



Aura Exterior IR Settings Manual
(BACnet)

Table Of Contents

Preparation	2
Warranty.	2
Setting the Sensor Address for the First Time..	3
Changing the Sensor Address	3
Verifying the Sensor Address	3
Changing the baud rate (Default = 38400).....	4
Using the Factory Reset	4
Changing the Hysteresis	5
Changing the Light Delay.	6
Changing the Threshold.	7
Appendix I - PIC Statement	8
Appendix II - Virtual Buttons.	9
Frequently Asked Questions.....	10

Preparation

Unpack the Aura Exterior 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 Exterior 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 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	



Appendix I - PIC Statement

Vendor Name: Touch-Plate® Lighting Controls
 Product Name: Aura Exterior Sensor
 Product Model Number: AUR-EB-FX
 Applications Software Version: 1.5d
 Firmware Revision: 2.48
 BACnet Protocol Revision: 7 (135-2008)

Product Description:

This unit is a general purpose interior sensor that are mapped to Binary Input Objects.

The inputs support subscribed Change Of Value (COV) operation. MS/TP MAC address, baud rate, I/O configuration may be set using DIP switches.

BACnet Standardized Device Profile (Annex L):

BACnet Application Specific Controller (B-ASC)

BACnet Interoperability Building Blocks Supported (Annex K):

DS-RP-B, DS-RPM-B, DS-WP-B, DS-WPM-B, DS-COV-B, DM-DDB-B, DM-DOB-B, DM-DCC-B, DM-RD-B

Segmentation Capability: Not supported

Standard Object Types Supported:

STANDARD OBJECT TYPES SUPPORTED				
Object	Create	Delete	Optional Properties	Custom Properties
Binary Input	N	N	DEVICE_TYPE, RELIABILITY, INACTIVE_TEXT, ACTIVE_TEXT	---
Analog Value	N	N	---	---

DataLink Layer Options: MS/TP master, baud rate(s): 9600, 19200, 38400, 76800

Device Address Binding: Is static device binding supported? No

Networking Options: No routing or BBMD functions are supported.

Character Sets Supported: ANSI X3.4



Appendix II - Virtual Buttons

The sensor communicates with the controllers via virtual button presses BI's 1-4, or by directly reading the lux value of AV1. 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.

Outdoor Light Sensor		
Virtual Button	Conditions that Trigger a Button Press	Description
B11	B11 = 1 When Lux Level is greater than AV4 B11 = 0 When Lux Level is less than AV4	If ambient light is more than Threshold B11 + Hysterisis Then B11 = 1
B12	B12 = 1 When Lux Level is greater than AV5 B12 = 0 When Lux Level is less than AV5	If ambient light is more than Threshold B12 + Hysterisis Then B12 = 1
B13	B13 = 1 When Lux Level is greater than AV6 B13 = 0 When Lux Level is less than AV6	If ambient light is more than Threshold B13 + Hysterisis Then B13 = 1
B14	B14 = 1 When Lux Level is greater than AV7 B14 = 0 When Lux Level is less than AV7	If ambient light is more than Threshold B14 + Hysterisis Then B14 = 1



Frequently Asked Questions

1. How does the sensor get mounted?
 - a. The sensor comes with a mounting post and nut. To install the sensor, make a hole in the ceiling or location.
 - b. Insert the wiring and post through the hole.
 - c. Screw the nut onto the mounting post until the sensor is secured tightly against the ceiling or location.

2. How does the sensor get uninstalled?
 - a. Unscrew the nut from the mounting post.
 - b. Pull the sensor out of its mounted location.





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Manual
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