



### OVERVIEW

The ON-BRD-510 series is a low voltage OS-NET Sensor (ONS) packed with multi-scheme sensing and control functionalities including occupancy/vacancy sensing, daylight harvesting, bi-level StepDIM or continuous SmartDIM, and wireless mesh networking capability. Through some easy and safe low voltage DC wiring connection with IR-TEC power pack and 0-10V dimmable LED drivers, this sensor is capable of providing top-notch intelligent lighting controls required for industrial and commercial applications.

The sensor not only controls the connected light based on the programmed scheme through power pack switching and 0-10V dimming scheme independently, but also acts as a node of mesh network to broadcast the OS-NET command for group lighting activation wirelessly. All network setup, grouping and control settings; including control scheme, delay times, ambient light level threshold, ramp up/fade down speed, sensitivity, burn-in duration...etc. can be easily and intuitively configured via a 2-way handheld remote programmer from the floor.

Being a member of Omni ONS, the ON-BRD-510 can be flexibly mounted on the ceiling or integrated with an OEM luminaire in a variety of options. Changeable lens options allow the sensor to be mounted at various heights with different detection patterns for all applications. With ON-BRD-510, you can easily achieve energy efficient, code-compliant smart lighting control through a wireless sensor mesh network effortlessly deployed while installing the OS-NET enabled lighting.

### FEATURES

- Omni-directional digital quad element PIR sensor
- Low voltage operation with wireless connectivity
- All functionalities in one and one for all controls
- 2-way IR remote programming tool for all settings
- A single sensor can be member of up to 4 groups
- 0-10V dimming control output for up to 50 fixtures
- SmartDIM or high/low multi-level StepDIM control
- Exceptionally long range of remote programming
- Flexible fixture integration or ceiling mount options
- Multiple lens selections allow broadest applications

### APPLICATION

- Multiple Sensing Controls with 0-10V SmartDIM or Bi-level StepDIM**

The ON-BRD-510 sensor can be flexibly mounted on the ceiling or integrated with OEM luminaire in a variety of options to provide multi-scheme occupancy/vacancy/daylight sensing, with continuous or multi-level dimming control to the connected lighting and the assigned groups via OS-NET wireless communication.

# ON-BRD-510 series

## Low Voltage OS-NET Sensor



### SENSING CONTROL SCHEMES

The ON-BRD-510 can be programmed to control the connected light in one of the following schemes, while also transmits wireless command for lighting group activation control through mesh network. For more details of specific control, please visit [www.irtec.com](http://www.irtec.com) or contact an IR-TEC team member directly.

Mode	Status	Day*	Night*	Remarks
ON/OFF	Vacant	OFF	OFF	For non-dimmable lighting ¹ALS enabled
	Occupied	ON/OFF¹	ON	
OSO	Vacant	LD	LD	LD : Low Dim, HD : High Dim SD : SmartDIM
	Occupied	SD/HD	SD/HD	
OSLA	Vacant	OFF	LD	Automatic low dim during vacant nighttime
	Occupied	SD/OFF	SD/HD	
OSLATO	Vacant	OFF	LD-OFF	Low dim during Time Off (TO) delay
	Occupied	SD/OFF	SD/HD	
DSVM	Vacant	OFF	HD-LD	Dusk - Virtual midnight : High Dim Virtual midnight - Dawn : Low Dim
	Occupied	OFF	HD-LD	
DSC	Vacant	OFF	SD/HD	Occupancy sensing is disabled, Daylight sensing control only
	Occupied	OFF	SD/HD	
VSC	Vacant	OFF	OFF	Press OS-NET Button to turn on the light, automatic shut-off
	Occupied	Manual	Manual	
OSB	Vacant	OFF	OFF/LD²	²As background lighting before the entire group area is vacant
	Occupied	OFF	SD/HD	
OFF	Vacant	OFF	OFF	Occupancy sensing enabled, but the light stays off all the time
	Occupied	OFF	OFF	

\*Day/Night: While ambient light level is higher/lower than the threshold set

- ON/OFF : On-Off Switching
- OSO : Occupancy Sensing Only
- OSLA : Occupancy Sensing at Low Ambient
- OSLATO : Occupancy Sensing at Low Ambient with Time-Off
- DSVM: Daylight Sensing with Virtual Midnight
- DSC: Daylight Sensing Control
- VSC: Vacancy Sensing Control
- OSB: Occupancy Sensing with Background
- OFF: Light off all the time

### MOUNTING OPTIONS

The ON-BRD-510SxX series can be mounted into the ceiling or integrated with an OEM luminaire. The mounting options are available by combining a specific mounting bracket from the table below. The bracket will be shipped with the device when ordered with the respective code.

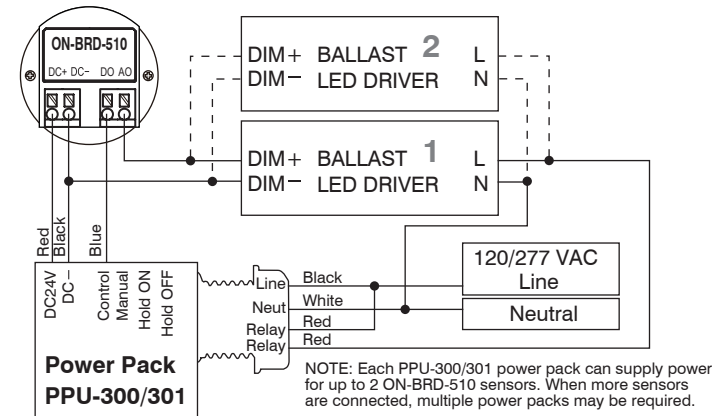
Code	Mounting Option	Mounting Bracket
F	Fixture Integrated	---
W	IP-66 Fixture Integrated	---
E	Fixture External	EMB-500
P	IP-66 Fixture External	PMB-500
S	Ceiling Surface	SMB-500
C	Junction Box	CMB-500
R	Ceiling Recess	RMB-500

### LENS OPTIONS

The ON-BRD-510SxX series is available with following lens options which provide different coverage at different mounting height (H). When adding the lens code, the lens is then automatically shipped with the sensor.

Lens	Shape	Mounting Height	Coverage
A	Standard	Cone	8~15 ft. 2.4~4.5m
B	Extra wide	Cone	8~10 ft. 2.4~3.0m
C	High bay	Cone	15~30 ft. 4.5~9.0m
D	Standard	Round	8~20 ft. 2.4~6.0m
F	Extra wide	Dome	8~20 ft. 2.4~6.0m
G	Aisle way	Arch	8~40 ft. 2.4~12.0m
H	High bay	Dome	30~50 ft. 9.0~15.0m
L	Long aisle	Arch	8~10 ft. 2.4~3.0 m

### WIRING DIAGRAM



### SPECIFICATIONS

Power voltage	12-24 VDC
Current drain	35mA @ 24VDC, non-peak average*
Infrared sensor	Digital quad-element pyroelectric sensor
Photo sensor	Digital ambient light sensor
Sensor output	Open collector, active low
Dim control	0-10V, max. 25 mA sinking current
Wireless protocol	Modified Zigbee Light Link (ZLL)
Radio frequency	2405~2480MHz
Number of channel	16ch
Radio range	15/90 m @indoor/outdoor, open space
Radio power output	6.14dBm
Detectable speed	1~10 ft./sec. (0.3~3 m/sec.)
Mounting height	Subject to the lens type applied
Detection range	Subject to the lens applied and height
Remote range	33 ft (10m) indoor with no backlight
Op. humidity	Max. 95% RH
Op. temperature	-40°F~131°F (-40°C~55°C)
Dimensions	Ø2.36" x H1.45" (Ø60 x H37mm)

\* Please see wiring diagram for max. no. connection per IR-TEC powerpack.