Ocelli

Sense Command Control

Third Eye

Energy Saving Sensors

Save Energy Today for a Better Tomorrow

GREEN CITY

Human activities continue to have a massive impact on global warming. Almost all of the observed increase in temperature in the last 50 years has been due to an increase in the atmosphere of greenhouse gas concentration like Carbon dioxide (CO2) Methane and Ozone. The largest contributor to green house gases is the burning of fossil fuels (Coal, Oil, Natural gas etc). Currently about 75% of the power worldwide is generated using Fossil fuels. It is up to us to reduce CO2 emissions and slow down the effects of Global warming.

Lights have revolutionized the way we live, work, and play. Lighting accounts for anywhere between 11 to 38 percent of the average electricity bill. Therefore, it is important that we conserve electricity used for lighting. Power is wasted by having the area over illuminated during the day by designing to have enough light during the night or leaving the lights on when the area is unoccupied. Saving power can be accomplished by switching the lights On and Off automatically in response to the areas occupancy status. Further savings can be realized when such occupancy sensing is combined with daylight harvesting or dimming the lights during the day when natural light is available.

Motion Sensor History

The first motion detector burglar alarm was invented in the early 1950's by Samuel Bagno and is based on the principles of radar applied to ultrasonic waves, a frequency that humans cannot hear - the difference in the frequency of a moving object, like a train sounding louder as it gets closer. The problem was that false alarms were common.

Modern (PIR) Sensors

The term "Passive Infrared", or "PIR", refers to motion detectors used to detect people by sensing the thermal infrared radiation emitted by the human body. At the end of the sixties, alternatives to microwave and ultrasonic motion detectors were explored. PIR promised lower cost and fewer false alarms. In 1970 Herbert Berman invented the segmented mirror made from metallized plastic as an effective system for optical gain and the spatial modulation needed to generate a signal when people move across the field of view. A major breakthrough was achieved in 1979 with the commercial availability of the dual (or differential) pyroelectric sensor. Fresnel lenses were introduced first in the USA, driven by the search for simple alternatives to get around Berman's patent. It is good to remember, "Passive infrared sensors are passive and does not emit any radiation".

Occupancy Sensing

Occupancy sensors are devices that detect occupancy in a space by sensing the thermal radiation from humans. Occupancy sensors are used to control the load automatically, based on occupancy. Occupancy sensors can save up to 35% electricity used for lighting.

Daylight harvesting

Daylight harvesting is a technique used to optimize the amount of artificial light used in response to available natural light. It does this either by turning OFF the light or by dimming in response to available daylight. When daylight harvesting is used along with occupancy sensor it will further improve savings.

Sensor Cascade connection

Daylight dimmable sensors can be cascaded together to increase the load driving capacity or to provide area specific lighting based on local ambient lighting condition while still responding to occupancy. Only occupancy sensor can be cascaded. Sensors can be cascaded either in a hierarchical master-slave form or in a peer-peer form.

Switching controller

Switching controllers are used to turn the load ON and OFF based on the sensor decision.

Dimming controller

Dimming controllers are used to provide optimum artificial light in response to changing natural light by reducing the brightness of artificial light.

Ceiling Sensor

These sensors are mounted on the ceiling giving them an unobstructed view of the area. They usually have a 360° field of view and cover a large area depending on the height of installation. They are very efficient in applications where a large area needs to be controlled. These sensors are usually used in open offices where the furniture is not tall enough to obstruct the view of the sensor.

Wall Sensor

The sensors are usually mounted higher on the wall where it is not easily accessible to the consumer. They are usually installed in common areas to control lighting like apartment or hotel aisles, Public bathroom and others where they need to operate independently and are not easily accessible to tampering.

Socket Sensor

These sensors are mounted on the wall at the same height as the switches that are used to control a given area. They usually have a 180° field of view and are usually found in conference rooms or private offices and other application where the sensor has an unobstructed view of the area they covers (that means that there are no tall furniture that block the view).

Vacancy Sensor

These are semi-automatic sensors; the sensors require to be turned on manually by the occupant, will stay on as long as there are occupants in its field of view, and will automatically turn off the lights when the area is vacant.

Three way sensors

Three way sensors are a combination of occupancy and vacancy sensors. The loads can be turned ON either automatically by occupancy detection or manually by means of an external switch. Turning off is always automatic based on a user settable time delay.

Features

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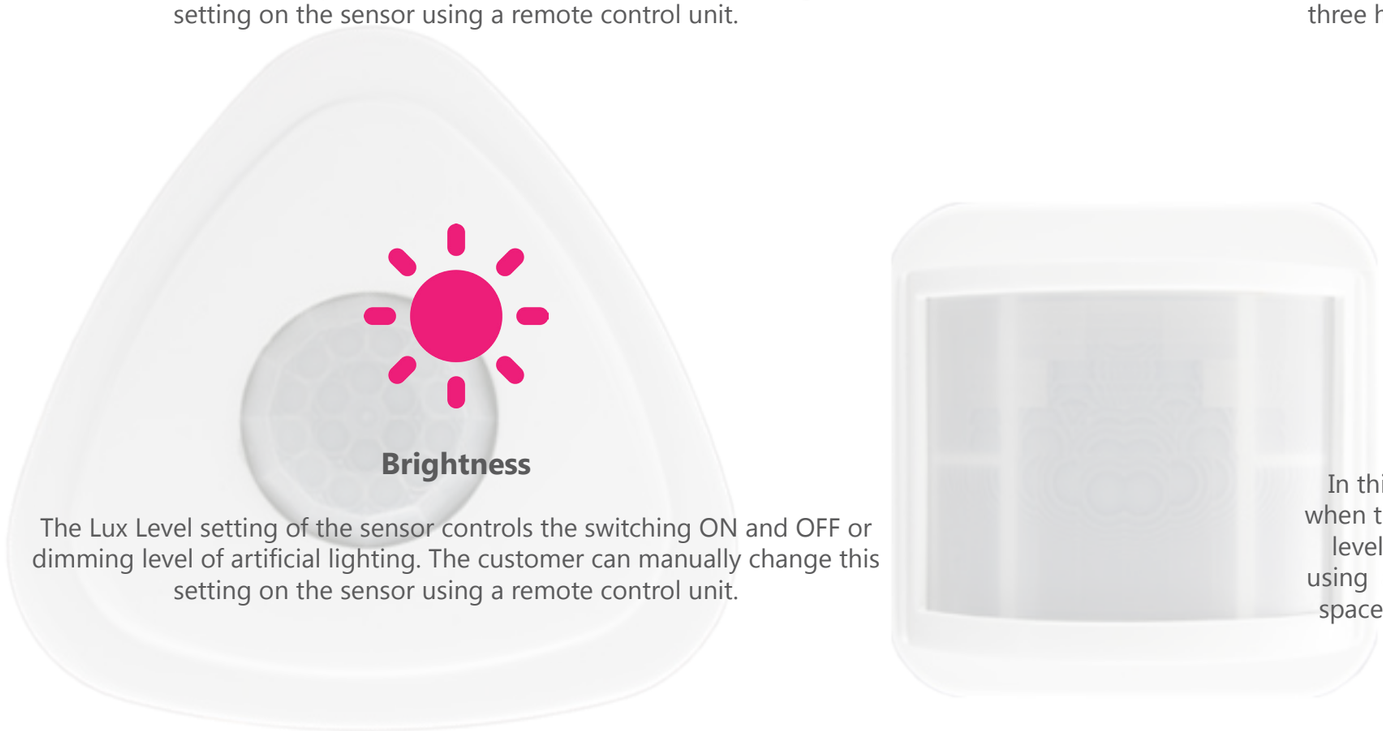
Sensitivity

This setting controls the minimum amount of movement required for the sensor to detect whether a given area is occupied (human movement is used for detection) and turn ON the lights. Sensors are shipped with this setting set to the most sensitive position. The customer can manually change this setting on the sensor using a remote control unit.



Brightness

The Lux Level setting of the sensor controls the switching ON and OFF or dimming level of artificial lighting. The customer can manually change this setting on the sensor using a remote control unit.

Time Delay

This is the duration that the sensor maintains the lights (or any other load connected to it) in the ON condition after the last occupancy is detected. Sensors are shipped with this parameter set at 5 min. The customer can manually change this setting using a remote control from 30sec to 30min.

Security

This mode is used to simulate human occupancy to a given area a lived in look. In this mode, when the ambient light sensor senses the light to be at or below a certain customer determined level (the sensor assumes that it is dusk), lights in the area are randomly turn On and OFF simulating human occupancy. This continues for three hours, simulating a lived in look. After three hours the sensor stays OFF through the night till the following evening wherein it repeats the random turning On and OFF of lights.

Partial On

In this mode the lights are never fully turned ON (100% of the light level) when the space is occupied. Instead the sensor turns ON the light to a preset level (which can be less 100% level). User can change the partial on level using a remote from 70% to 100%. There is no change in behavior when the space is not occupied. This feature is only applicable for dimmable sensors and when used in conjunction with a dimmable ballast.

Partial Off

In this mode the lights are never turned OFF completely (i.e 0%) when the space is no longer occupied. Instead the sensor dims the light to a preset level. User can change the partial off level using a remote control unit from 0% to 30%. There is no change in behavior when the space is occupied. This feature is only applicable for dimmable sensors and when used in conjunction with a dimmable ballast.
(PS: Some luminaries may have difficulty in going below a certain dim level)

Features

Presentation Mode

This feature is useful during presentations using a projector to temporarily override the ambient light sensor based brightness control. After the presentation is over and once the room is vacated as indicated by the time delay sensor, the sensor reverts back to normal mode and start controlling the light based on the ambient light sensor. This feature is only applicable for dimmable sensors and when used in conjunction with a dimmable ballast.

Vacancy Mode

Vacancy sensors use the same technique as occupancy sensor to detect the occupancy. These class of sensors do not turn ON the load automatically. Load has to be turned ON manually but the sensors turn OFF the load automatically when the space no longer occupied.

Three Way Mode

Three way sensors are a combination of occupancy and vacancy sensors. The load can be turned ON either automatically by occupancy detection or manually by means of an external switch. Turning off is always automatic upon vacancy as detected based on a usersettable time delay. This mode is typically used in conjunction with two/three way switches in stairs.

Load Maintenance Mode

Some of our sensors are equipped with a load maintenance switch. This enables the user to replace/maintain the load without turning off power to the whole office or house.

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Burn-In

Burn-in helps to extend the overall lifetime of CFL or FTL bulbs and also improves the quality of light output. NEMA spec LSD 23-2010 recommends that the bulbs go through Burn-in, by operating at ballast's maximum light outputs for a minimum of 12 hours continuously without dimming. The Burn-in feature is available on all sensors but is disabled by default. This feature can only be activated using a remote control.

CFL

The lifetime of a CFL/FTL lamp depends on how frequently the lamp is turned ON and OFF. The US energy star recommends that the CFL should be ON for minimum of 15 minutes each time it is turned on. Our sensors are designed to address this issue and maintains a minimum ON time of 15 minutes. This feature is enabled at the time of shipment but can be disabled using a remote control.

Fail Safe Mode

It is very important to pay attention to the security and safety of the occupants due to failures in the sensors thereby not turning ON the light/load. If and when there is a failure in our sensor, the lights/loads are fully turned on, so that there are no safety concerns to the occupants.

Factory Reset

This feature resets the settings that were set up using a remote controls back to the Remote/Factory default value.

Features

Cascade Operation

Daylight dimmable sensors can be cascaded together to increase the load driving capacity or to provide area specific lighting based on local ambient light condition while still responding to occupancy. Only occupancy sensor can be cascaded. Sensors can be cascaded either in a hierarchical master-slave form or in a peer-peer form.

On-Demand Mode

This mode is used to provide on-demand lighting. User can select three different mode of the sensor. 'Always OFF' mode indicated by red color LED indication; 'Always ON' mode indicated by green color LED indication; 'Auto' mode indicated by yellow color LED indication.

Storage

When a remote control is used to change any setting, the setting is automatically saved into the sensors permanent memory. This helps the sensor to retain the setting even after a power loss The setting can be overridden by entering the override mode on the remote control there by reverting back to hardware based settings.

Setup Mode

This mode is used to check the motion sensing coverage of the motion sensors. In this mode, If the sensor detects a movement in its range, it will turn the load ON for a very short time (XX second) indicating coverage. If the loads do not turn ON with motion it would mean that the sensor is out of range. By walking around the perimeter one can plot the sensor range using this mode.

IR remote Access

Sensors can be remotely controlled by an Infrared (IR) remote control. This enables a better control of the sensor's parameters during installation. Sensor provides a visual cue to indicate the setting being changed and also value of the settings.

Visual Cue

Sensors provide visual cue during configuration of settings. The RGB LED light up in different colors depending on the current value of the setting being changed.

Child Lock

All sensors are equipped with child/setting lock/unlock feature on the remote control. This feature can be used to prevent accidental changes to the sensor settings either by child or in an area where there are multiple sensors. To make any settings changes the sensor needs to be unlocked first. If the sensor is in a locked state, any attempts made to change the setting is not allowed and will be indicated by flashing bright red LED

Future Proof

Sensors are firmware upgradable in the field with a special accessory. This makes the sensor future proof and purchase decision easier for the user.

Specifications

On - Off Sensors

Coverage Area
Ceiling Sensor : 450Sq.ft @ 8ft Height
Wall Sensor : upto 75ft @ 6.8 ft Height
Socket Sensor : upto 32 ft @ 6.8 ft Height
HighBay Sensor : 5000 sq.ft @ 40 ft Height
Corridor sensor : upto 90 ft @ 6.8ft Height

Time Delay : 30s-30 Mins
Lux Level : 10-2000 Lux
Operating Voltage : 85-265 VAC
Frequency : 50/60 Hz
Load : 2000 Watts (resistive)
Location : Indoor

Features	Occupancy & Light	Occupancy Only	Light Only	ThreeWay	Vacancy
Sensitivity	✓	✓	✗	✓	✓
Brightness	✓	✗	✓	✓	✓
Time Delay	✓	✓	✓	✓	✓
Security	✓	✗	✓	✓	✓
Partial Off	✗	✗	✗	✗	✗
Partial On	✗	✗	✗	✗	✗
Presentation Mode	✗	✗	✗	✗	✗
Vacancy Mode	✗	✗	✗	✗	✓
Threeway Mode	✗	✗	✗	✓	✗
IR Remote Access	✓	✓	✓	✓	✓
Visual Cue	✓	✓	✓	✓	✓
Setting Storage	✓	✓	✓	✓	✓
Factory Reset	✓	✓	✓	✓	✓
FailSafe Mode	✓	✓	✓	✓	✓
Load Maintenance	✗	✗	✗	✗	✗
Burn-IN	✓	✓	✓	✓	✓
CFL	✗	✗	✗	✗	✗
Future Proof	✗	✗	✗	✗	✗
Cascade Operation	✗	✗	✗	✗	✗
On-Demand Mode	✓	✓	✓	✓	✓
Coverage Test	✓	✓	✗	✓	✓
Child Lock	✓	✓	✓	✓	✓

Specifications

Dimmable Sensors

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Coverage Area
Ceiling Sensor : 450Sq.ft @ 8ft Height
Wall Sensor : upto 75ft @ 6.8 ft Height
Socket Sensor : upto 32 ft @ 6.8 ft Height
HighBay Sensor : 5000 sq.ft @ 40 ft Height
Corridor sensor : upto 90 ft @ 6.8ft Height

Time Delay : 30s-30 Mins
Lux Level : 10-2000 Lux
Operating Voltage : 85-265 VAC
Frequency : 50/60 Hz
Load : 2000 Watts (resistive)
Location : Indoor

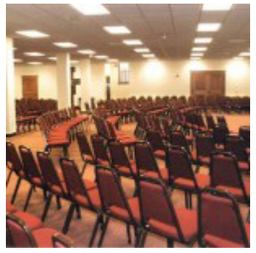
Features	Occupancy & Light	Light Only	Cascade
Sensitivity	✓	✗	✓
Brightness	✓	✓	✓
Time Delay	✓	✓	✓
Security	✓	✓	✓
Partial Off	✓	✓	✗
Partial On	✓	✓	✓
Presentation Mode	✓	✓	✗
Vacancy Mode	✗	✗	✗
Threeway Mode	✗	✗	✗
IR Remote Access	✓	✓	✓
Visual Cue	✓	✓	✓
Setting Storage	✓	✓	✓
Factory Reset	✓	✓	✓
FailSafe Mode	✓	✓	✓
Load Maintenance	✗	✗	✗
Burn-IN	✓	✓	✓
CFL	✓	✓	✓
Future Proof	✗	✗	✗
Cascade Operation	✗	✗	✓
Child Lock	✓	✓	✓
On-Demand Mode	✓	✓	✓
Coverage Test	✓	✗	✓

Preferred Install Locations

Ceiling Sensor

Suitable for Corridors, Individual Cabins, Rest Rooms, Meeting Hall, Residential

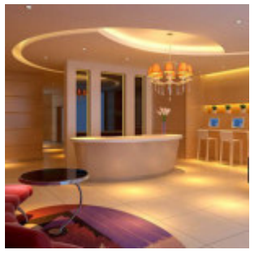





Wall Sensor

Suitable for Lobbies , Waiting Rooms, Class rooms. Individual Cabins, Rest Rooms, Meeting Hall,Bathroom

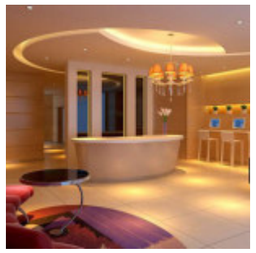
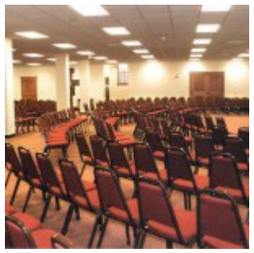


Socket Sensor

Suitable for Corridors, Warehouses ,High bay spaces, Gymnasiums, Distribution Centers

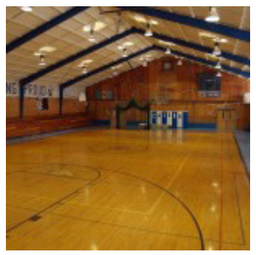


HighBay Sensor

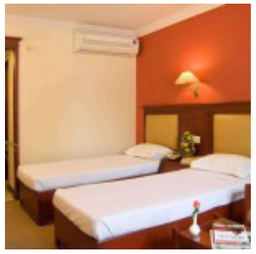
Suitable for Corridors, Warehouses ,High bay spaces, Gymnasiums, Distribution Centers

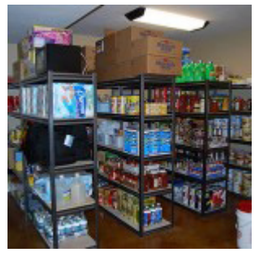





Vacancy Sensor

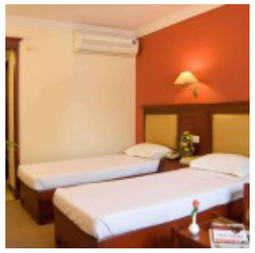
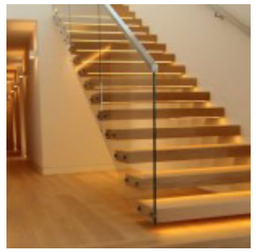
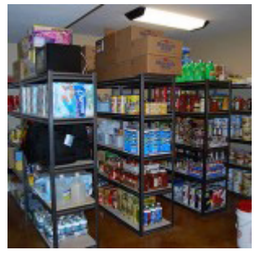
Suitable for Hotels, Storage rooms , Conference rooms, Lounges, Bath rooms



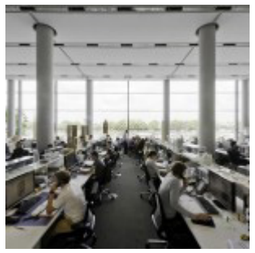
ThreeWay Sensor

Suitable for Stairs, Hotels, Storage rooms , Conference rooms, Lounges, Bath rooms

Cascade Sensor

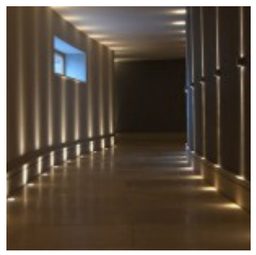
Suitable for open office space, auditorium

Corridor Sensor

Suitable for Corridor






Ceiling Sensor

Variants

IOCHCW-WR1 / IOFHCW-WR1 Occupancy and Light Sensor

IVCHCW-WR1 / IVFHCW-WR1 Vacancy and Light Sensor

ITCHCW-WR1 / ITFHCW-WR1 ThreeWay and Light Sensor

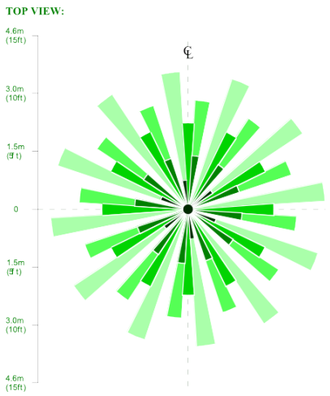
INCHCW-WR1 / INFHCW-WR1 Occupancy Only Sensor

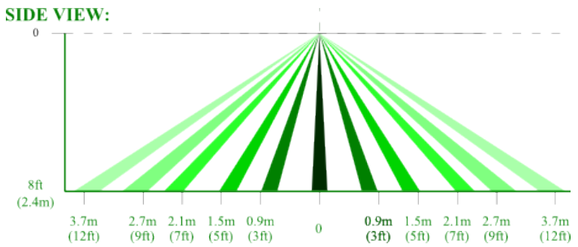
ILCHCW-WR1 / ILFHCW-WR1 Light Only Sensor

ICCHCW-WR1 Cascade and Light Sensor

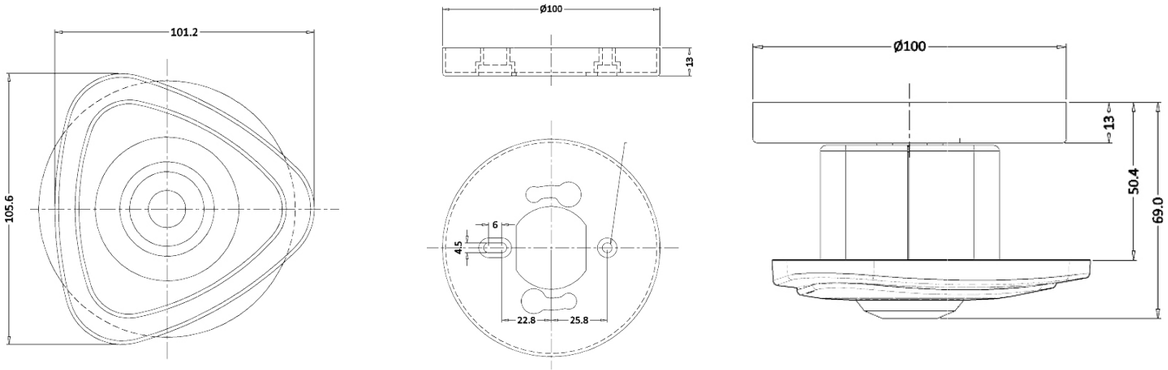
Coverage Area

Installation Height : 8 Feet Coverage Area: 450 Sq.ft





Mechanical Drawings



Note : Coverage diagram is not applicable for light sensor

Wall Sensor

Variants

IOWHCW-WR1 Occupancy and Light Sensor

IVWHCW-WR1 Vacancy and Light Sensor

ITWHCW-WR1 ThreeWay and Light Sensor

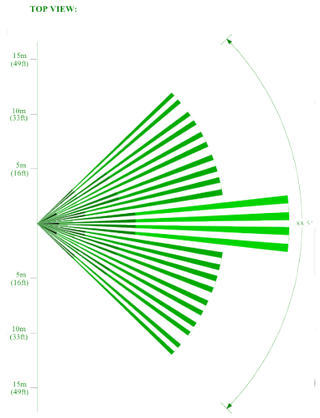
ICWHCW-WR1 Cascade and Light Sensor

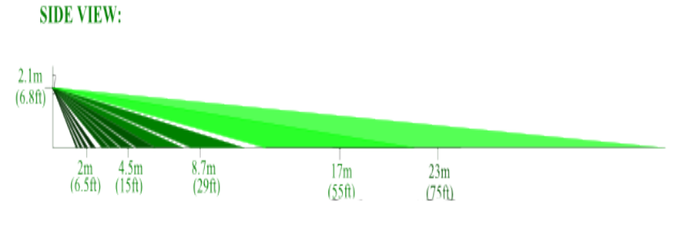
INWHCW-WR1 Occupancy Only Sensor

ILWHCW-WR1 Light Only Sensor

Coverage Area

Installation Height : 6.8 Feet Coverage : upto 75 Feet





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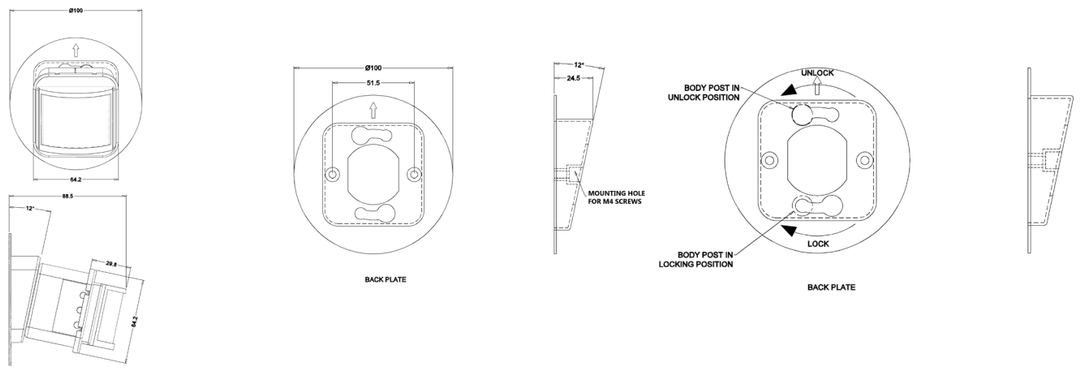


Note : Coverage diagram is not applicable for light sensor

Socket Sensor

Variants

IOSHCW-WR1 Occupancy and Light Sensor

IVSHCW-WR1 Vacancy and Light Sensor

ITSHCW-WR1 ThreeWay and Light Sensor

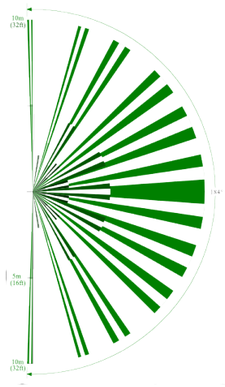
ICSHCW-WR1 Cascade and Light Sensor

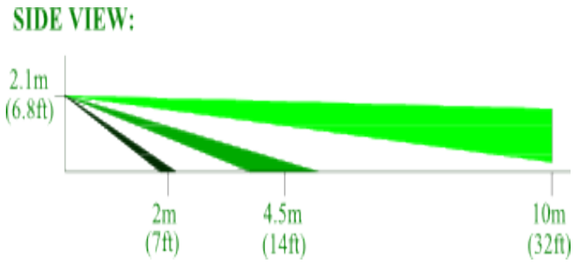
INSHCW-WR1 Occupancy Only Sensor

ILSHCW-WR1 Light Only Sensor

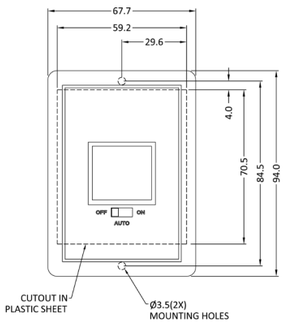
Coverage Area

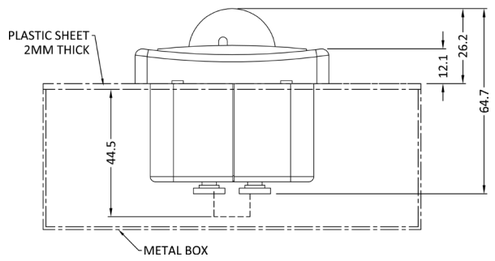
Installation Height : 6.8 Feet Coverage : upto 32 Feet





Mechanical Drawings





Note : Coverage diagram is not applicable for light sensor

HighBay Sensor

Variants

IOBHCW-WR1 Occupancy and Light Sensor

IVBHCW-WR1 Vacancy and Light Sensor

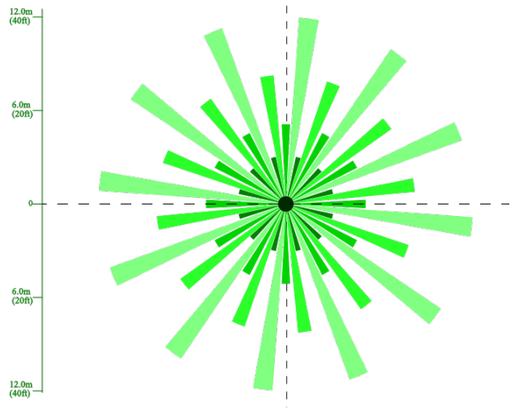
ITBHCW-WR1 ThreeWay and Light Sensor

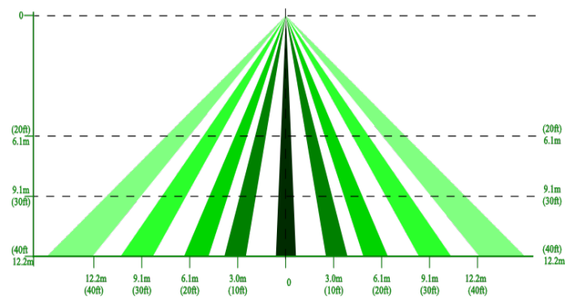
ICBHCW-WR1 Cascade and Light Sensor

INBHCW-WR1 Occupancy Only Sensor

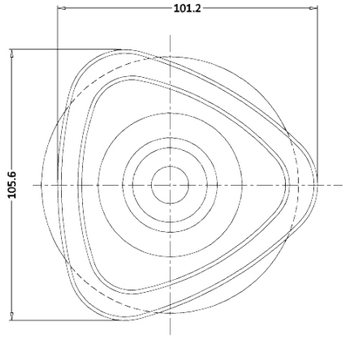
Coverage Area

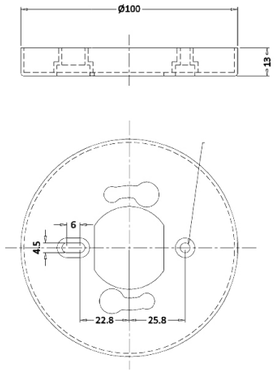
Installation Height : 40 Feet Coverage Area: 5000 Sq.ft

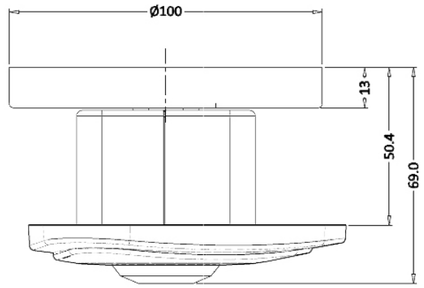




Mechanical Drawings







Corridor Sensor

Variants

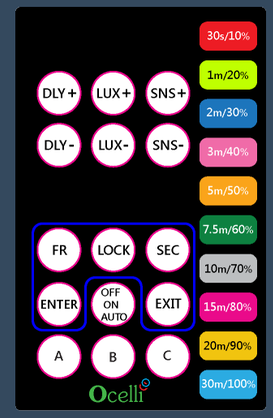
IOOHCW-WR1 Occupancy and Light Sensor

IVOHCW-WR1 Vacancy and Light Sensor

ITOHCW-WR1 ThreeWay and Light Sensor

ICOHCW-WR1 Cascade and Light Sensor

INOHCW-WR1 Occupancy Only Sensor



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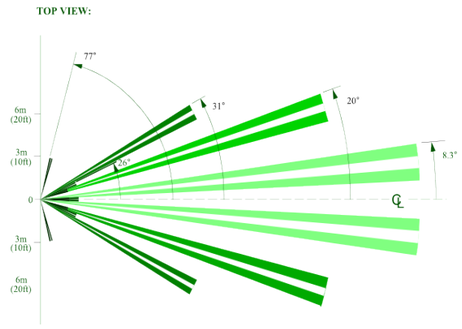
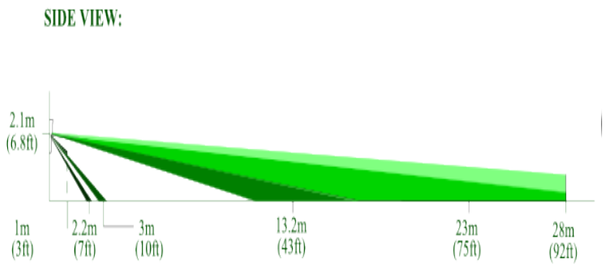
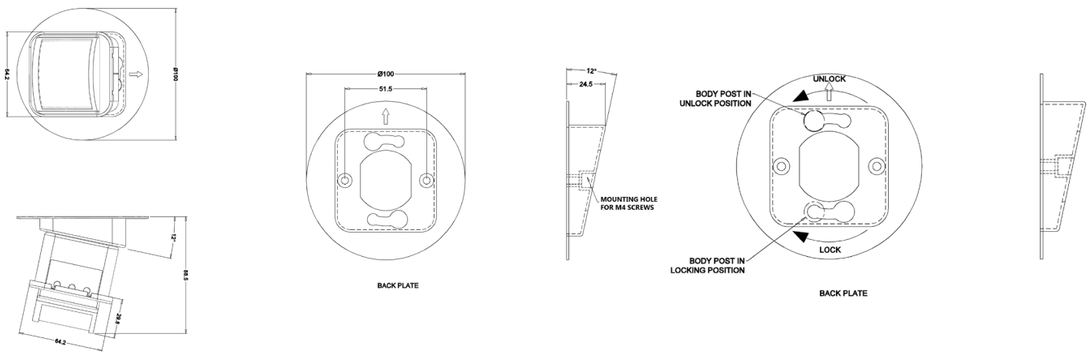
Coverage Area

Installation Height : 6.8 Feet Coverage : upto 90 Feet





Mechanical Drawings



Mini Remote Features

TIME DELAY

DLY+ : To increase Time Delay
DLY- : To decrease Time Delay

BRIGHTNESS

LUX+ : To increase Lux level
LUX- : To decrease Lux level

SENSITIVITY

SNS+ : To increase Senitivity level
SNS- : To decrease Senitivity level

FACTORY RESET

FR+ENTER : Factory settings
FR+EXIT : Remote Settings

LOCK/UNLOCK

LOCK+ENTER : To Lock Remote
LOCK+EXIT : To UnLock Remote

SECURITY

SEC+ENTER : To Enable Security Mode
SEC+EXIT : To Disable Security Mode

OFF-ON-AUTO

OFF
ON
AUTO

This mode is used to provide on-demand lighting. User can select three different mode of the sensor. 'Always OFF' mode indicated by red color LED indication; 'Always ON' mode indicated by green color LED indication; 'Auto' mode indicated by yellow color LED indication.

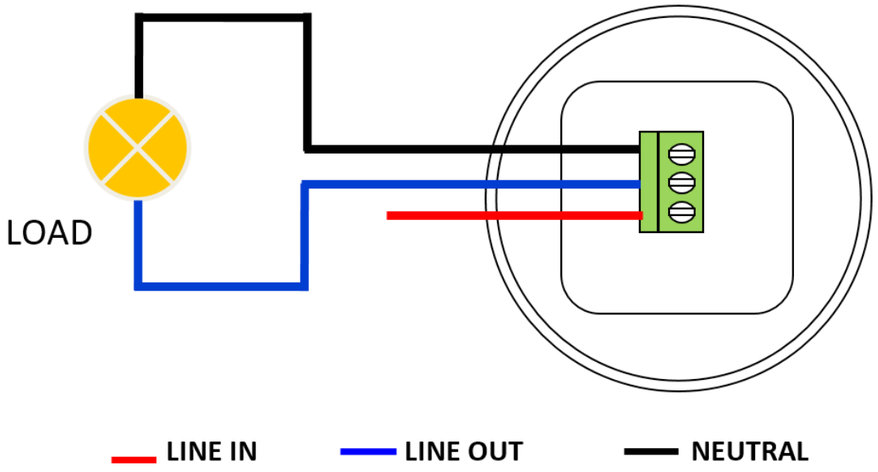
By pressing the button OFF-ON-AUTO (OOA) until the sensor displays the Red Light the user can activate the OFF mode of the sensor. Under this condition the lights/loads stay turned off irrespective of the occupancy status of the area.

By pressing the button OOA until the sensor displays the green Light the user can activate the ON mode of the sensor. Under this condition the lights/loads stay turned ON irrespective of the occupancy status of the area.

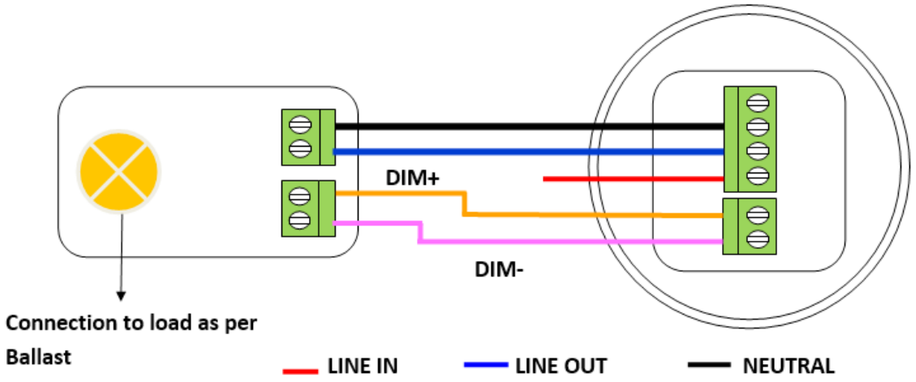
By pressing the button OOA, until the sensor displays the yellow Light the user can activate the Auto mode of the sensor. This bring back thesensor where the occupancy status controls whether the lights/loads stay turned OFF or ON.

Wiring Diagrams

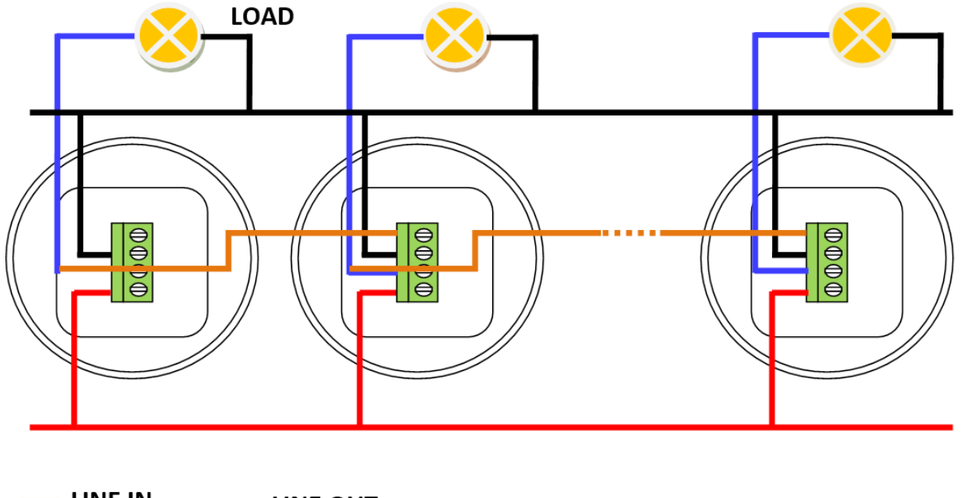
Type : Switching (ON/OFF)



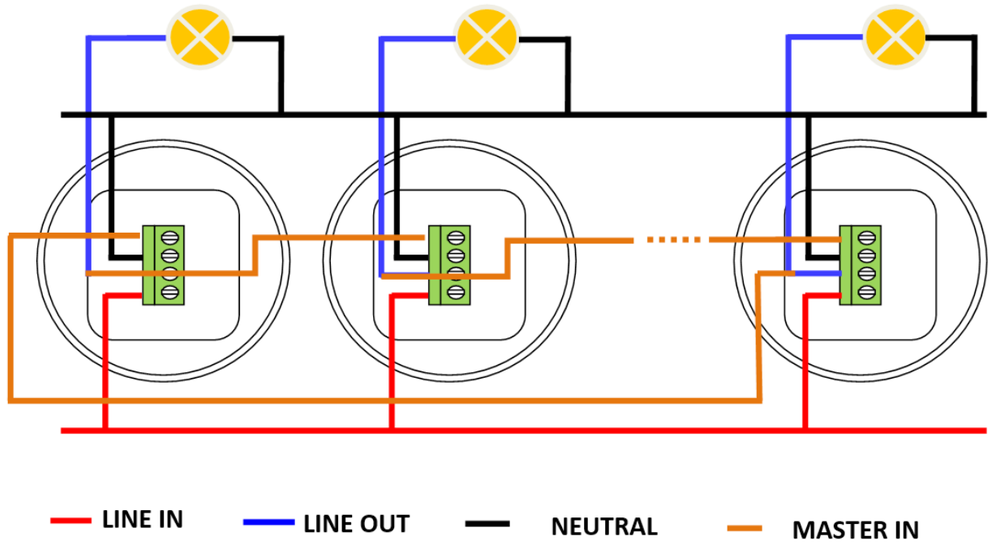
Type : Dimmable



Type : Master - Slave*



Type : Peer - Peer*



*Note : Master-Slave and Peer-Peer connections are applicable only for dimmable sensors.

Ocelli

Sense Command Control

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