TIS Smart Home

PIR/Ultrasonic Occupancy Sensor

Operation and Specifications

The SMART-BAT is a low-voltage PIR/Ultrasonic Occupancy sensor that works with TIS 24 DC power Supply or other class 2 power supplies, to control lighting automatically and saving energy. The sensor can be connected to TIS Digital Inputs for max saving energy logic.

SENSOR INITIALIZATION

Following power-on, the SMART-BAT sensor is fully operational after 30 sec warm-up.

SENSOR OPERATION

Multi Tech Mode: This is the default mode of operation for the sensor. PIR technology turns lights on in this mode; however, motion detection by either technology will keep the lights ON. If neither technology detects motion, the lights turn off after the delayed-OFF time.

Single tech mode: Only one technology is active in this mode. The technology is selected by the dip switches Motion detection by the selected technology - PIR or ultrasonic - will turn ON the lights as well as keep them ON. When motion is not detected, the light will turn OFF after the delayed-OFF time.

Delayed off time: The sensor is designed to turn the light OFF if no motion is detected after a specified time. The length of time is called the delayed-off time and is set using the timer knob on the sensor. The adapting patterns will modify the delayed-OFF time to fit the parameters of each installation based on environmental conditions and occupancy patterns.

Walk- through Mode: The walk- through feature is useful when a room is momentarily occupied. With this feature, the sensor will turn the lights OFF shortly after the person leaves the room.
The walk-through feature works as follows: When a person enters the room, the lights will turn on. If the person leaves the room before the default walk-through time-out of 2.5 minutes, the sensor will turn the lights OFF. If the person stays in the room for longer than 2.5 minutes, the sensor will proceed to the standard operation.

LED Operation: There are two LED indicators that will flash when motion is detected. The LED flash can be disabled using the LED disable switch setting. A Green flash indicates motion detection by ultrasonic technology. A Red flash indicates motion detection by infrared technology.

IR Detector: Pyroelectric Dual elements

Power Supply:
24 Vdc; 45 mA at 24 Vdc

Housing Material:
High-impact ABS

Dimensions:
Ø110 x 56 mm (Dia x D)

Approvals / qualification:
CCC(Pending)
CE (Pending)

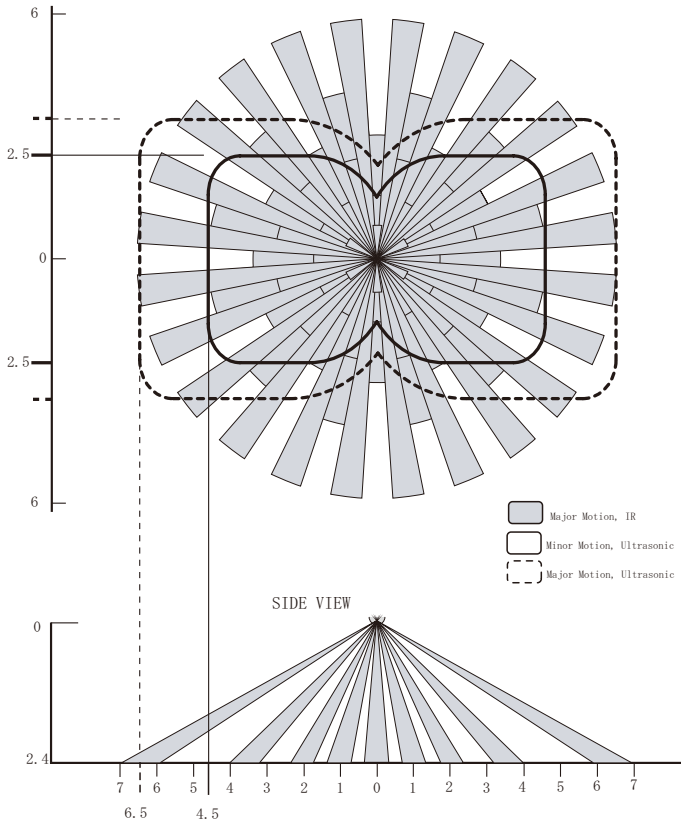
RF Immunity:
20 V/m 10-1000 MHz;
10 V/m 1-2 GHz

Ultrasonic Frequency:
40KHz

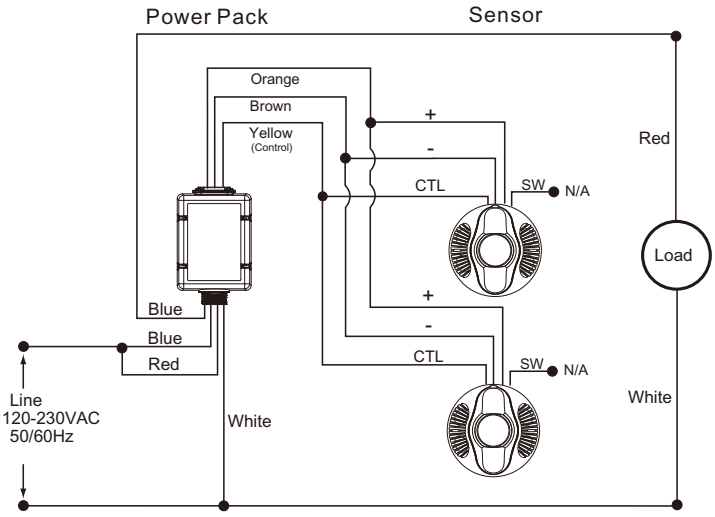
Operating Temperature Range:
-10°C to +50° C

Accessories:
Trim ring for solid ceiling;
Retaining spring for drop ceiling

Field-of-view



Wiring Diagram:Multiple Sensor, Single Power Pack



Limitations of Sensor Products: Sensor products and associated systems do not offer guaranteed performance in ordinary situations or in special situations including but not limited to burglary, fire, or other emergencies. They may fail to function for diverse reasons, including (but not limited to): power failure, dead batteries, improper installation, coverage "blind spots", coverage areas overlooked during installation, component failure, or inadequate maintenance. Sensors and their associated systems should be checked weekly to ensure that all devices are working properly.

TIS Smart Home Co LLC, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for twelve months from the date of original purchase. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any part which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. Seller shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than Seller. For warranty service, return transportation prepaid, to TIS Smart Home Co LLC. Seller has no obligation to attend the buyer's location to retrieve the goods or make repairs on site.

There are no warranties, expressed or implied, of merchantability, or fitness for a particular purpose or otherwise, which extend beyond the description on the face hereof. In no case shall seller be liable to anyone for any consequential or incidental damages for breach of this or any other warranty, express or implied, or upon any other basis of liability whatsoever, even if the loss or damage is caused by its own negligence or fault.

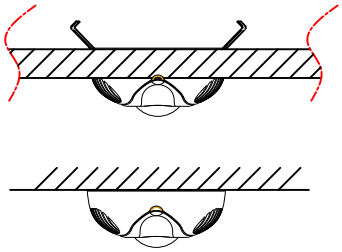
Seller does not represent that the products it sells may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the products will in all cases provide adequate warning or protection. Customer understands that a properly installed and maintained alarm system may only reduce the risk of a burglary, robbery, or fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result.

Consequently, seller shall have no liability for any personal injury; property damage or other loss based on a claim the product failed to give any warning. However, if seller is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, seller's maximum liability shall not in any case exceed the purchase price of the product, which shall be the complete and exclusive remedy against seller.

This warranty replaces any previous warranties and is the only warranty made by Seller on this product. No increase or alteration, written or verbal, of the obligations of this Limited Warranty is authorized.

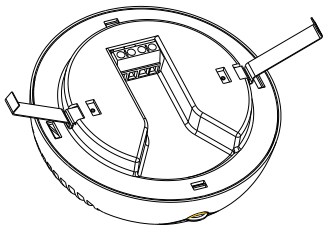
1: Sensor Mounting Choices

The sensor may be mounted either in a drop-ceiling panel, or on a solid ceiling. In a drop-ceiling panel, two metal springs serve to retain the sensor in the panel. On a solid ceiling, the sensor is mounted on a base ring (Supplied with the sensor).The base ring is fastened to the ceiling by means of three screws.



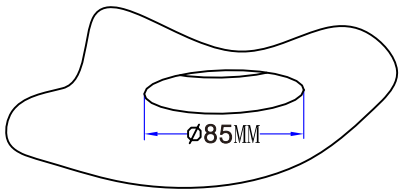
2: Drop-ceiling Mounting: Base Preparation

Install the two retaining springs as shown.



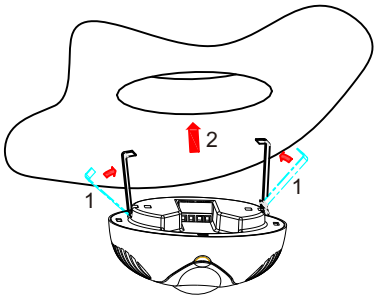
3: Drop-ceiling Mounting: Panel Preparation

Use a hole saw to cut a 85 mm circular hole in the drop-ceiling panel at the desired location.



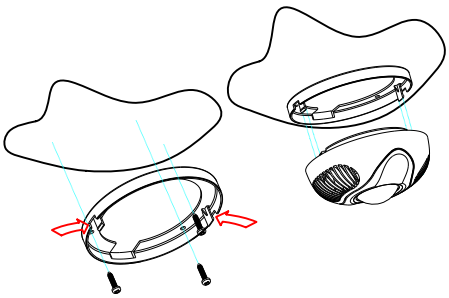
4: Drop-ceiling Mounting: Sensor Installation

Press the retaining springs together, then push the springs and the sensor base through the ceiling panel hole until the sensor rim is seated against the panel.



5: Solid-ceiling Mounting

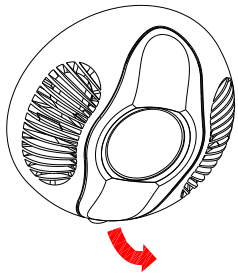
Use the three screws (supplied with the sensor) to fasten the base ring to the ceiling. Align the sensor's two eyelets with the base ring's two hooks; Press the sensor onto the base ring.



NOTE: The line between the two screws defines the detection of longer sensing range (see the field of view diagram).

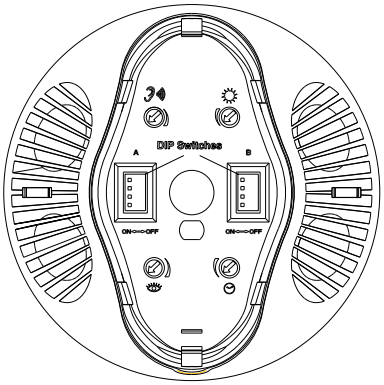
6: Sensor Opening

Slide a fingertip under the tab at one end of the co-ntrol cover. Pull gently to remove the cover.



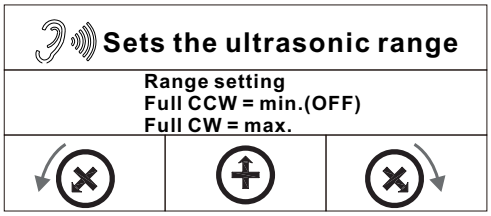
7: Operation Control Console

All aspects of sensor operation can be adjusted here.



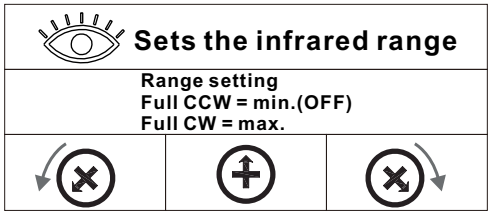
8: Ultrasonic Adjustment

For maximum range, Set fully clockwise(CW); If reduced range is required, then turn counter-clock wise (CCW) and test range.



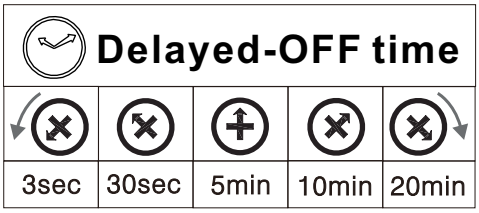
9: Infrared Adjustment

For maximum range, Set fully clockwise(CW); If reduced range is required, then turn counter-clock wise (CCW) and test range.



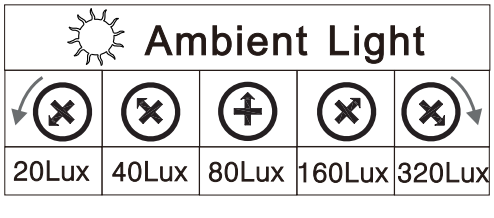
10: Delayed-OFF time Adjustment

Each time motion is detected, the load remains activated for a pre-set time, which is set by the delayed-OFF time adjustment. The fully counter-clockwise setting (3 seconds) can be used for testing. The fully clockwise setting is 20 minutes. If motion is detected during the ON time, then the load remains activated until the full delayed-OFF time has passed since the latest motion detection.



11: Sunset Sensor Adjustment

With ambient light is just at a "no lighting necessary" level, and, with the sensor mounted as normal, remove the control cover, set the Light Level control fully clockwise, and set the DIP switch Bank B3 to enter the test mode (delayed-OFF time to 5 seconds). Replace the cover and walk under the sensor. The LED should light, indicating detection (and load-activation output). Again remove the cover, adjust the control a little counter-clockwise, replace the cover and test. Continue until the LED does not light .



12: Operation Mode Adjustment

TABLE 4: SWITCH SETTINGS

SWITCH	SWITCH FUNCTIONS	SWITCH SETTINGS	
	Bank A	OFF	ON
A1	Single/Multi-Tech Mode	Multi-Tech	Single Tech
A2*	Multi-Tech (A1 OFF)	Multi-Tech mode1	Multi-Tech mode2
	Single Tech (A1 ON)	PIR	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Through Mode	Walk-Through Enable	Walk-Through Disable
	Bank B		
B1	Light Mode	Lights Adjust Enable	Lights Adjust Disable
B2	LEDs Mode	LEDs Enabled	LEDs Disable
B3	Test Mode	OFF→ ON→ OFF = Enter/Exit Test Mode	
B4	N/A	N/A	N/A

* **NOTE**: This setting is used the Multi Technology and Single Technology Option;

Test Mode: To set the delayed-OFF time to 5 seconds for performing a walk test. While the sensor is in test mode, the LEDs will flash amber once a second.

1. ENSURE POWER IS ON.
2. Remove front cover.
3. Locate Dip Switch 3 in Bank B (B3) (refer to Figure 1) B3 will be in the OFF position from the factory.
4. To enter Test Mode, move switch to ON and back to OFF. The test mode has now been entered with a 5 second delayed-OFF time. **NOTE**: If B3 is already in the ON position, then test mode can be entered by just moving it to the OFF position.

NOTES:

1. The timer will remain in the 5 second test mode for 15 minutes, then automatically exit test mode and reset to the delayed-OFF time setting as defined by the black timer knob.
2. To manually take the timer out of the 5 second test mode, simply toggle the switch B3 from OFF to ON and back to OFF.