ON-MRD-124S

SmartDALI OS-NET Sensor

OS-NET

Flexibility • Functionality • Simplicity

OVERVIEW

The ON-MRD-124S is a miniature OS-NET enabled SmartDALI Sensor (ONS) packed with multiple sensing control functionalities including occupancy/vacancy sensing, daylight harvesting, bi-level StepDIM or continuous SmartDIM control, and wireless mesh networking capability for enabling intelligent lighting control.

Through easy connection with specific power pack, this remote sensor not only automatically controls the connected light as per scheme programmed by sensing the presence of occupant and the ambient light level, but also acts as a node of wireless mesh network. 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. Other OS-NET devices can be linked and grouped with the sensor to complete an IoT-based smart lighting control for general commercial applications.

This low profile sensor can be integrated with Troffer or linear luminaire through a 1″ hole, or recess mounted on the ceiling to control LED panel lighting remotely. By connecting with a PPU-109DA power pack, the sensor can control integrated luminaires powered by typical DALI or 0/1-10V drivers. A simple DALI broadcast control can be achieved via coupling with a PPU-100DP DALI power supply unit. In addition, this wireless sensor can also directly control DALI driver with integrated bus power (ex. SR, DEXAL, D4i certified drivers*) for OEM manufacturers to deliver OS-NET enabled luminaires with ease and low cost.

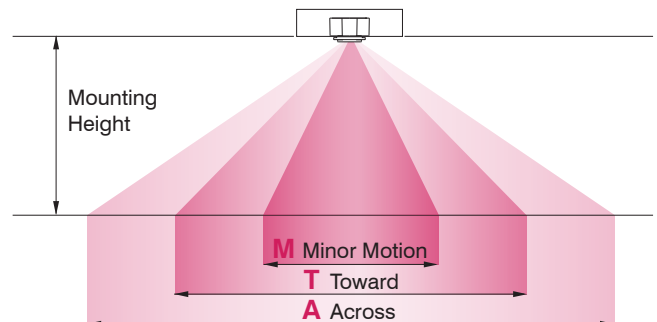*SR/DEXAL/D4i is registered trademark of Signify/OSRAM/DiiA respectively

FEATURES

- Omni-directional quad element digital PIR sensor
- Snap-in luminaire assembly or ceiling recess mount
- Direct control DALI driver with integrated bus power
- Different power packs available for different controls
- Sensor setting via 2-way IR handheld programmer
- Single sensor can be member of multiple groups
- Multiple sensing control schemes programmable
- SmartDIM or multi-level high/low StepDIM control
- Available for Troffer, LED panel or linear luminaire

APPLICATION

☑ Smart Lighting Controls with DALI/0-10V

The ON-MRD-124S can be recess mounted on the ceiling or integrated with Troffer/linear luminaire to provide occupancy/vacancy sensing control through connecting with specific power supply unit, while also enabling smart lighting control via wireless mesh network

DETECTION PATTERN

Mounting Height		2.4 m (8 ft)	3.0 m (10 ft)	3.6 m (12 ft)	6.0 m (20 ft)
Coverage Diameter	M	1.0 m (3 ft)	2.0 m (7 ft)	3.0 m (10 ft)	--
	T	3.0 m (10 ft)	4.0 m (13 ft)	5.0 m (16 ft)	6.0 m (20 ft)
	A	5.0 m (16 ft)	6.0 m (20 ft)	7.0 m (23 ft)	9.0 m (30 ft)

SPECIFICATIONS

Power supply	DALI bus power
Power consumption	<50 mA with DALI bus
Infrared sensor	Digital quad-element pyroelectric sensor
Photo sensor	Digital ambient light sensor
Control output	DALI broadcast
Wireless protocol	Modified Zigbee Light Link (ZLL)
Radio frequency	2,405~2,480 MHz
Detectable speed	0.15 ~ 3 m/sec. (0.5~10 ft./sec.)
Mounting height	2.4 ~ 3.6 m (8 ~ 12 ft)
Op. humidity	Max. 95% RH
Op. temperature	-20°C~70°C (-4°F~158°F)
Dimensions	Ø40 x H24mm (Ø1.57″x H0.94″)

CE PRELIMINARY

IR-TEC
Specializing in Building Sensors

ON-MRD-124S
SmartDALI OS-NET Sensor

CONTROL SCHEMES

Each ON-MRD-124S can be programmed by an IR handheld remote (SRP-281) to control the connected light in one of the following schemes. 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
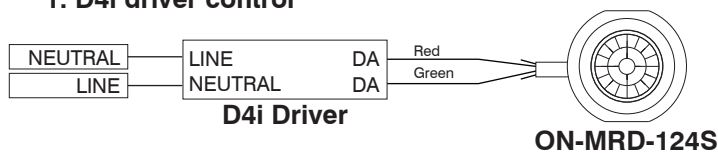**OSLATO** : Occupancy Sensing at Low Ambient with Time-Off
DSVM: Daylight Sensing with Virtual Midnight   **DSC**: Daylight Sensing Control
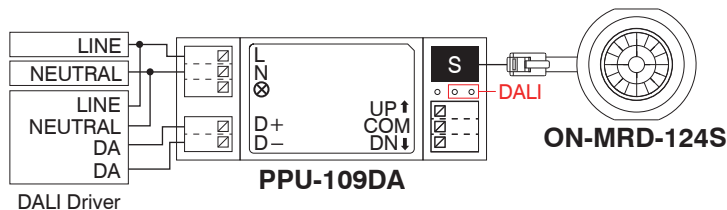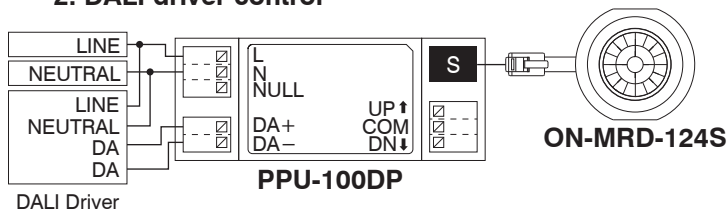**VSC**: Vacancy Sensing Control
OSB: Occupancy Sensing with Background   **OFF**: Light off all the time
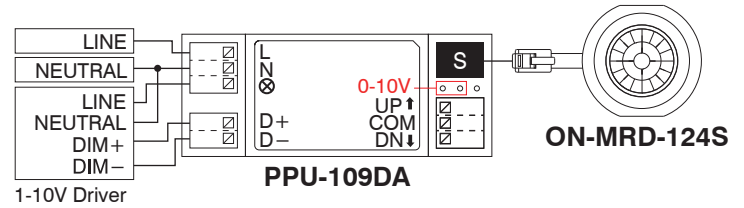
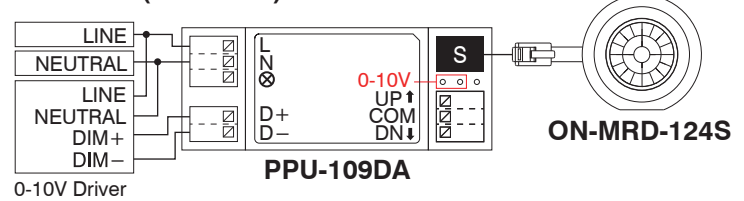## WIRING DIAGRAM
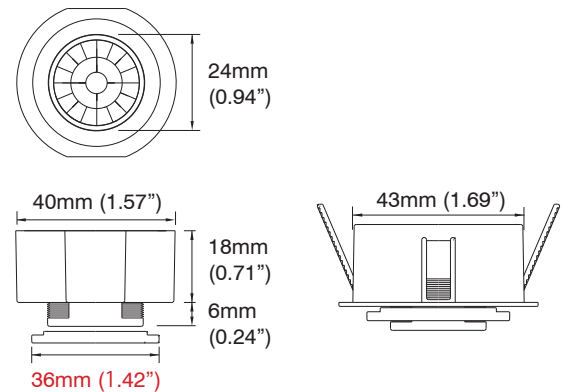
1. D4i driver control

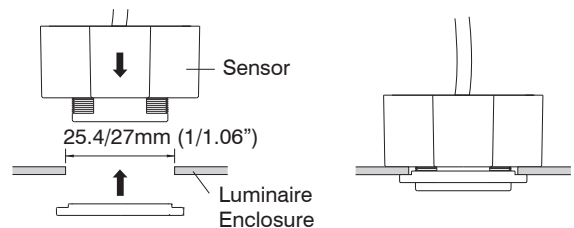### 2. DALI driver control

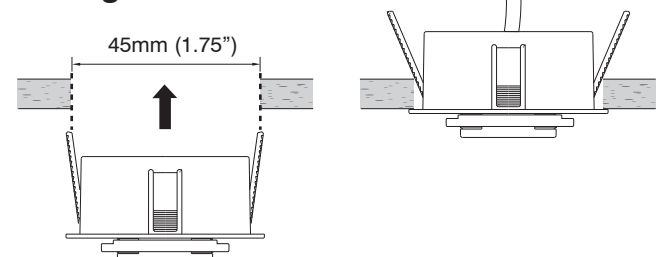### 3. 1-10V driver control

4. 0-10V(dim-to-off) driver control

DIMENSIONS

24mm (0.94")
40mm (1.57")
18mm (0.71")
6mm (0.24")
36mm (1.42")
43mm (1.69")

Luminaire Assembly (Inside-out)

Sensor
25.4/27mm (1/1.06")
Luminaire Enclosure

Ceiling Recess Mount

45mm (1.75")

CONTROL SCHEMES

PPU-100DP   DALI Power Supply Unit
PPU-109DA   DALI/0-10V Power Pack