



Aura Interior IR Settings Manual (BACnet)

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Preparation

Unpack the Aura Interior and inspect the contents for damaged or missing products. If any problems arise, please contact Touch-Plate at 260.426.1565 for assistance.

Precautions

The Aura Interior hardware is designed to be in environments that have a temperature range of 0-60°C (non-condensing atmosphere). Installing in an environment outside of these parameters will shorten the life span of the hardware.

Touch-Plate recommends the use of 18 to 22 AWG wire for low voltage wiring of contact closure products, 18 AWG wire for all 24v power connections, and 16 AWG wire for Smart Switch Stations.

All 120VAC wiring must use wire as specified by National Electric Code for load size and wire length.

Compatible Hardware

The Aura is a smart sensor that can be a part of a networked, intelligent system.

Warranty

Touch-Plate warrants this product against defects in materials or workmanship, under normal use, for a period of ONE (1) year from date of shipment. If a defect arises and a valid claim is received within the Warranty Period, Touch-Plate will repair or replace the product at no charge.

This warranty does not apply to:

- a. Damage to unit(s) caused by accident, acts of God, inappropriate installation, faulty installation, or any negligent use;
- b. Unit(s) which have been subject to being taken apart or otherwise modified;
- c. Unit not used in accordance with instructions;
- d. The finish on any portion of the product, such as surface and/or weathering, as this is considered normal wear and tear;
- e. Non-Touch-Plate hardware installed by the user;
- f. Damage caused by Non-Touch-Plate products;
- g. Damage caused by operating the product outside the permitted or intended uses described by Touch-Plate;
- h. -or- Specific plans or Specific application requirements, unless the plans and specifications have been forwarded to Touch-Plate and Touch-Plate has approved and accepted the plans in writing.

EXCEPT AS PROVIDED IN THIS WARRANTY, TOUCH-PLATE IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, INCLUDING BUT NOT LIMITED TO, INSTALLATION OR REPLACEMENT LABOR COSTS.



Setting the Sensor Address for the First Time

Typically the Aura sensor comes from the factory pre-addressed. The following steps are only applicable if the address was not set at the factory. Only attempt to address one unaddressed sensor at a time, per room. The following steps are only applicable using a Universal IR Remote.

1. Power up the Aura sensor. A white light will turn on.
2. Press 'POWER'. A blue light will flash.
3. Enter the desired address and press 'ENTER'. A red light will blink and then blink each time motion is detected.
 - a. If the desired address is 10, press the 1 and 0.

Changing the Sensor Address

The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. Another blue light will flash.
4. Enter the numbers 101 to change this parameter and press 'ENTER'. An yellow light will blink.
5. Enter the new, desired address and press 'ENTER'. A yellow light will blink and the unit will re-boot. Once restarted, a red light will blink and then blink each time motion is detected.
 - a. If it is to be addressed 94, press the 9 and 4.
 - b. If the new address is entered incorrectly, press 'STOP' and start at step 1.

Verifying the Sensor Address

The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Press 'PLAY'. The sensor will flash a colored coded sequence of lights to indicate its address. See the table below for the flash color value and add up the number of flashes by value.
4. Press 'STOP' to exit. A blue light will blink, then a red light will blink and then blink each time motion is detected.

Address Value	Flash Color
1	Blue Flashes
10	Red Flashes
100	Green Flashes
1000	Purple Flashes
10000	Yellow Flashes
Example: 2 Red Flashes and 3 Blue Flashes = Address 23	



Changing the baud rate (Default = 38400)

1. Point the IR remote at the sensor.
 2. Press Stop. The sensor will flash a blue light.
 3. Press Power. The sensor will flash a blue light.
 4. Use the number buttons on the remote to enter the current address. (If it's address 1, press 1. If it's address 94, press 9 and then 4.) If there are multiple sensors in the room, this step allows you to select which sensor you want to configure.
 5. Press Enter. The sensor will flash a blue light.
 6. Press the numbers 102.
 7. Press Enter. The sensor will blink yellow.
 8. Use the number buttons on the remote to enter the new baud rate.
 9. Pressing Play will flash the current baud rate setting. Ex: 3 blue flashes = 38400
 - 1 = 9600
 - 2 = 19200
 - 3 = 38400
 - 4 = 76800
- TIP: If you enter the new baud rate incorrectly, press Stop and start over at step 1.
10. Enter number 1-4 for desired baud rate.
 11. Press Enter. The sensor will blink yellow and resume normal operation at selected baud rate.

Using the Factory Reset

Use the factory reset to restore sensor parameters to factory defaults and to reset the address to 0. The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. A blue light will blink.
 - a. If the current address is 94, press the 9 and 4.
4. Enter the numbers 1094 to change this parameter and press 'ENTER'. A pink light will blink.
5. Press 'PAUSE'. A pink light will blink. Power cycle the unit. After starting a white light will turn on solid. Use the 'Setting the Sensor Address for the First Time' section to set a new address.



Changing the Hysteresis

The hysteresis is a percentage of the threshold. The hysteresis is used to create a range of acceptable light levels above and below the threshold. This is so that lights do not turn on and off with every small variation in light level above and below the threshold.

Example: A large hysteresis (greater than 10%) would make the sensor less sensitive. A small hysteresis (less than 10%) would make the sensor more sensitive. A threshold of 100 with a hysteresis of 10% would give you an On value of 90 lux and an Off value of 110 lux. If the hysteresis was set too low at say 1% the On/Off values would be 99 & 101 lux which may cause the light to turn On/Off several times before staying On/Off due to clouds, people passing by, etc...

The hysteresis might need to be changed depending on local factors such as: normal outdoor light levels, how sunny or cloudy the sky tends to be, the type of windows in the building, whether the sensor is indoors or outdoors, etc.

If lights are too sensitive to changes in the light level, raising the hysteresis might help. If lights are not responsive enough to changes in the light level, lowering the hysteresis might help.

Selecting the optimal hysteresis will likely require on-site trial and error.

The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. A blue light will blink.
 - a. If the current address is 94, press the 9 and 4.
4. Enter the numbers 202 to change this parameter and press 'ENTER'. A white light will blink.
5. Enter the new, desired Hysteresis value and press 'ENTER'. Another white light will blink.
6. Press 'PLAY' to review the current hysteresis value. The sensor will flash a colored coded sequence of lights to indicate its value. See the table below for the flash color value and add up the number of flashes by value.
7. Press 'STOP' to exit. A blue light will blink, then a red light will blink and then blink each time motion is detected.

Hysteresis Value Range	Default
1 - 100%	10%

Hysteresis Value	Flash Color
1	Blue Flashes
10	Red Flashes
100	Green Flashes
1000	Purple Flashes
10000	Yellow Flashes
Example: 2 Red Flashes and 3 Blue Flashes = 23%	



Changing the Light Delay

The light delay is the number of seconds the action is delayed before being triggered.

Example: When the light level drops below the hysteresis range, the system waits a set amount of seconds before the lights come on or off. Used so lights aren't unintentionally triggered by reflections, cloud cover, exc...

The light delay feature helps to ensure that lights do not flicker on and off with every passing cloud or other brief and temporary changes in light level.

The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. A blue light will blink.
 - a. If the current address is 94, press the 9 and 4.
4. Enter the numbers 203 to change this parameter and press 'ENTER'. A yellow light will blink.
5. Enter the new, desired value and press 'ENTER'. A white light will blink.
6. Press 'PLAY' to review the current seconds value. The sensor will flash a colored coded sequence of lights to indicate its value. See the table below for the flash color value and add up the number of flashes by value.
7. Press 'STOP' to exit. A blue light will blink, then a red light will blink and then blink each time motion is detected.

Light Delay Value Range	Default
1 - 3600 seconds	1 second

Light Delay Value	Flash Color
1	Blue Flashes
10	Red Flashes
100	Green Flashes
1000	Purple Flashes
10000	Yellow Flashes
Example: 2 Red Flashes and 3 Blue Flashes = 23 Seconds	



Changing the Motion Sensitivity

The motion sensitivity is the sensitivity of the motion detector. The higher the number, the more motion that will be needed for the sensor to detect motion. The lower the number, then less motion will be needed for the sensor to detect motion.

The factory default works under most conditions. The motion sensitivity might need to be lowered if there is a motion sensor in an office that would be repeatedly tripped by people walking past the office door. The motion sensitivity might need to be raised if there is a motion sensor that does not seem to detect motion when there are occupants in the room.

Selecting the optimal motion sensitivity will likely require on-site trial and error.

The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. A blue light will blink.
 - a. If the current address is 94, press the 9 and 4.
4. Enter the numbers 301 to change this parameter and press 'ENTER'. A green light will blink.
5. Enter the new, desired motion sensitivity and press 'ENTER'. Another green light will blink.
6. Press 'PLAY' to review the current sensitivity value. The sensor will flash a colored coded sequence of lights to indicate its value. See the table below for the flash color value and add up the number of flashes by value.
7. Press 'STOP' to exit. A blue light will blink, then a red light will blink and then blink each time motion is detected.

Motion Sensitivity Value Range	Default
2 - 254	25

Motion Sensitivity Value	Flash Color
1	Blue Flashes
10	Red Flashes
100	Green Flashes
1000	Purple Flashes
10000	Yellow Flashes
Example: 2 Red Flashes and 3 Blue Flashes = Sensitivity Value of 23	



Changing the Threshold

The threshold is the light level in lux at which the action is triggered.

When the light level is below the threshold, it will turn the lights on. When the light level is above the threshold, it will turn the lights off.

The sensor allows the threshold to be set for 4 virtual button pairs.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. An blue light will blink.
 - a. If the current address is 94, press the 9 and 4.
4. Enter the IR code to change the desired parameter and press 'ENTER'. A white light will blink.
 - a. See the table below for the available IR Codes.
5. Enter the new threshold value and press 'ENTER'. A white light will blink.
 - a. To set the value to the current light sensor reading press 'REC'.
6. Press 'PLAY' to review the current lux value. The sensor will flash a colored coded sequence of lights to indicate its value. See the table below for the flash color value and add up the number of flashes by value.
7. Press 'STOP'. A blue light will blink, then a red light will blink and then blink each time motion is detected.

Description	IR Code	Value Range	Default
Lux Threshold Buttons 1/2	201	0 - 65535 lux	50
Lux Threshold Buttons 3/4	204	0 - 65535 lux	100
Lux Threshold Buttons 5/6	205	0 - 65535 lux	200
Lux Threshold Buttons 7/8	206	0 - 65535 lux	500

Threshold Value	Flash Color
1	Blue Flashes
10	Red Flashes
100	Green Flashes
1000	Purple Flashes
10000	Yellow Flashes
Example: 2 Red Flashes and 3 Blue Flashes = Value of 23 lux	



Changing the Vacancy Delay / Test Mode

The vacancy delay is the number of minutes that the lights stay on after motion stops.

Vacancy delay helps prevent lights from turning off while people are in the room.

The factory recommends that the vacancy delay is not set for less than 15 minutes, unless it is a closet, supply room, or a room where people are always moving if they are in there.

Test Mode can be used to test the sensitivity of the sensor. Using Test Mode sets the vacancy delay to 2 seconds.

Note: When you set the vacancy delay to '0' it still shows up as a value of '1' when you press the play button to review the value since there is no color value for '0'. Be sure to set a proper value for the vacancy delay after using the Test Mode.

The following steps are only applicable using a Universal IR Remote.

1. Point the Universal IR Remote towards the sensor and press 'STOP'. A blue light will flash.
2. Press 'POWER'. Another blue light will flash.
3. Enter the current address and press 'ENTER'. A blue light will blink.
 - a. If the current address is 94, press the 9 and 4.
4. Enter the numbers 302 to change this parameter and press 'ENTER'. A green light will blink.
 - a. Proceed to step 5 to set the desired motion sensitivity.
 - b. Proceed to step 8 to enter test mode.
5. Enter the new, desired vacancy delay and press 'ENTER'. Another green light will blink.
6. Press 'PLAY' to review the current minutes value. The sensor will flash a colored coded sequence of lights to indicate its value. See the table below for the flash color value and add up the number of flashes by value.
7. Press 'STOP'. A blue light will blink, then a red light will blink and then blink each time motion is detected. (Skip steps 8 - 9).
8. Enter the number 0 and press 'ENTER'. Another green light will blink.
9. Press 'STOP'. A blue light will blink, then a red light will blink and then blink each time motion is detected.

Vacancy Delay Value Range	Definition	Default
0	2 Second Test Mode	N/A
1 - 120	Number of Minutes	1 minute

Threshold Value	Flash Color
1	Blue Flashes
10	Red Flashes
100	Green Flashes
1000	Purple Flashes
10000	Yellow Flashes
Example: 2 Red Flashes and 3 Blue Flashes = Value of 23 minutes	



Appendix I - Virtual Buttons Mode 0

To Touch-Plate controllers, a sensor is an input device, just like a control station. Touch-Plate controllers “sees” that each sensor has eight (8) buttons.

The sensor communicates with the controllers via virtual button presses. These virtual button presses release input information to the controller based on set Thresholds. When the light level crosses a set threshold, the controller acts as if a button was pressed to trigger the configured action. To disable motion detection the sensor mode must be set to 0 using Analog Value AV10 via a BACnet frontend.

Sensor Used as a Light Sensor (Mode 0 = Motion Disabled)		
Virtual Button	Conditions that Trigger a Button Press	Description
1	Button 1 turns on and button 2 turns off if the light level is less than threshold 1/2 minus the hysteresis.	Ambient light less than Threshold_1/2 - Hysteresis
2	Button 2 turns on and button 1 turns off if the light level is more than threshold 1/2 plus the hysteresis.	Ambient light more than Threshold_1/2 + Hysteresis
3	Button 3 turns on and button 4 turns off if the light level is less than threshold 3/4 minus the hysteresis.	Ambient light less than Threshold_3/4 - Hysteresis
4	Button 4 turns on and button 3 turns off if the light level is more than threshold 3/4 plus the hysteresis.	Ambient light more than Threshold_3/4 + Hysteresis
5	Button 5 turns on and button 6 turns off if the light level is less than threshold 5/6 minus the hysteresis.	Ambient light less than Threshold_5/6 - Hysteresis
6	Button 6 turns on and button 5 turns off if the light level is more than threshold 5/6 plus the hysteresis.	Ambient light more than Threshold_5/6 + Hysteresis
7	Button 7 turns on and button 8 turns off if the light level is less than threshold 7/8 minus the hysteresis.	Ambient light less than Threshold_7/8 - Hysteresis
8	Button 8 turns on and button 7 turns off if the light level is more than threshold 7/8 plus the hysteresis.	Ambient light more than Threshold_7/8 + Hysteresis



Appendix II - Virtual Buttons Mode 1 (Default)

To Touch-Plate controllers, a sensor is an input device, just like a control station. Touch-Plate controllers “sees” that each sensor has eight (8) buttons.

The sensor communicates with the controllers via virtual button presses. These virtual button presses release information to the controller based on set Thresholds. When the light level crosses a set threshold, the controller acts as if a button was pressed to trigger the configured action.

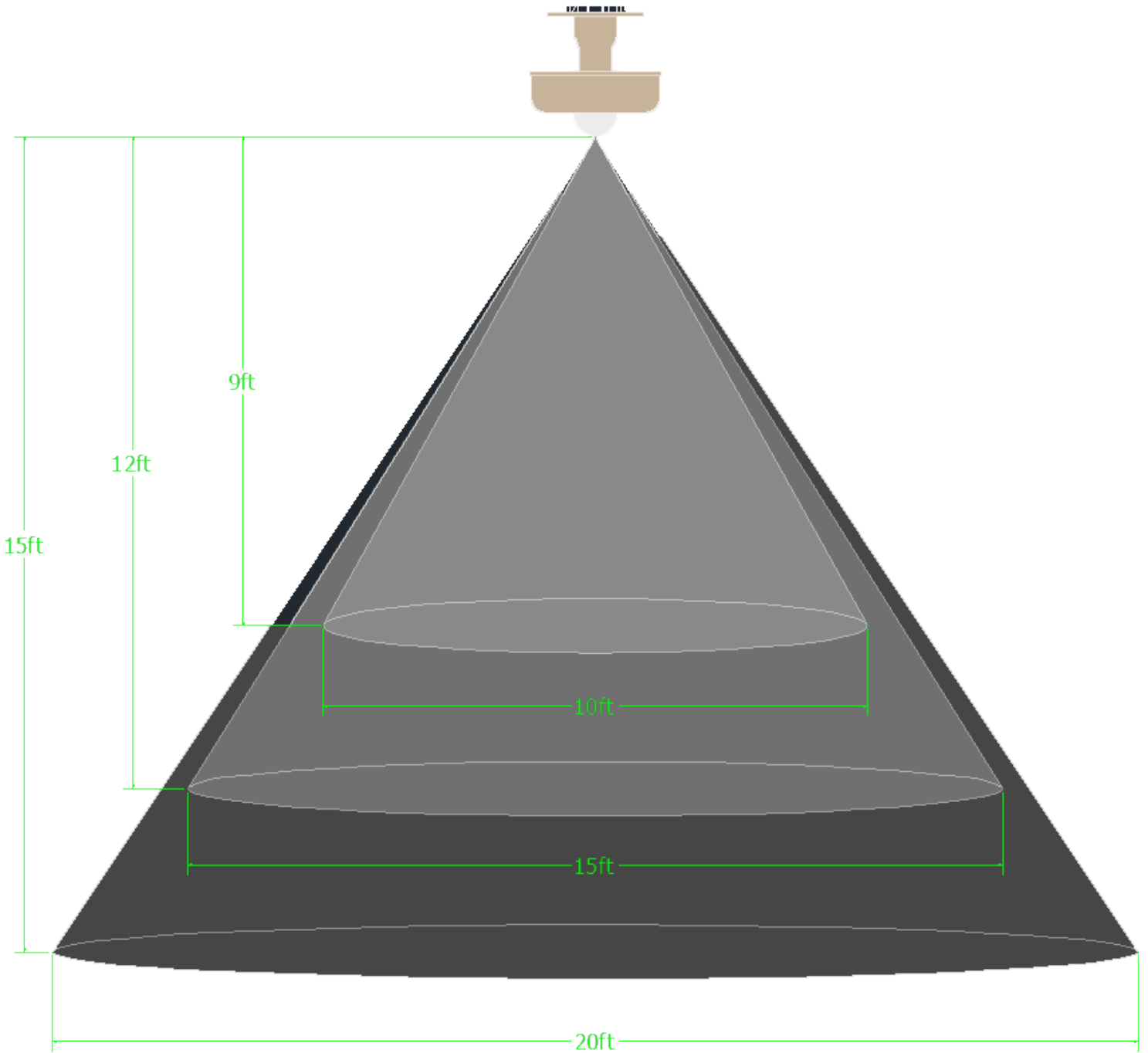
Sensor Used as a Light Sensor (Mode 1 = Motion Enabled)		
Virtual Button	Conditions that Trigger a Button Press	Description
1	Button 1 turns on and button 2 turns off if the light level is less than threshold 1/2 and the hysteresis.	Ambient light less than Threshold_1/2 - Hysteresis
2	Button 2 turns on and button 1 turns off if the light level is more than threshold 1/2 plus the hysteresis.	Ambient light more than Threshold_1/2 + Hysteresis
3	Button 3 is used for Maintain actions. When the sensor senses motion, the light stays on. When the sensor does not sense motion, the light turns off.	Occupied Maintain OCC Sensor On - Send button press - Send button press 1 sec later OCC Sensor Off - Send button release - Send button release 1 sec later
4	Button 4 is used for Auto Off actions, especially when there are multiple sensors in one room. When motion is sensed, the Auto Off timer starts over. This process is repeated until no motion is sensed.	Occupied Pulsed Repeat OCC Sensor On - Send button press - Send button release 1 sec later -Repeat pulse every 2 minutes OCC Sensor Off - Send button release
5	Button 5 is used for On/Off actions. When motion is detected, the lights turn on. It can work with Cycle action, but the effect is less reliable.	Occupied Pulsed Once OCC Sensor On - Send button press - Send button release 1 sec later
6	Button 6 is used for On/Off actions. When no motion is detected, the lights turn off. It can work with Cycle action, but the effect is less reliable.	Vacant Pulsed Once OCC Sensor Off - Send button press - Send button release 1 sec later
7	Button 7 is used for daylight harvesting. If a room is unoccupied or the light level is adequate, the light will stay off. If a room is occupied or the light level is below the threshold and hysteresis, the light will turn on.	If dark and room occupied
8	Button 8 is used to send a button press when light levels are within the hysteresis range.	Light good Light level is with the hysteresis



Appendix III - Motion Detection Range

The following diagram is the motion detection range for the Aura Interior sensor.

This representation is the minimum detection range possible. This representation is based on the typical setting at 25.



Frequently Asked Questions

1. How does the sensor get mounted?
 - a. The sensor comes with a mounting post, washer, and nut. To install the sensor, make a hole in the ceiling.
 - b. Place the washer on top of the ceiling tile or other material.
 - c. Screw the nut onto the mounting post until the sensor is secured tightly against the ceiling.
2. How does the sensor get uninstalled?
 - a. Unscrew the nut from the mounting post.
 - b. Remove the washer.
 - c. Pull the sensor out of its mounted location.
3. Can I open the sensor?
 - a. The factory does not recommend that you open the sensor. There are no DIP switches to set inside the sensor.
 - b. The lid and the fresnel lens should remain attached to the base of the sensor.





Touch-Plate Aura Interior BACnet IR Manual
Revision: 2.0a

