TRANS

MRD-124S
SmartDALI Sensor

OVERVIEW

The MRD-124S is a miniature SmartDALI sensor packed with multiple occupancy and vacancy sensing control capabilities for commercial lighting control. Through easy plug-in cable connection with specific power pack, this remote sensor is capable of providing bi-level StepDIM or continuous SmartDIM control to the integrated luminaire by sensing the local occupancy status and ambient light level.

This low profile sensor can be integrated with commercial luminaire, or remotely mounted on the ceiling with a recess mounting bracket to control LED panel lights. A 2-way remote programmer (SRP-280) can be used to configure control scheme and parameters or download the existing settings of an operating sensor on the floor.

Through the PPU-109DA power pack connected, the sensor can control the luminaire powered by DALI or 0-10V driver. Simple DALI broadcast control can be achieved via coupling with PPU-100DP power supply unit. A momentary push button contact signal can be connected to enable vacancy sensing control (absence detection) with manual on/off and dimming control. This sensor can also directly control DALI driver with integrated bus power* (Ex. SR, DEXAL, and D4i certified drivers) to enable a cost effective smart lighting.

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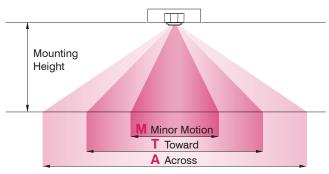
FEATURES

- Omni-directional digital PIR sensor
- Luminaire integration or ceiling recess mounting
- Direct control DALI driver with integrated bus power
- Various power packs available for different controls
- Sensor control setting via an IR remote programmer
- Occupancy/vacancy sensing control programmable
- SmartDIM or multi-level high/low StepDIM control
- Available for Troffer, LED panel or linear luminaire

APPLICATION

☑ Occupancy Sensing Control
☑ Vacancy Sensing Control

The MRD-124S can be recess mounted on the ceiling or integrated with Troffer or linear luminaire, and provide occupancy/vacancy sensing control through connecting with specific power supply unit or momentary button.

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	<20 mA with DALI bus
Infrared sensor	Omni-directional pyroelectric
Photo sensor	Digital ambient light sensor
Control output	DALI Broadcast
Detectable speed	0.15 ~ 3 m/sec. (0.5~10 ft./sec.)
Mounting height	2.4~6m (8~20 ft)
Detection range	4.8~9m diameter with motion across
Op. humidity	Max. 95% RH
Op. temperature	-40°C~55°C (-40°F~131°F)
Dimensions	Ø40 x H24mm (Ø1.57"x H0.94")

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CONTROL MODES

The sensor can be programmed by a handheld remote to provide different control schemes as below. For more details of specific control, please visit www.irtec.com or contact an IR-TEC team member directly.

Mode	Status	Day*	Night*	Remarks
OSLA	Vacant	OFF	Auto LD	SD: SmartDIM LD: Low Dim, HD: High Dim
	Occupied	SD/OFF[1]	SD/HD	
OSLATO	Vacant	OFF	LD-OFF	Low dim during Time Off (TO) delay
	Occupied	SD/OFF[1]	SD/HD	
VSC	Vacant	OFF	OFF	Require connecting momentary button contacts to PPU-109DA/PPU-100DP
	Occupied	Manual	Manual	

OSLA : Occupancy Sensing at Low Ambient
OSLATO : Occupancy Sensing at Low Ambient with Time-Off delay
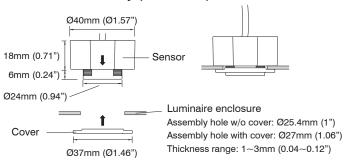VSC : Vacancy Sensing Control

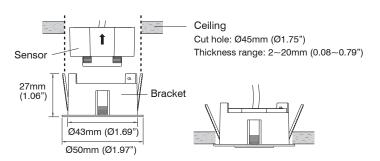*Day/Night: While the ambient light level is Higher/Lower than the threshold set.

[1]Sensor will inhibit the light if the ambient light level is 200% higher than the SmartDIM level set.
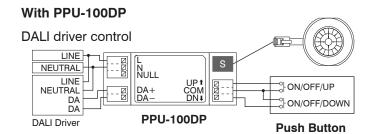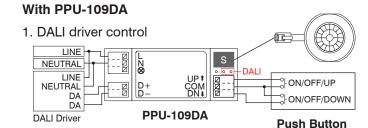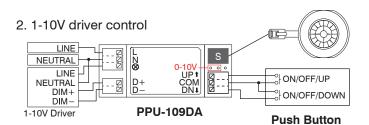
MOUNTING DIMENSIONS

Luminaire Assembly (Inside-out)

Ø40mm (Ø1.57")
18mm (0.71")
Sensor
6mm (0.24")
Ø24mm (0.94")

Cover
Ø37mm (Ø1.46")

Luminaire enclosure
Assembly hole w/o cover: Ø25.4mm (1")
Assembly hole with cover: Ø27mm (1.06")
Thickness range: 1~3mm (0.04~0.12")

Ceiling Recess Mount (Outside-in)

Sensor
27mm (1.06")
Bracket
Ø43mm (Ø1.69")
Ø50mm (Ø1.97")

Ceiling
Cut hole: Ø45mm (Ø1.75")
Thickness range: 2~20mm (0.08~0.79")

WIRING DIAGRAM

With PPU-100DP

DALI driver control

LINE
NEUTRAL
LINE
NEUTRAL
DA
DA
DALI Driver

L
N
NULL
DA+
DA−
UP
COM
DN
PPU-100DP

S

ON/OFF/UP
ON/OFF/DOWN
Push Button

With PPU-109DA

1. DALI driver control

LINE
NEUTRAL
LINE
NEUTRAL
DA
DA
DALI Driver

L
N
⊗
D+
D−
UP
COM
DN
PPU-109DA

S
DALI

ON/OFF/UP
ON/OFF/DOWN
Push Button

2. 1-10V driver control

LINE
NEUTRAL
LINE
NEUTRAL
DIM+
DIM−
1-10V Driver

L
N
⊗
D+
D−
UP
COM
DN
PPU-109DA

S
0-10V

ON/OFF/UP
ON/OFF/DOWN
Push Button

3. 0-10V(dim-to-off) driver control

LINE
NEUTRAL
LINE
NEUTRAL
DIM+
DIM−
0-10V Driver*

L
N
⊗
D+
D−
UP
COM
DN
PPU-109DA

S
0-10V

ON/OFF/UP
ON/OFF/DOWN
Push Button
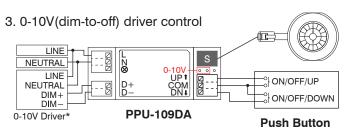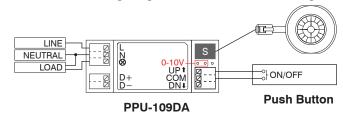
*Note: for the driver that cannot turn off the light at 0V, please try wiring diagram 2 above.

4. Non-dimmable lighting control, ON-OFF switching

LINE
NEUTRAL
LOAD

L
N
⊗
D+
D−
UP
COM
DN
PPU-109DA

S
0-10V

ON/OFF
Push Button

ASSOCIATED DEVICES

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