next motion activity (up to their monthly upload quota).
- Customers can configure *Daily View* rules that automatically capture and upload the first motion event during a specific time period each day.

## SENSOR RESET BUTTON

Insert a paperclip into the hole on the front of the sensor to access the reset button. Press and hold for 3 seconds to power cycle the sensor. Press and hold a full 10 seconds until the sensor LED flashes rapidly to reset the sensor and clear it from its network. The sensor must be reset prior to enrolling in a new network.

(Note: The sensor can only be cleared from its network using the reset button if it is currently not communicating with its network. If the sensor is still communicating with its network, clear sensor by deleting it from the system it is enrolled in.)



Insert Paperclip to access reset button

Figure 3. Sensor Reset Button

## BATTERY REPLACEMENT

When a sensor's batteries are low, the panel will display a low battery alert for the sensor (unless this trouble condition has been disabled for the panel display). Notifications are

also issued via the Alarm.com platform if the customer has subscribed to this notification type.

(Note: Low battery messages are only active at the panel between 7:00am and 10:00pm.)

To replace the sensor batteries, slide the front of the sensor up off the sensor-back. (No need to remove or un-mount entire sensor-back and mounting arm.) To maximize battery life, replace the sensor batteries with 2 AA 1.5v Energizer Ultimate Lithium batteries. Dispose of used batteries according to the battery manufacturer instructions and following local regulations.

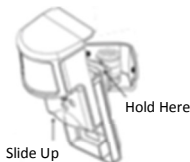


Figure 4. Removing Sensor for Battery Replacement

(Note: The operation of the sensor with alkaline batteries has not been verified for compliance with UL standards.)

**OTHER FEATURE COMPATIBILITY**

**Simon XT 2WTTS Compatibility**

When using a Two Way Talking Touchscreen with the Simon XT panel, Image Sensor activity is not reported or visible on the touchscreen, except in alarms. When alarms are tripped on an enrolled Image Sensor, the alarms are reported and displayed on the 2WTTS through the sensor 39 hardware zone. Periodic activations on hardware zone 39 will appear on the touchscreen as a result of the hardware supervisions.

**Two-Way Voice Compatibility**

Images cannot be transmitted while a Two-Way Voice call is in session. When the Image Sensor is installed on a system with Two-Way Voice over the cellular network, image transmission during an alarm may be interrupted by the two-way session. Image transmission resumes once the call has terminated.

**emPower™ Compatibility**

An Alarm.com Module V4 is required for a customer to have both Image Sensors and emPower devices. The V4 module has emPower support built-in to the module hardware, allowing the Image Sensor daughterboard to be attached on top of the module.

**TROUBLESHOOTING**

**General Troubleshooting Steps**

- ☑ **Verify Module Signal Strength:** If the Alarm.com module is having a problem signaling, motion activations and image transmission may be delayed or cancelled.
- ☑ **Verify Image Sensor RF Signal Strength:** The signal strength must be above 30% for the sensor to function properly.
- ☑ **Verify Image Sensor Service Plan:** Image capture functionality depends on the customer's service plan. Be sure the proper Image Sensor add-on is selected; delete sensor and re-enroll.

**Sensor Not Enrolling**

- ☑ **Verify Sensor is Receiving Power:** After inserting batteries, the sensor LED should illuminate or flash within 10 seconds.
- ☑ **Verify Sensor is Not Communicating with Another Network:** If the sensor has been previously enrolled in a different system or daughterboard, delete the sensor from the system and hold the sensor reset button for 10 seconds to clear the sensor before attempting to enroll the sensor in a new network. The sensor cannot be cleared if it is currently communicating with its network. In this case the sensor must be deleted from the system first through the control panel or remote command.

**Sensor Non-Responsive**

- ☑ **Verify Range:** Under the "Image Sensor Setup" menu, scroll to "Image Sensor Settings," select the sensor and verify under "Signal" that the sensor is registering a strong signal. If signal strength is low, move non-responsive sensor closer to control panel, verify signal strength and see if communication resumes. Be sure that Image Sensor daughterboard antenna is correctly routed as indicated in step 5 of the installation procedure.
- ☑ **Replace Batteries:** Check battery level at the panel (under "Image Sensor Settings") and install fresh sensor batteries.

**False Motion Activations**

- ☑ **Check Environmental Elements:** Heating or cooling elements may adversely affect sensor performance. Test sensor with and without these elements to determine interference.
- ☑ **Check Sensor Positioning:** The sensor may not be properly positioned to capture the desired motion. Check horizontal positioning of sensor and re-mount as necessary.
- ☑ **Check PIR Sensitivity Setting:** Verify that the proper sensor motion profile has been selected through the setup menu or select a less sensitive profile.

**Sensor Tamper**

- ☑ The sensor detects changes in sensor orientation and can register a tamper regardless of the sensor-back being removed. A tamper will automatically be cleared after the sensor has been returned to the upright position and has not detected any tamper activity for 5 minutes. With the sensor mounted, the tamper may also be cleared by holding the sensor reset button for 3 seconds to initiate a power cycle.

**Images Not Captured**

- ☑ **Check Service Plan:** Make sure the account has the proper Image Sensor add-on. Images cannot be captured without an Image Sensor service plan. For alarm

functionality, add the "Image Sensor Alarms" plan. For alarms and enhanced functionality, add the "Image Sensor Plus" plan.

- ☑ **Verify Sensor Rules:** Make sure the sensor initialization process has been completed. On the Dealer Website, make sure that the sensor rules have been confirmed using the "Rules Confirmed" column.
- ☑ **Enable Auto Uploads:** During the first four hours after any sensor is enrolled onto the system, alarm images will not automatically be uploaded to Alarm.com. Automatic uploads are automatically enabled after four hours. Enable uploads sooner from the Dealer Website. On the Image Sensor Plus plan, view and request captured images from any test alarms from the Customer Website.

- ☑ If the daughterboard LED is blinking, refer to this chart for LED trouble diagnostics.

Daughterboard Status LED Activity Reference		
LED	Device Status or Error	Duration of LED Pattern
Z1 Solid Red	Daughterboard is Receiving Power	While the daughterboard is powered and the module is not in power save mode.
Off	Daughterboard Not Receiving Power or Module in Power Save Mode	Until daughterboard receives power or module returns from power save mode.
Z1 & Z2 Fast Blinks	Incompatible Module or Hardware Issue	Module not compatible w/ Image Sensor (Firmware 146 & up required) or there is a hardware failure.

- ☑ If the camera LED is blinking, refer to this chart for LED trouble diagnostics.

Image Sensor Red Status LED Activity Reference		
Device Status or Error	LED Pattern	Duration of LED Pattern
Sensor Power-Up	Solid for 5 Seconds	Approximately first 5 seconds after powering.
Sensor Joins or Rejoins Network	Solid for 5 Seconds	First 5 seconds after sensor joins a new network (during enroll process) or rejoins its existing network.
Searching for Network to Join	Fast Blink for 5 Seconds at a Time	Repeats pattern for up to 60 seconds after powering until the sensor enrolls in a network.
Attempting to Rejoin Network	Slow Blink for 5 Seconds at a Time	Repeats pattern for up to 60 seconds after power cycle until the sensor reconnects to its network. (Note: This means the sensor has already been enrolled into a network and is trying to connect to it. If attempting to enroll sensor in a new network, hold reset button for a full 10 seconds (until LED blinks rapidly) to clear the old network before adding to new network.)
Motion Test Mode	Solid for 3 Seconds at a Time	Repeats for each motion activation during the 3 minutes after sensor joins network, has been tampered, or is placed in PIR test mode. (Note: In test mode, there is an 8 second "sleep" timeout between motion trips.)
Network Communication Problem	Fast Blink for 1 Second at a Time	Pattern begins after 60 seconds of searching for (and unsuccessfully joining) a network and repeats until RF communication is restored. Pattern persists as long as the sensor is not enrolled in a network or cannot connect to current network.

**TECHNICAL SPECIFICATIONS**

**Alarm.com Model Number:** ADC-IS-221-LP

**Interlogix Part Numbers:** Image Sensor: 600-9400-IMAG  
Image Sensor Kit (Image Sensor w/ daughterboard): 600-9400-IMAG-KIT

**Power Source:** Optimal: 2 AA 1.5v Energizer Ultimate Lithium Batteries. Acceptable: 2 AA 1.5v alkaline batteries (battery life may be reduced significantly).

**Expected Battery Life:** Approximately 3 years for lithium batteries. Battery life varies by use case depending on certain factors such as weak signal strength and frequency of motion activations, image captures, and IR flashes.

**Voltage Thresholds:** With lithium batteries, low battery alerts are issued at 3.05V. The sensor cannot operate when the voltage reads below 1.95V.

**Operating Temperature Range:** 32° to 110°F for non-pet applications, 60° to 110°F for pet applications. Alkaline batteries are not suitable for temperatures below 50° F.

**Weight:** 3.1 oz. (with batteries, without mounting accessories)

**Dimensions:** 3.1" h x 1.8" w x 2.3" d

**Supervisory Interval:** 100 minutes (sensor), 3 hours (alarm hardware)

**Wireless Signal Range:** Greater than 400 ft open air

**Color:** White

**Recommended Mounting Height:** 8 ft

**Recommended Mounting Angle:** 6° for large coverage area and rooms greater than 30 ft ("teeth up" on mounting arm); 18° for rooms less than 30 ft ("teeth down" on mounting arm)

**Motion Profiles & Sensor Range:** Normal (up to 30 ft, default), High (up to 35 ft), Low (up to 25 ft)

## REGULATORY INFORMATION

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Changes or modifications not expressly approved by Alarm.com can void the user's authority to operate the equipment.

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:

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

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

This device complies with Industry Canada licence-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.

Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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.

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