GlobaLux LIGHTING

EML16 Series
Technical
Specification Sheet

Part No. EML16

Emergency Battery Backup 16W

Introduction

Introduction

Emergency operation of your lighting is a simple decision with battery back-ups from Globalux Lighting. Adding self-diagnostics, wireless reporting or just increasing to a high lumen output unit, only takes a matter of seconds. Batteries fit in the tightest of applications, including low-profile lensed troffers, downlighting and industrial lighting fixtures. They also feature an innovative Quick-Disconnect wiring harness that makes field maintenance and upgrades quick and easy.

Features:

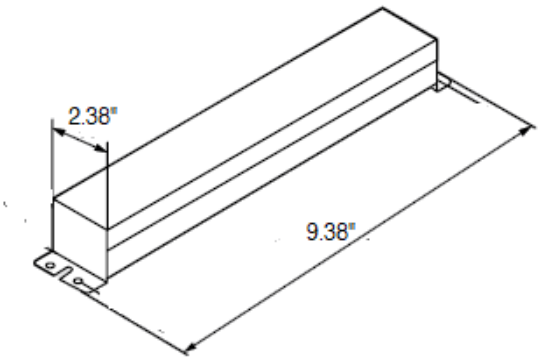
- Class 2 Standards FCC Part 15 Class B
- Evaluated to UL 924
- Type 1 Outdoor, Suitable for Dry and Damp Locations
- Drives LED load at 16W for a minimum of 90 minutes Batter
- Backup with seperate driver included
- Operating temperature -25 - +55°C
- Test switch/charging indicator light
- Battery pack with quick connect: NICd

GlobaLux LIGHTING

EML16 Series
Technical
Specification Sheet

Technical Specifications

Dimensions



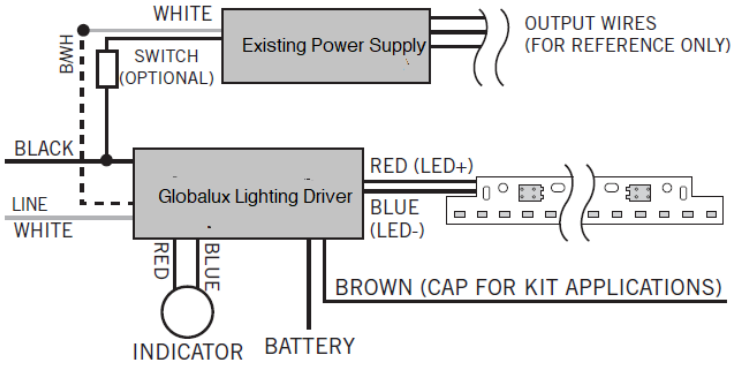
EML16-L 9.38" x 2.38"
EML16-S 4.61" x 2.38"

EML16 Mechanical Specification

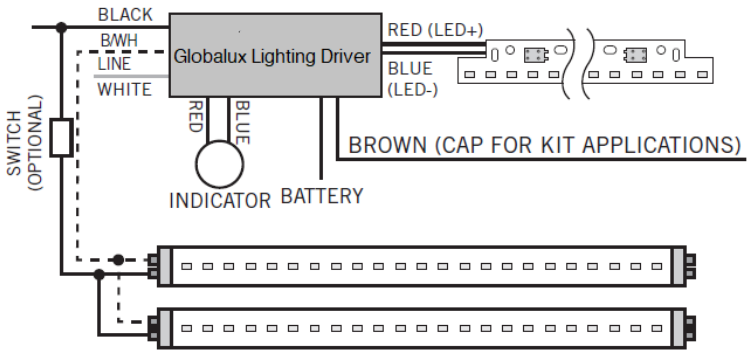
Output Voltage	12-56VDC
Input Frequency	50/60Hz
Recharge Time	24-48 Hours
Input Current	0.07A
Input Voltage	100-277VAC
Output Classification	UL924/Class2
Compatible Batteries	LiFePo4, NiCd, 9.6VDC
LED Emerg Output Current	100mA-700mA
LED Output Protection	Self Resetting PTC
Illumination Time	90-350 min
Output Power	16W

Wiring Diagram

With Existing Power Supply



With Direct Drive LED Tube Fixture



GlobaLux LIGHTING

MOS Series
Technical Specification
Sheet

Part No. MOS

Integral Microwave Sensor On/Off

Introduction

Introduction

MOS is an innovative and active motion detector with HF system 5.8GHz. Motion can be detected through plastic, glass and thin non-metal materials. The sensor supplies a simple energy-saving solution to use light only when and where you need it. It automatically switches on/off light based on motion and ambient light level. Can control all kinds of lamps, for example, halogen, fluorescent and LED lights. Compact size and small casing, suitable to fix within most luminaires. 4-pole press-in terminal (L, N, N, L'), very easy to install.

Features:

- Automatic switching based on motion and light level.
- Zero-crossing point operation helps protect the sensor against in-rush current.
- Super Compact size makes it suitable to fix within most luminaires.
- 4-pole press-in terminal (L, N, N, L'), easy assembly.
- Detection area, time delay and daylight threshold can be precisely set via DIP switch.

GlobaLux LIGHTING

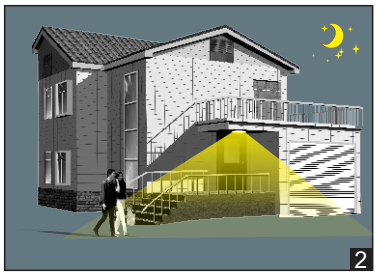
MOS Series
Technical Specification
Sheet

ON -OFF Configuration

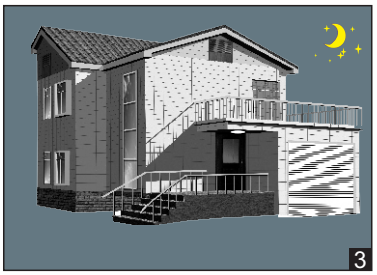
On/Off Configuration

MOS is an innovative motion sensor, switch on the light on detection of movement, and switch off after a hold time when there is no motion detected. As built-in daylight sensor can read brightness value, the sensor does not switch on the light if with sufficient natural light.

With sufficient light, the lamp doesn't switch on.

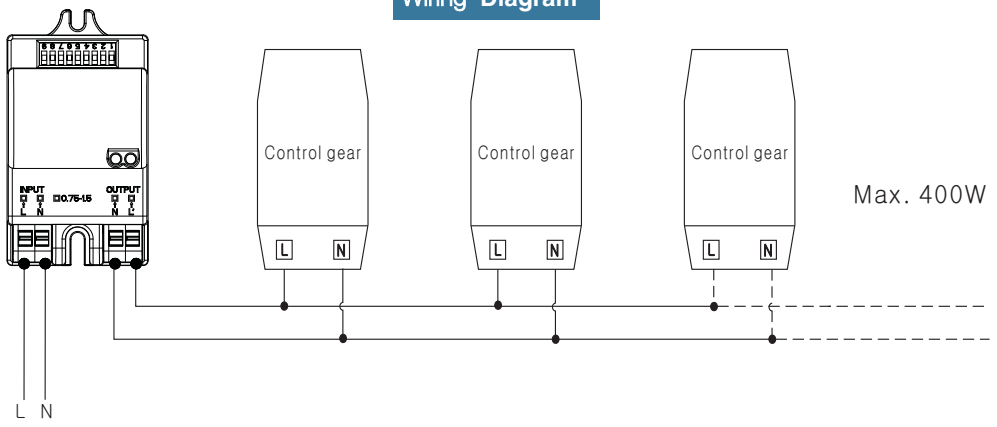


With insufficient ambient light, the sensor switches on the lamp when motion is detected.

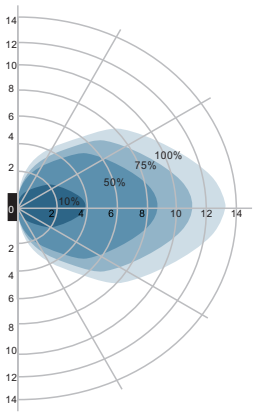


After hold time, the sensor switches off the lamp when no motion is detected.

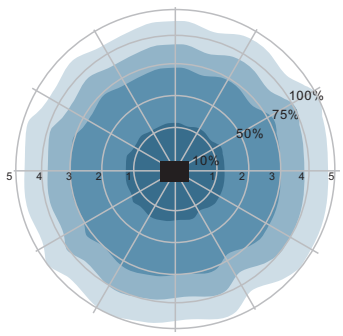
Wiring Diagram



Detection Pattern



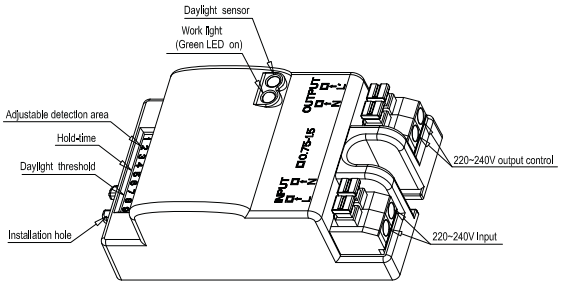
Wall mounting pattern (Unit: m)
Suggested installation height: 1.5m

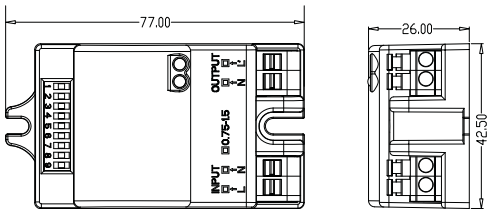


Ceiling mounting pattern (Unit: m)
Suggested installation height: 3m

GlobaLux LIGHTING

MOS Series
Technical Specification
Sheet



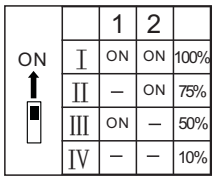


MOS Mechanical Specification

Operating voltage	120~277Vac, 50Hz
Rated load	400W@220V-277VAC 200W@120VAC(inductive)； 800W@220V-277VAC 400W@ 120VAC(resistive)
HF system	5.8GHz±75MHz, ISM wave band
Transmitting power	<0.5mW
Power consumption	≤0.5W(standby)
Detection zone	Max.(D x H): 10m x 6m
Detection sensitivity	10% / 50% / 75% / 100%
Hold time	5s / 30s / 90s / 3min / 20min / 30min
Daylight sensor	2lux / 10lux / 25lux / 50lux / Disable
Mounting height	6m Max.
Motion detection	0.5~3m/s
Detection angle	150°(wall installation) 360°(ceiling installation)
Operating temperature	-20℃~60℃
IP rating	IP20

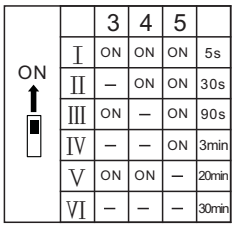
Sensor Settings

By selecting the combination on the DIP switch, sensor data can be precisely set for each specific application.



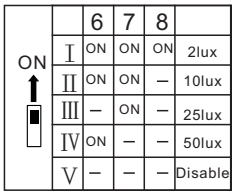
Detection area

Detection area can be reduced by selecting the combination on the DIP switches to fit precisely each application.



Hold time

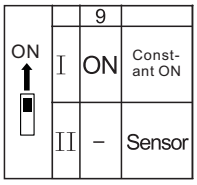
Refers to the time period the lamp remains at 100% illumination after no motion detected.



Daylight sensor

The sensor can be set to only allow the lamp to illuminate below a defined ambient brightness threshold.

When set to Disable mode, the daylight sensor will switch on the lamp when motion is detected regardless of ambient light level.
50lux, 25lux: twilight operation, 10lux, 2lux: darkness operation only.



Mode

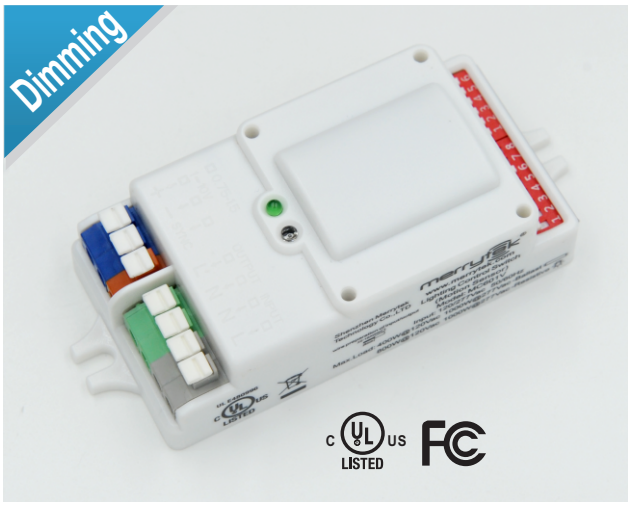
When set to “Constant ON”, the microwave sensor function is inactive, lights turns on or off by switch.
When set to Sensor, the microwave sensor function is active.

GlobaLux LIGHTING

MOSB Series
Technical Specification Sheet

Part No. MOSB

Integral Microwave Sensor Bi-Level



Introduction

Introduction

The MOSB is innovative and active motion detectors with HF system 5.8GHz. Motion can be detected through plastic, glass and thin non-metal materials. The sensors allow energy saving without compromising comfort. When used in combination with 1-10V dimmable LED drivers or ballasts, they can achieve 3-step dimming function, which is perfect for use in some areas that requires a light change notice before totally switch off. Operates normal 5.8GHz microwave module can easily reach high mounting high up to 15m and long detection area 10m in radius.

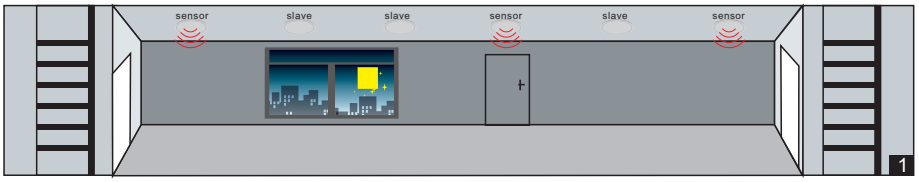
Features:

- Automatic switching or dimming when used in combination with 1-10V dimmable LED drivers or ballasts.
- Built-in daylight sensor. 1-10V interface can match up with Globalux stand-alone daylight sensor MOSB and achieve daylight harvesting.
- Compact size makes it suitable to fix within most luminaires.
- Detection area, time delay and daylight threshold can be precisely set via DIP switch.
- Wide detection area, range up to 16m in diameter.
- Support higher mounting height 15m Max.
- Optional surface mounting and base mounting

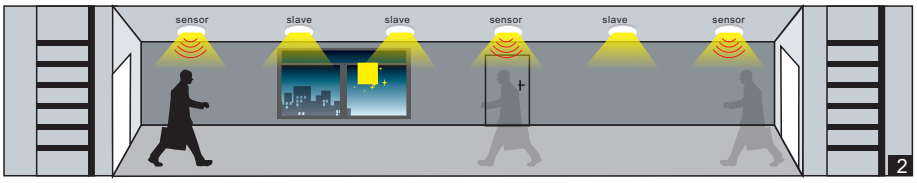
Dimming Configuration

3-step dimming function

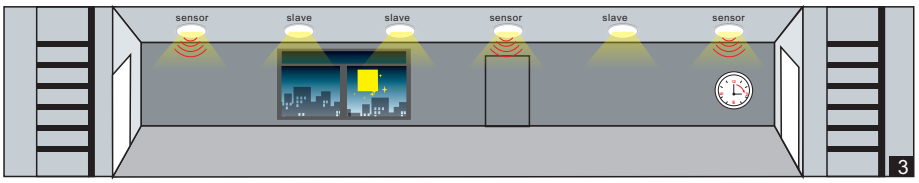
Lamps in corridor are controlled by several sensors. Once any motion is detected by one of sensors, the motion signal will be transmitted to other sensors connected together. Then, all lamps switch on at the same time, instead of switching on the lamps in the area where motion is detected.



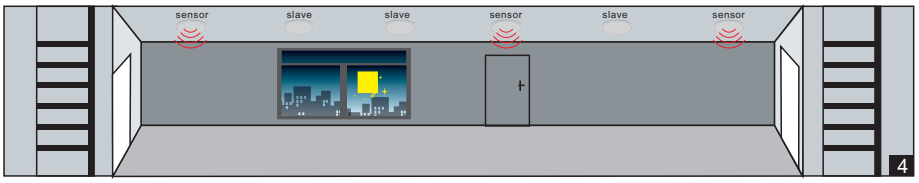
1 No motion detected, all lamps switch off.



2 Any movement is detected from any direction, all lamps synchronously switch on.

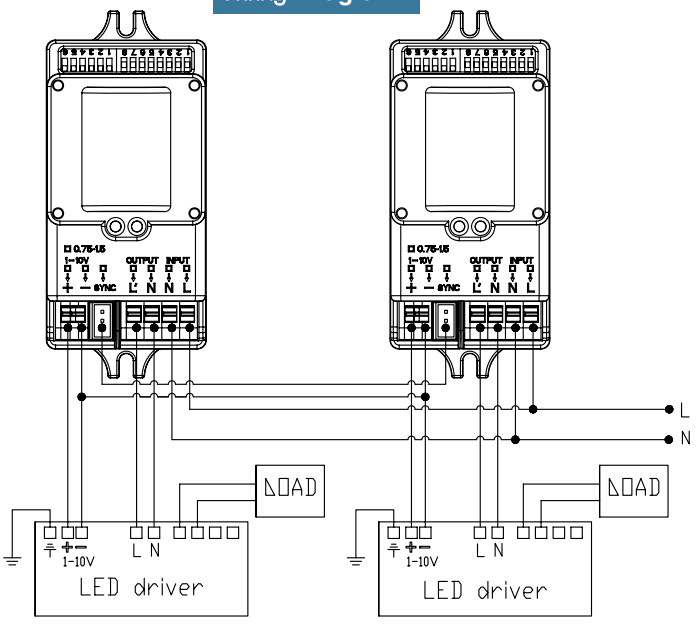


3 No motion is detected in detection area, all lamps synchronously dim to a low light level after hold time.



4 After stand-by period, the lamps switch off if no movement is detected in the detection zone.

Wiring Diagram



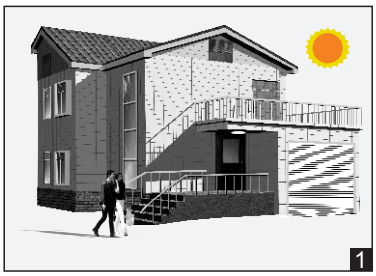
GlobaLux LIGHTING

MOSB Series
Technical Specification Sheet

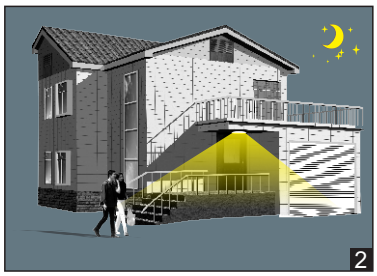
ON -OFF Configuration

Motion sensor MOSB + LED driver or ballast (Any brand)

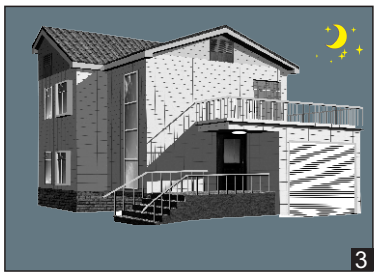
MOSB is an innovative motion sensor, switch on the light on detection of movement, and switch off after a hold time when there is no motion detected. As built-in daylight sensor can read brightness value, the sensor does not switch on the light if with sufficient natural light.



With sufficient light, the lamp doesn't switch on.

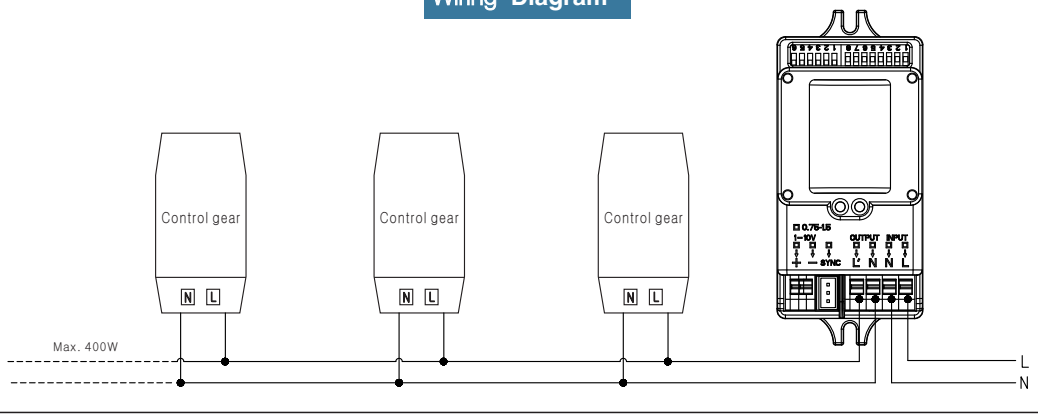


With insufficient ambient light, the sensor switches on the lamp when motion is detected.

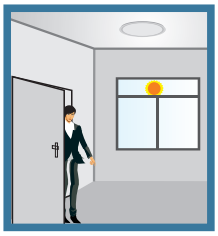


After hold time, the sensor switches off the lamp when no motion is detected.

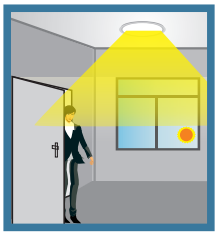
Wiring Diagram



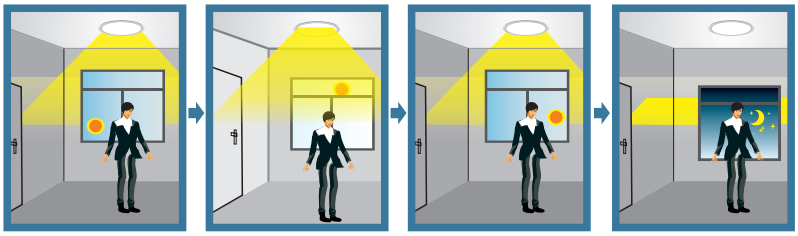
Daylight Harvesting Configuration



Ambient light larger than preset illumination level (Set by 1-10V daylight sensor), the lamp keeps off.



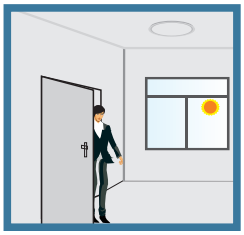
Ambient light below than preset illumination level, the lamp switches on when motion is detected.



The lamp lights on 100% illumination or dims to maintain the preset illumination level against the level of ambient light.

GlobaLux LIGHTING

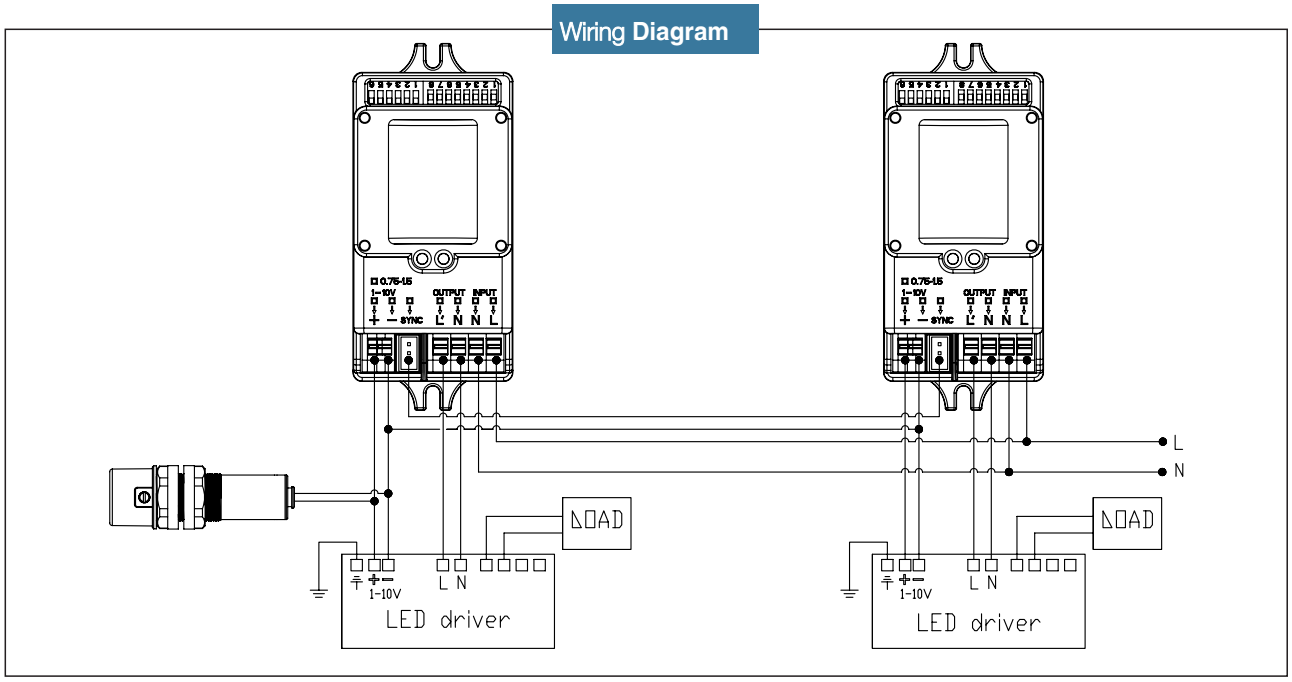
MOSB Series
Technical Specification Sheet



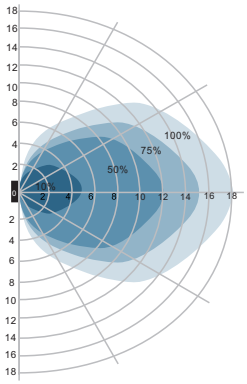
With sufficient ambient light, the lamp turns off at once,even with motion trigger.

With insufficient ambient light, the lamp dims to stand-by dimming level (Set in the motion sensor) when no motion detected ofter hold time, and then switches off after stand-by period.

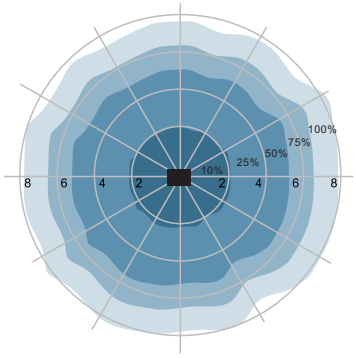
Wiring Diagram



Detection Pattern



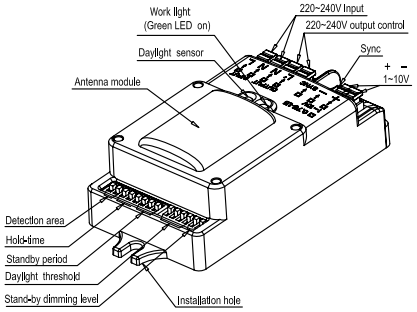
Wall mounting pattern (Unit: m)
Suggested installation height: 1-1.8m

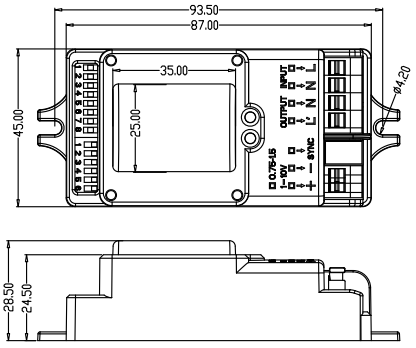


Ceiling mounting pattern (Unit: m)
Suggested installation height: 2.5-10m

GlobaLux LIGHTING

MOSB Series
Technical Specification Sheet





MOSB Technical Specification

Operating voltage	120~277Vac, 50Hz/60Hz
Rated capacitive load	120V@400W;220-240V@800W;277V@1000W
HF system Transmitting	5.8GHz±75MHz, ISM wave band
Transmitting Power	<0.5mW
Power consumption	≤0.5W(standby), <1W(operation)
Detection zone	Max.(D x H): 16m x 15m
Detection Sensitivity	10% / 50% / 75% / 100%
Hold time	5s / 30s / 90s / 3min / 20min / +∞
Daylight sensor	2lux/5lux / 10lux / 25lux /50lux / 100lux / Disable
Stand-by period	0s /5s / 5min / 10min / 30min / 1h / +Disable
Stand-by dimming level	10% / 20% / 30% / 50%
Mounting height	15m Max.
Motion detection	0.5~3m/s
Detection Height	150°(wall installation), 360°(ceiling installation)
Operating temperature	-35℃~70℃
IP rating	IP20

Sensor Setting

By selecting the combination on the DIP switches, sensor data can be precisely set for each specific application.

ON

	1	2	
I	ON	ON	100%
II	ON	-	75%
III	-	ON	50%
IV	-	-	10%

Detection area

Detection area can be reduced by selecting the combination on the DIP switches to fit precisely each application .

ON

	3	4	5	
I	ON	ON	ON	5S
II	-	ON	ON	30S
III	ON	-	ON	90S
IV	-	-	ON	3min
V	ON	ON	-	20min
VI	-	-	-	+∞

Hold time

Refers to the time period the lamp remains at 100% illumination after no motion detected.

ON

	6	7	8	
I	ON	ON	ON	0S
II	-	ON	ON	5S
III	ON	-	ON	5min
IV	-	-	ON	10min
V	ON	ON	-	30min
VI	-	ON	-	1h
VII	-	-	-	Disable

Stand-by period

Refers to the time period the lamp remains at a low light level before it completely switches off in the long absence of people.
When set to"+∞"mode, the low light is maintained until motion is detected.

ON

	1	2	3	4	
I	-	-	ON	ON	2Lux
II	-	-	-	ON	5Lux
III	-	ON	ON	-	10Lux
IV	-	-	ON	-	25Lux
V	-	ON	-	-	50Lux
VI	ON	-	-	-	100Lux
VII	-	-	-	-	Disable

Daylight sensor

The sensor can be set to only allow the lamp to illuminate below a defined ambient brightness threshold.
When set to Disable mode, the daylight sensor will switch on the lamp when motion is detected regardless of ambient light level.
50lux, 30lux: twilight operation, 10lux, 5lux: darkness operation only.
Note that daylight sensor is active only when lamp totally switches off.

ON

	5	6	
I	ON	ON	50%
II	-	ON	30%
III	ON	-	20%
IV	-	-	10%

Stand-by dimming level

The low light level you would like to have after the hold time in the long absence of people.

GlobaLux LIGHTING

MOSB-FM
Technical Specification Sheet

Part No. MOSB-FM

Microwave Bi-Level Sensor Fixture Mount

IP65

Introduction

Introduction:

The MOSB-FM sensor is innovative and active motion detectors with HF system 5.8GHz. Motion can be detected through plastic, glass and thin non-metal materials. except the higher mounting height 15m Max. The sensors allow energy saving without compromising comfort. When used in combination with 1-10V dimmable LED drivers or ballasts, they can achieve 3-step dimming function, which is perfect for use in some areas that requires a light change notice before totally switch off. Also, the 1-10V interface in the sensors can match up with Globalux stand-alone daylight sensor, and implement daylight harvesting, means the lighting system has automated controls that either turn off or dim artificial light in response to the available daylight in the space.

Features:

- Automatic dimming when used in combination with 1-10V dimmable LED drivers or ballasts.
- Built-in adjustable daylight sensor.
  1-10V interface can match up with Globalux stand-alone daylight sensor and achieve daylight harvesting.
- Detection area, time delay and daylight threshold can be precisely set via DIP switch.
- Wide detection area, range up to 16m in diameter and mounting height 15M Max. suitable for warehouse use.
- Optional mounting brackets for different application.

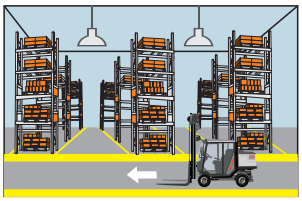
GlobaLux LIGHTING

MOSB-FM
Technical Specification Sheet

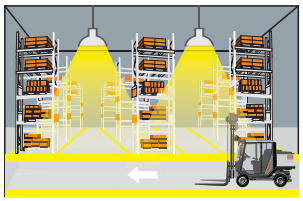
Dimming Configuration

3-step dimming function

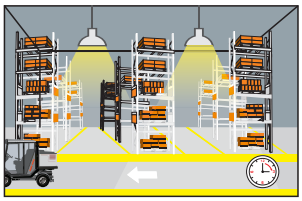
When used in combination with 0-10V dimmable LED drivers and ballasts, the sensors can achieve 3-step dimming function, 100%---> low light--->off. And the sensors build in adjustable daylight sensors, very easy to install and cost-effective.



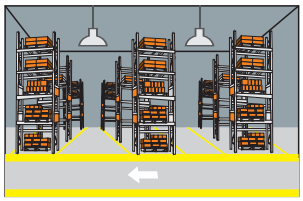
With sufficient ambient light, the sensor does not switch on the lamp.



With insufficient ambient light, the sensor switches on the lamp when motion is detected.

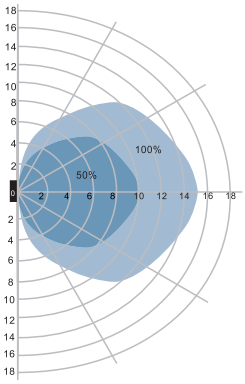


After hold time, the sensor dims the lamp at a low light level if no new motion trigger.

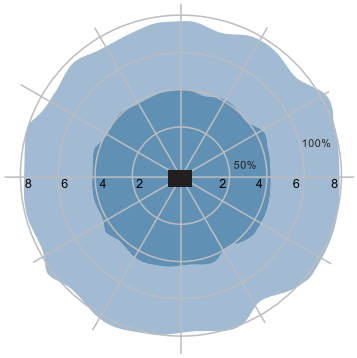


After stand-by period, the sensor switches off the lamp if no motion is detected in its detection zone.

Detection Pattern



Wall mounting pattern (Unit: m)



Ceiling mounting pattern (Unit: m)

Sensor Settings

By selecting the combination on the DIP switch, sensor data can be precisely set for each specific application.

ON		1	
	I	ON	100%
	II	–	50%

Detection area

Detection area can be reduced by selecting the combination on the DIP switches to fit precisely each application.

ON		2	3	4	
	I	ON	ON	ON	5S
	II	–	ON	ON	30s
	III	ON	–	ON	90s
	IV	–	–	ON	3min
	V	ON	ON	–	20min
	VI	–	–	–	30min

Hold time

Refers to the time period the lamp remains at 100% illumination after no motion detected.

ON		1	2	3	
	I	ON	ON	ON	5s
	II	–	ON	ON	60min
	III	ON	–	ON	30min
	IV	–	–	ON	10min
	V	ON	ON	–	5min
	VI	–	–	–	+∞

Stand-by period

Refers to the time period the lamp remains at a low light level before it completely switches off in the long absence of people. When set to Disable mode, the low light is maintained until motion is detected.

ON		4	5	
	I	ON	ON	10%
	II	–	ON	20%
	III	ON	–	30%
	IV	–	–	50%

Stand-by dimming level

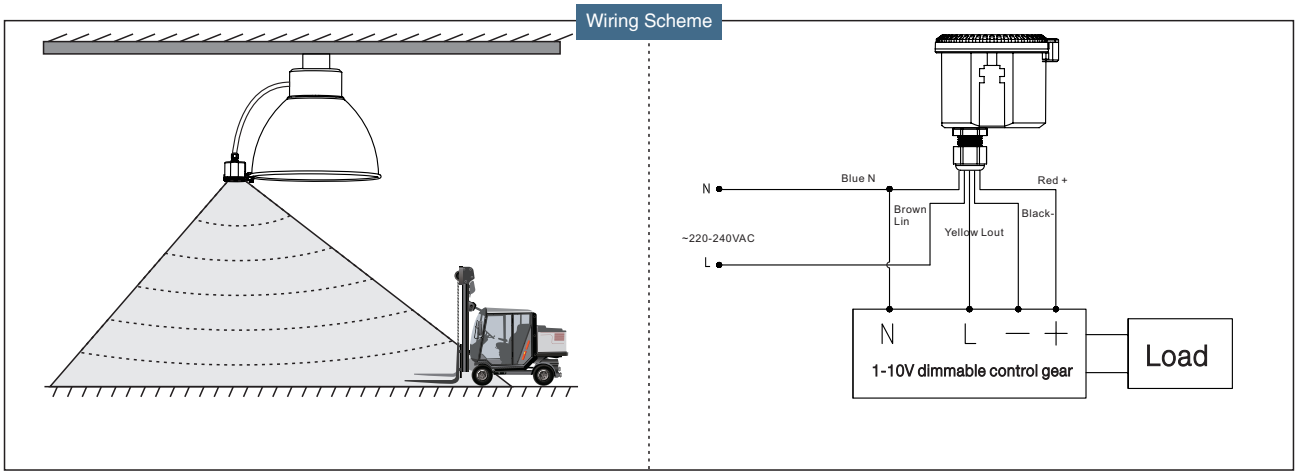
The low light level you would like to have after the hold time in the long absence of people.

ON		6	7	8	
	I	ON	ON	ON	50lux
	II	–	ON	–	100lux
	III	ON	–	–	200lux
	IV	–	–	–	Disable

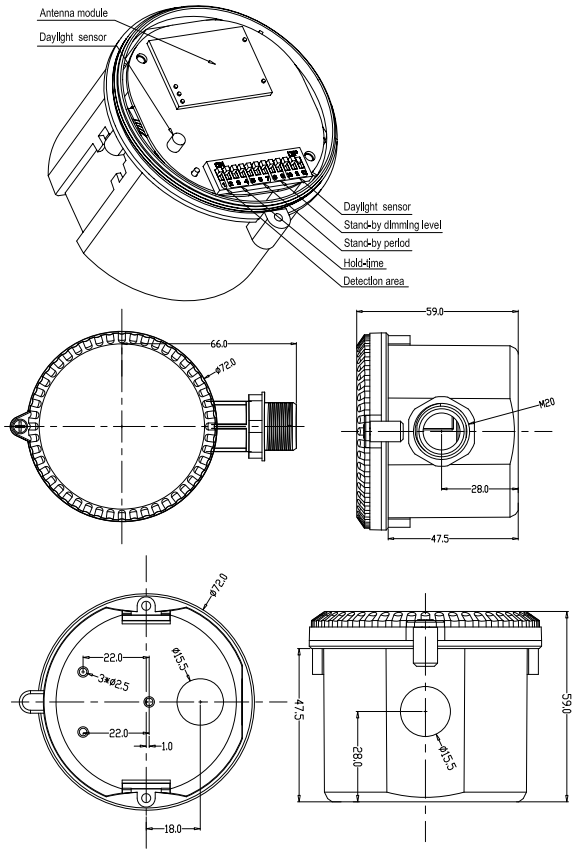
Daylight sensor

The sensor can be set to only allow the lamp to illuminate below a defined ambient brightness threshold.
When set to Disable mode, the daylight sensor will switch on the lamp when motion is detected regardless of ambient light level.
Note that daylight sensor is active only when lamp totally switches off.

Wiring Diagram



MOSB-FM Mechanical Specifications



MOSB-FM Technical Specification

Operating voltage	120~277Vac, 50Hz/60Hz
Rated load	400W@120Vac, 800W@220-277Vac (inductive)
	800W@120Vac, 1200W@220-277Vac (resistive)
HF system	5.8GHz±75MHz, ISM wave band
Transmitting power	<0.5mW
Power consumption	≤0.8W(standby), <1.5W(operation)
Detection zone	Max.(D x H): 16m x 15m
Detection sensitivity	100% / 50%
Hold time	5s / 30s / 90s / 3min / 20min / 30min
Daylight sensor	50lux / 100lux / 200lux / Disable
Stand-by period	5s / 5min / 10min / 30min / 1h /+∞
Stand-by dimming level	10% / 20% / 30% / 50%
Mounting height	15m Max.
Motion detection	0.5~3m/s
Detection angle	150°(wall installation),
	360°(ceiling installation)
Operating temperature	-35℃~70℃

GlobaLux LIGHTING

OS
Technical Specification Sheet

Part No. OS
Fixture Mounted Occ. Sensor On/Off

Introduction

Introduction

The OS indoor sensor provides On/Off occupancy control to LED drivers.

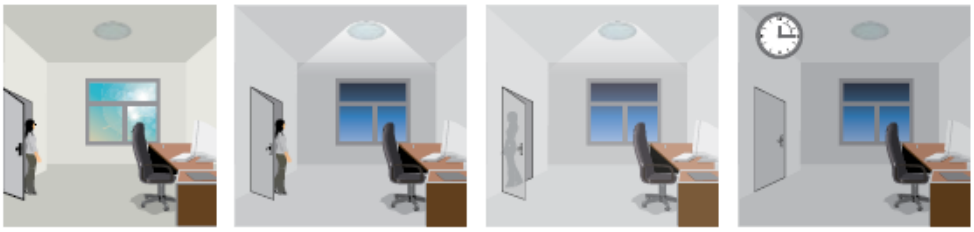
Application

The slim, low profile OS is designed for installation by external lens to connect with a light fixture body. The sensor is ideal for areas such as pparking facilities, gas stations, pathways, and warehouses. The PIR sensor ensures complete coverage for mounting heights up to 40'.

Features

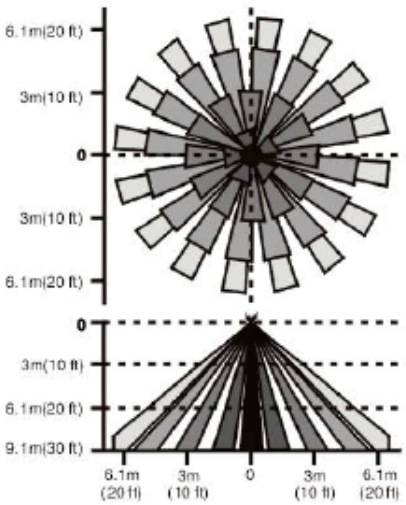
- Quicksnap feature for easy intallation
- Fast, easy time delay setting from 5 seconds to 30 min
- Manual Calibration: Optimize energy savings and operation by manually configuring the Daylight Set Point
- California Title 24 compliant
- Provides On/Off control to LED Drivers
- Provides a second occupancy time out period that enables the light to go to a dim setting before turning off
- Adjustable max/min dim setting

OS Configuration

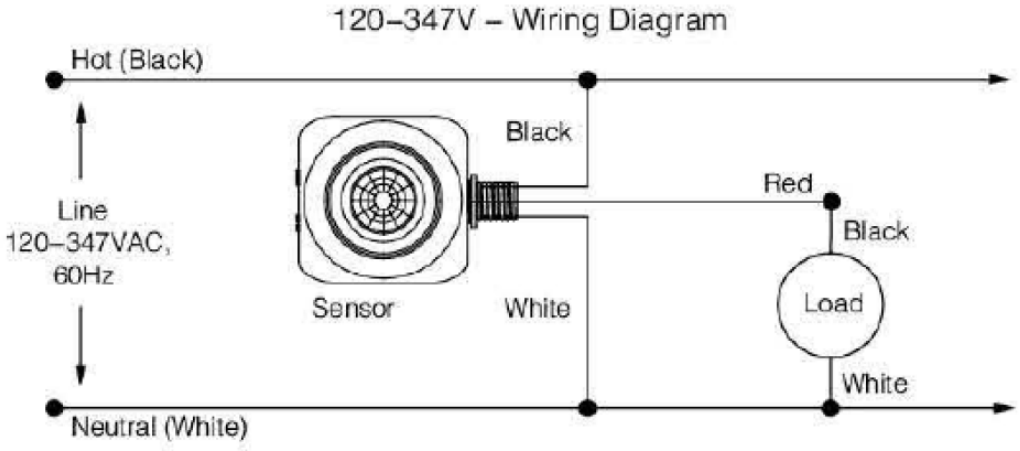


After the hold time, the whole group of fixtures dim to pre-defined dimming level when no movement detected. After the stand-by period, the whole group of fixtures switch off automatically.

Detection Pattern



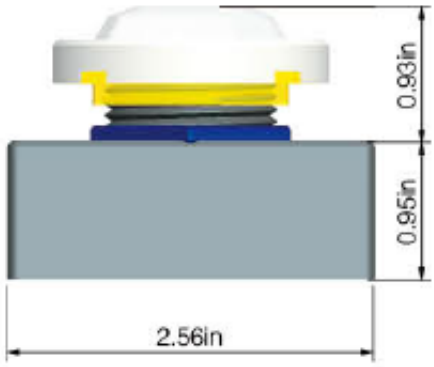
Wiring Diagram

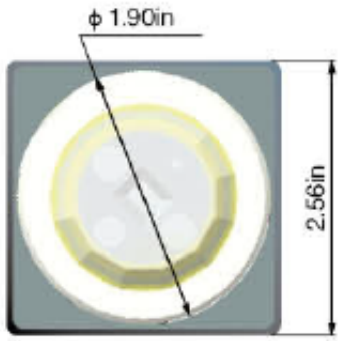


GlobaLux LIGHTING

OS
Technical Specification Sheet

Lens Dimensions





OS Technical Specification

Operating voltage	120~277Vac, 50Hz
Rated load	400W@220V-277VAC 200W@120VAC(inductive)； 800W@220V-277VAC 400W@ 120VAC(resistive)
HF system	5.8GHz±75MHz, ISM wave band
Transmitting power	0.5mW
Power consumption	≤0.5W(standby)
Detection zone	Max.(D x H): 10m x 6m
Detection sensitivity	0% / 50% / 75% / 100%
Hold time	5s / 30s / 90s / 3min / 20min / 30min
Daylight sensor	2lux / 10lux / 25lux / 50lux / Disable
Mounting height	6m Max.
Motion detection	0.5~3m/s
Detection angle	150°(wall installation) 360°(ceiling installation)
Operating temperature	20℃~60℃
IP rating	IP20

Installation Instructions

Sensor Installation

1. Remove the lock nut from the thread clockwise on to the half inch end of the luminaire body or the electrical box.

2. Slide the lock nut over the wires and thread clockwise on the thread end to secure the sensor firmly in place making sure the lens is orientated towards the area to be monitored (field of view).

3. Connect wire per Wiring Diagram as follows: Black lead to line(hot), Red lead to LOAD, White to Neutral.

Settings and Configurations

Time Delay Knob

Turn the adjustment on the left "TIME" fully counter clockwise to the minimum setting (30 seconds) while fully clockwise to the maximum setting (30 minutes), verify by turning lights on with pushbutton.

Sensor Sensitivity Range Knob

Default position: 75% (Position 3)
Adjustable: 50% (Position 1) to 100% (Position 5)
The sensitivity adjustment is in the center and marked "SENSE", Adjust the sensitivity setting to avoid unwanted detection such as hallway traffic or adjacent movement, Turing the setting counter clockwise will decrease sensitivity while turning it clockwise will increase it. Max sensitivity while turning it clockwise will increase it. Max sensitivity can be achieved by turning fully clockwise on Position 5.

Troubleshooting

Lights Will Not Turn ON

- Circuit breaker or fuse is OFF: Turn the breaker ON. Ensure the lights being controlled are in working order (i.e., working bulbs. ballasts, etc.)
- Sensor is wired incorrectly or may be defective: Confirm that the sensor's wiring is done correctly and inspect visually for problems.
- Lens is dirty or obstructed: Inspect the lens visually and clean if necessary, or remove the obstruction.

Lights Will Not Turn OFF

- Make sure no motion is occurring in the coverage area until the 15 seconds (factory set) time delay expires.
- Sensor is wired incorrectly or may be defective: Confirm that the sensor's wiring is done correctly and inspect visually for problems.
- Sensor may be mounted too closely to an air conditioning or heating vent: Move the sensor or close the vent.
- The line voltage has dropped: Perform the necessary tests to ensure the line voltage has not dropped beneath 100 V.

Lights Turn OFF and ON Too Quickly

- Sensor may be mounted too closely to an air conditioning or heating vent: Move the sensor to another location or close the vent
- Time delay set improperly: Refer to Time delay Adjustment.

GlobaLux LIGHTING

OSBL Series
Technical Specification Sheet

Part No. OSBL

Fixture Mounted Occupancy Sensor, Bi-Level

Introduction

Introduction

The OSBL mounts to an indoor lighting fixture and provides multi level control based on motion, by controlling the 0-10V LED drivers and ballasts, providing low/high lighting control.When motion is detected within the sensors coverage area, the relay in the sensor closes, and the lighting loads are automatically turned on.

Application

The slim, low profile OSBL is designed for installation by external lens to connect with light fixture body. The sensor is ideal for areas such as parking facilities, gas stations, pedestrian pathways and warehouses. A choice of two PIR sensor lenses ensures complete coverage for mounting heights up to 40'.

Features:

. Works with ballasts or LED drivers
. Adjustable ramp up and fade down times
. Time delay from 5 - 30 minutes
. Optional cutoff delay
. Up to 200,000 On/Off cycles
. Optional dusk to dawn controls

Dimming Configuration

The occupancy sensor to achieve tri-level dimming control, for some areas that require a light change notice before switch off. If offered 3 levels of light control: 100% dimming light (0, 10%, 30%, 50%) off; and 2 periods of selectable waiting time: motion hold time and standby time.

With sufficient natural light, the light does not switch on when presence detected

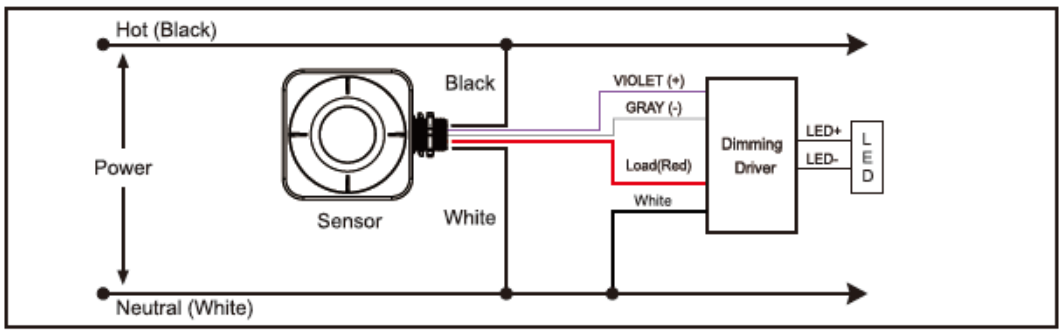
With insufficient natural light, the sensor switches on the light automatically when presence is detected.

After hold-time, the light dims to stand by level if the surrounding natural light is below the daylight threshold.

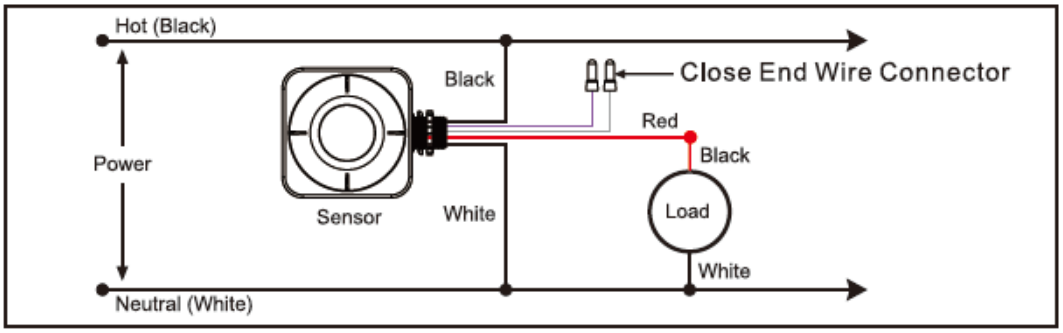
Light switches off automatically after the stand by period elapses.

Wiring Diagram

Dimming Driver

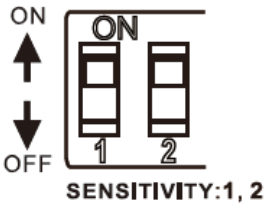


Non-Dimming Driver



Sensor Settings

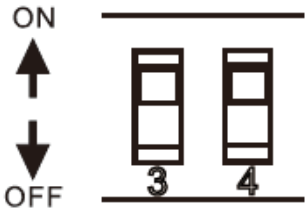
Detection range is the term used to describe the radii of the more or less circular detection zone produced on the ground after mounting the sensor light at a height of 40 ft.



SENSITIVITY:1, 2

Hold Time Settings

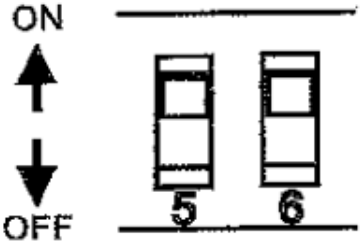
The light can be set to stay ON for any period of time between approx. 10sec and a maximum of 15mins. Any movement detected before this time elapses will re-start the timer. It is recommended to select the shortest time for adjusting the detection zone.



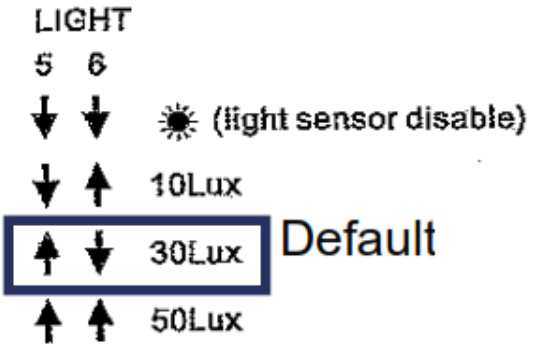
TIME:3, 4

Light Control Setting

The chosen lamp response threshold can be infinitely from approx. 10-50 Lux , switch location and light control of the corresponding table as follows:

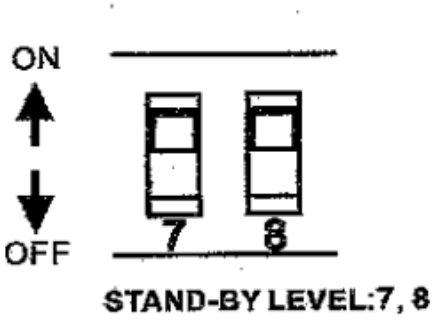


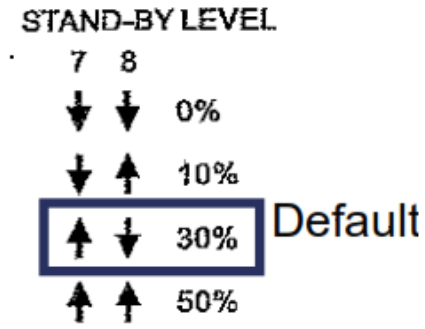
LIGHT:5, 6



Stand by light level Settings

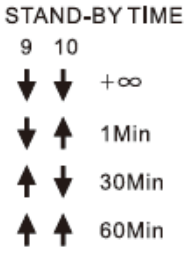
The corresponding file of switch location and stand-by level as follows:





Stand by Time Setting

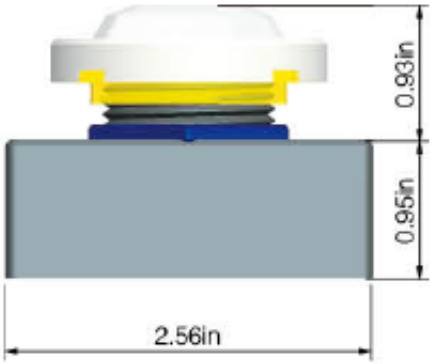
Switch to ON is the up arrow, switch OFF is down arrow. The corresponding file of switch location and standby time settings as follows:

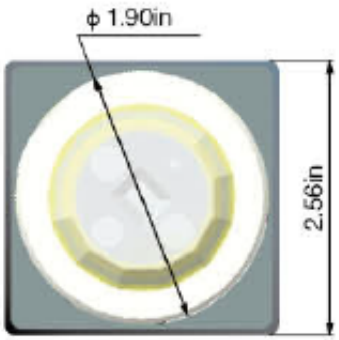


GlobaLux LIGHTING

OSBL Series
Technical Specification Sheet

Dimensions





OSBL Technical Specifications

Operating voltage	120~277Vac, 50Hz
Rated load	Incandescent/Halogen-800W/1200W@ 120/277V Electronic Ballast-800W/1200W@120/277V
Dim Control Output	0-10V, max. 25mA sinking current
Detection Radius	40ft height/360
Time Setting	10sec - 15min (adjustable)
Light Control	10-2000Lux (adjustable)
Humidity	Max. 95% RH
Temperature	--40℃~75℃
Remote Range	50ft, indoor, no backlight

GlobaLux LIGHTING

OSBL-WP Series
Technical Specification Sheet

Fixture Mounted, Bi-Level Occupancy Sensor for Wall Pack and Area Lights

Dimming

Introduction

Introduction

The OSBL-WP mounts in an outdoor lighting fixture and provides multi-level control based on motion and/or daylight contribution. It controls 0-10V LED drivers or dimming ballasts, as well as non dimming ballasts and is rated wet and cold locations. All control parameters are adjustable.

Application

The low profile OSBL-WP is designed for installation on the side of a lighting fixture body. The sensor is ideal for areas such as parking facilities, gas stations, pedestrian pathways and warehouses. The PIR lens ensures complete coverage for mounting heights up to 40'.

Features:

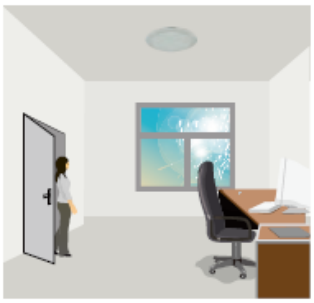
- Provides Line voltage On/Off switching and 0-10V dimming control
- Works with ballasts or LED drivers.
- High and low modes fully adjustable from 0-10V
- Time Delay from 10sec to 60 min Optional cut off delay
- Adjustable ramp up and fade down times
- Polycarbonate, flame retardant, UV resistant

GlobaLux LIGHTING

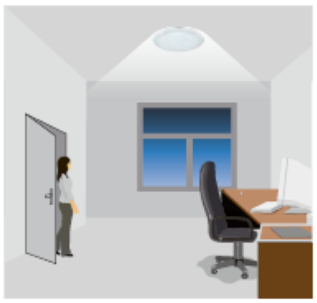
OSBL-WP Series
Technical Specification Sheet

Dimming Configurations

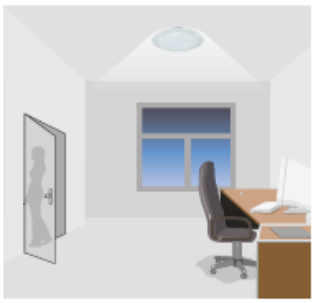
This function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch Off. The sensor offers 3 levels of light; 100%-->dimmed light (natural light is insufficient)-->off; and 2 periods of selectable waiting time: motion hold time and stand by period; Selectable daylight threshold and freedom of detection area.



With sufficient natural light, the light does not switch on when presence detected



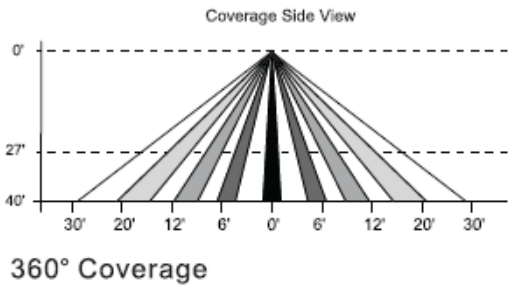
With insufficient natural light, the sensor switches on the light automatically when presence is detected.



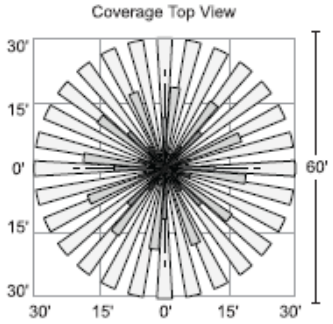
After hold-time, the light dims to stand by level if the surrounding natural light is below the daylight threshold.

Light switches off automatically after the stand by period elapses.

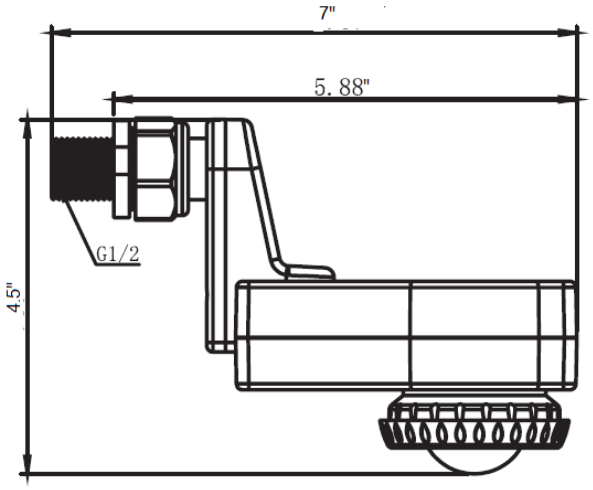
Detection Pattern



360° Coverage



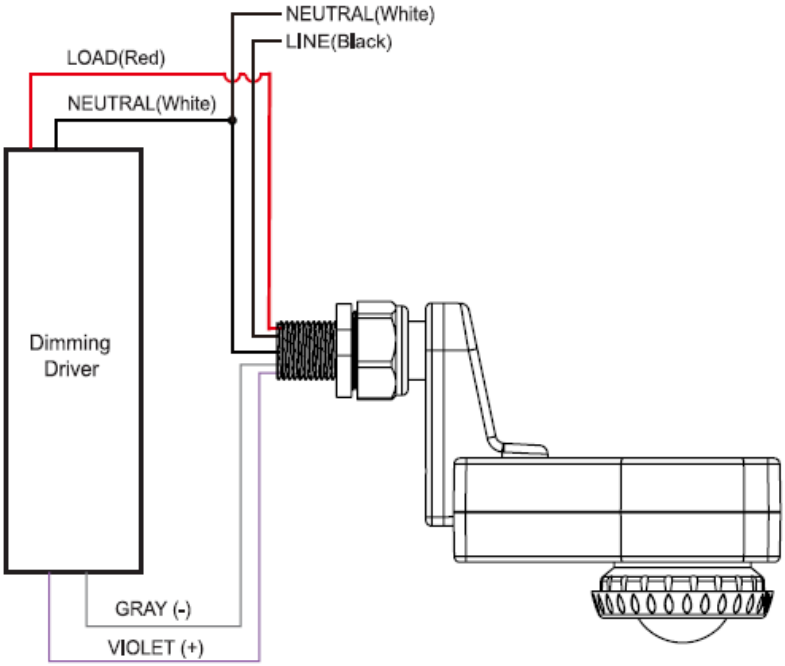
Dimensions



OSBL-WP Technical Sepcifications

Operating voltage	120~277Vac, 50Hz
Rated load	660W@220V-277VAC 200W@120VAC (Fluorescent) 800W@220V-277VAC 400W@ 120VAC(resistive)
Detection Radius	40ft height/360°
Dim Control Output	0-10V; max. 25mA sinking currecnt
Mounting Height	Max. 40ft
Temperature	-40- +70°C
Operating Humidity	95% RH

Wiring Diagram



Sensor Settings

The light switches on at 100% when there is movement detected.

The light dims to stand-by level after the hold-time.

The light remains in dimming level at night.

Settings on this demonstration:
Hold-time: 30min
Setpoint on:50lux
Setpoint off:300lux
Stand-by Dim: 10%
Stand-by period: +∞
(when the smart photocell sensor open, the stand-by time is only +∞)

❶⇄❸ goes in cycle at night…
100% on when movement detected, and dims to 10% in long absence.

When the natural light level exceeds setpoint off to light,the light will turn off even if when the space is occupied.

The light automatically turns on at 10% when natural light is insuffcient (no motion).