ON-MRD-514 series

SmartDALI OS-NET Sensor

OS·NET

Flexibility • Functionality • Simplicity

OVERVIEW

The ON-MRD-514 series is a DALI bus powered OS-NET Sensor (ONS) packed with numerous control functionalities including occupancy/vacancy sensing, daylight harvesting, bi-level StepDIM or continuous SmartDIM, and state-of-the-art wireless mesh networking capability for top-notch intelligent lighting control.

The sensor not only controls the associated luminaire in the programmed scheme individually by sensing the presence of an occupant/vehicle and the ambient light level, but also acts as a network node to broadcast exclusive commands for group lighting control wirelessly. All network setup, grouping and control settings; including sensing control scheme, delay time, 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 family, this sensor can be flexibly integrated with an OEM luminaire or mounted on the ceiling in a variety of options. Changeable lens options allow the sensor to be mounted at various heights and providing different detection patterns for all applications. By connecting the ON-MRD-514 to a DALI driver with integrated bus power, an energy efficient IoT-based lighting control can be easily achieved through a wireless sensor mesh network effortlessly deployed while installing the OS-NET enabled lighting.

FEATURES

- Omni-directional digital quad element PIR sensor
- Supports DALI driver with integrated bus power
- All functionalities in one and one for all controls
- 2-way IR remote programming tool for all settings
- Single device can be members of multiple groups
- SmartDIM or multi-level high/low StepDIM control
- Exceptionally long range of remote programming
- Flexible fixture integration or ceiling mount options
- Multiple lens options allow broadest applications

APPLICATION

☑ Networked Smart Lighting Control

This OS-NET enabled sensor can be flexibly integrated with OEM luminaire or mounted on the ceiling in a variety of options to provide multi-scheme occupancy/vacancy/daylight sensing based control with continuous or multi-level dimming to the luminaire equipped with bus power integrated DALI driver*.

*References including PHILIPS SR, OSRAM DEXAL, and DiiA certified D4i drivers

CE

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SENSING CONTROL SCHEMES

The ON-MRD-514 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 or contact an IR-TEC team member directly.

Mode	Status	Day*	Night*	Remarks
ON/OFF	Vacant	OFF	OFF	For non-dimmable lighting [1]ALS enabled
	Occupied	ON/OFF[1]	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/LD[2]	[2]As 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-MRD-514xXx 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
L	Ceiling Recess	LMB-500

LENS OPTIONS

The ON-MRD-514xx**X** series is available with the following lens options which provide different coverage for different mounting height (H). When order with the lens code (**X**), the lens will be supplied with the sensor.

Lens		Shape	Mounting Height		Coverage
A	Standard	Cone	8~15 ft.	2.4~4.5m	2X height
B	Extra wide	Cone	8~10 ft.	2.4~3.0m	6X height
C	High bay	Cone	15~30 ft.	4.5~9.0m	3X height
D	Standard	Round	8~20 ft.	2.4~6.0m	2X height
F	Extra wide	Dome	8~20 ft.	2.4~6.0m	4X height
G	Aisle way	Arch	8~40 ft.	2.4~12.0m	3X height
H	High bay	Dome	30~50 ft.	9.0~15.0m	1X height
L	Long aisle	Arch	8~10 ft.	2.4~3.0 m	6X height

WIRING DIAGRAM

1. DALI driver with integrated bus power
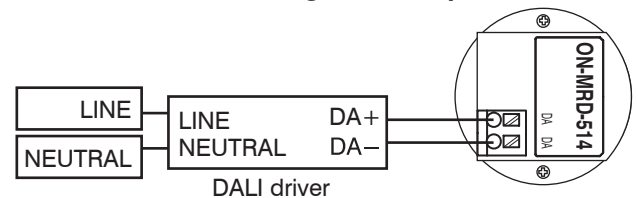
2. General DALI driver
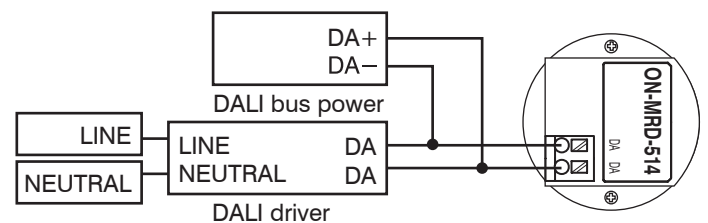
SPECIFICATIONS

Power supply	DALI bus, non-polarity
Infrared sensor	Digital quad-element pyroelectric sensor
Power Consumption	<50 mA
Control protocol	DALI Broadcast
Wireless protocol	Modified Zigbee Light Link (ZLL)
Radio frequency	2405~2475MHz
Number of Channel	16ch
Radio range	15/90 m @indoor/outdoor, open space
Radio Power Output	6.96dBm
Detectable speed	0.15 ~ 3 m/sec. (0.5~10 ft./sec.)
Mounting height	Subject to lens applied*
Detection range	As per lens applied and mounting height
Remote range	Up to 8 m (26 ft), indoor with no backlight
Op. humidity	Max. 95% RH
Op. temperature	-40°C~70°C (-40°F~158°F)
Dimensions	Ø60 x H37mm (Ø2.36"x H1.45")

*Not recommended for 10 m plus mounting height.

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