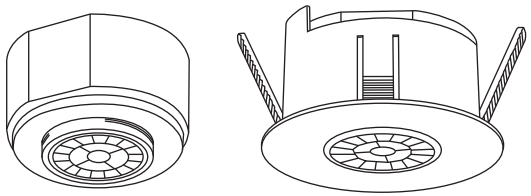
TRANS

MRD-124S

SmartDALI Sensor

INSTALLATION INSTRUCTIONS



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”)

⚠ WARNING & CAUTION

- **Risk of Electric Shock - Disconnect power supply before servicing.**
- **Open Type Photoelectric Switches.**
- **Cycling the power to the sensors will cause failure over time.**

OVERVIEW

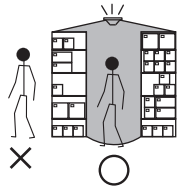
The MRD-124S is a miniature SmartDALI sensor packed with multiple occupancy and vacancy sensing control capabilities for commercial lighting control. Through easy plug-in cable connection with specific power pack, this remote sensor is capable of providing bi-level StepDIM or continuous SmartDIM control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

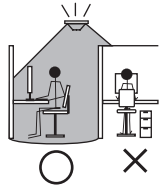
Through the PPU-109DA power pack connected, the sensor can control the luminaire powered by DALI or 0-10V driver. Simple DALI broadcast control can be achieved via coupling with PPU-100DP power supply unit. A momentary push button contact signal can be connected to enable vacancy sensing control (absence 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.

INSTALLATION NOTES

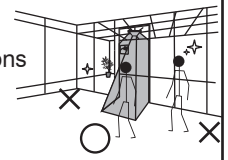
1. PIR sensor is more sensitive to the movements “crossing” the detection zones than “toward” or “away” the sensor unit. To obtain better sensitivity, avoid placing the sensor in line with occupant path, if possible.



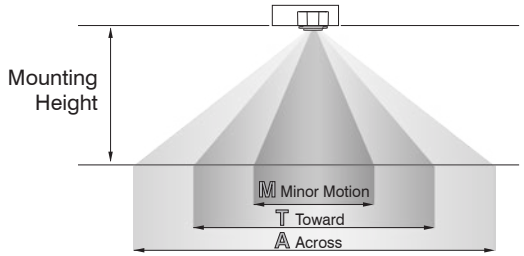
2. The closer the movement is to the sensor, the more sensitive the sensor is. The higher the sensor is installed, the larger movement is required for detection. High room temperature (>30°C) will reduce detection sensitivity.



3. Ensure to place the sensor at least at 1.5m (5 ft.) away from air supply ducts as rapid air flow may cause false detections.
4. Avoid placing the sensor where obstructions may block the sensor’s line of sight. PIR sensor cannot detect movements through glass.



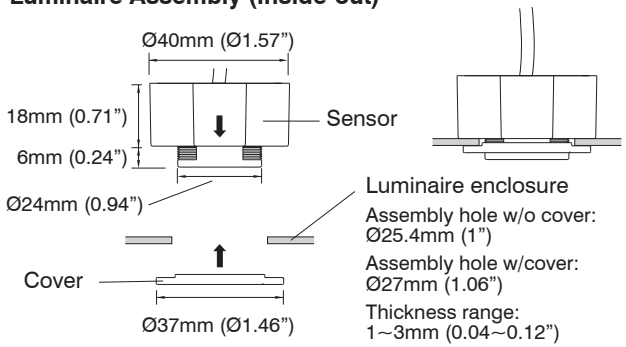
DETECTION COVERAGE



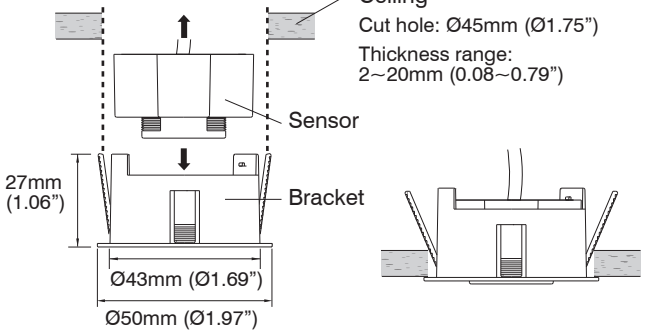
Mounting Height		2.4 m (8 ft)	3.0 m (10 ft)	3.6 m (12 ft)	6.0 m (20 ft)
Coverage Diameter	M	1.0 m (3 ft)	2.0 m (7 ft)	3.0 m (10 ft)	--
	T	3.0 m (10 ft)	4.0 m (13 ft)	5.0 m (16 ft)	6.0 m (20 ft)
	A	5.0 m (16 ft)	6.0 m (20 ft)	7.0 m (23 ft)	9.0 m (30 ft)

MOUNTING & DIMENSIONS

Luminaire Assembly (Inside-out)



Ceiling Recess Mount (Outside-in)



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CONTROL MODE

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.

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

Mode	Control
OSLA	1. While ambient lux is **higher** than the level set, light stays **OFF**. 2. While ambient lux is **lower** than the level set, dim the light to **LOW DIM** under vacancy. 3. While ambient lux is **lower** than the level set, and **occupancy detected**, switch the light to **HIGH DIM** 4. Dim the light to **LOW DIM** after occupant leave and delay time elapses.
OSLATO	1. While ambient lux is **higher** than the level set, light stays **OFF**. 2. While ambient lux is **lower** than the level set, and **occupancy detected**, switch the light to **HIGH DIM**. 3. Dim the light to **LOW DIM** after occupant leave and delay time elapses. 4. Turn **OFF** the lights when **TIME OFF** delay elapses. 5. When **occupancy detected** during **TIME OFF**, switch the light to **HIGH DIM**.
VSC Require connecting momentary button contacts to PPU-109DA or PPU-100DP	This is a **vacancy sensing control** scheme can be applied in spaces that require users to manually turn **ON** the light, and have the sensor turn **OFF** the light automatically. 1. While ambient lux is **higher** than the level set, and **occupant press the button**, light stays **OFF**. 2. While ambient lux is **lower** than the level set, and **occupant press the button**, switch the light to **ON**. 3. Turn **OFF** the light after occupant leave and delay time elapses. **NOTE -** The sensor will automatically turn **ON** the light if it detects occupant activity within 30 seconds after time delay elapsed.

SENSOR ACKNOWLEDGMENT

Acknowledgement	Sensor LED	Beep	Lighting
Full sensor setting upload completed	-	Long x 1 Short x 2	Flash x 2
Sensor resume to factory default	-	-	Flash x 2
SmartDIM level set completed	-	Short x 2	Flash x 2
Single setting ok	-	Short x 2	-
Occupancy detected	Flash x 1	-	-

SENSOR SETTINGS

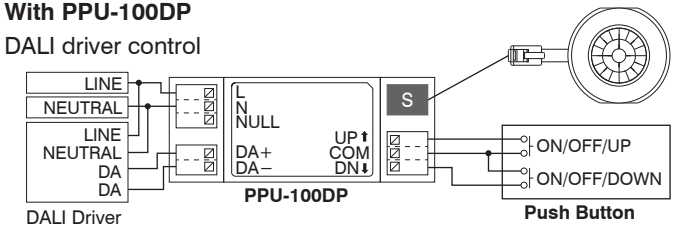
The followings are settings and options available with MRD-124S that can be configured via SRP-280 remote programmer. For more details of remote sensor settings, please refer to the operation instruction of SRP-280.

Settings	Description	Options	Default
CONTROL	The mode that the sensor will control.	OSLA, OSLATO, VSC	OSLATO
AMBIENT LUX	Thresholds of ambient light level for sensor to execute the control.	10/20/40/60/100/200/400 LUX/DISABLED	DISABLED
DELAY	The delay time that sensor is set to turn off or dim the light after the area is vacant.	30 sec./1/3/5/10/15/20/30/60 min.	10 min.
TIME OFF	The delay time that sensor will keep the light at low dim level after the OFF delay time elapsed.	10/30 sec./3/5/10/15/20/30/45/60 min.	10 min.
HIGH DIM	The output level set to control the light during occupancy.	50/55/60/65/70/80/90/100%/SmartDIM	100%
LOW DIM/ SmartDIM	The output level set to dim the light when space is vacant for bi-level control. Low dim setting will become SmartDIM bar if SmartDIM control is selected.	0/5/10/15/20/25/30/40%	30%
RAMP UP	The speed of increasing the lighting output to HIGH DIM level.	INSTANT/SOFT/SLOW	INSTANT
FADE DOWN	The speed of decreasing the lighting output to LOW DIM level or off.	INSTANT/SOFT/SLOW	SOFT
SENSITIVITY	The sensitivity of occupancy sensor.	HIGH/NORMAL/LOW	HIGH
LED INDICATOR	Enable/disable the LED indicator of sensor.	ENABLED/DISABLED	ENABLED

WIRING DIAGRAM

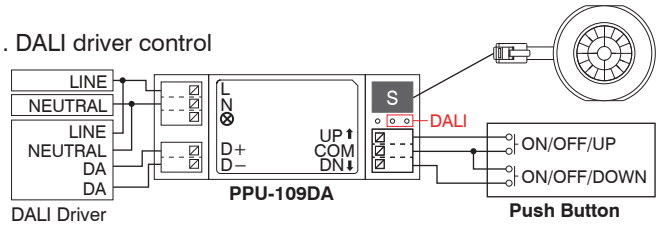
With PPU-100DP

DALI driver control

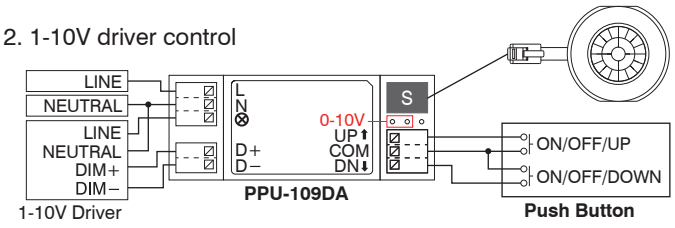


With PPU-109DA

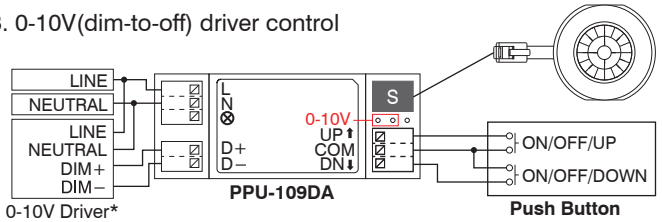
1. DALI driver control



2. 1-10V driver control

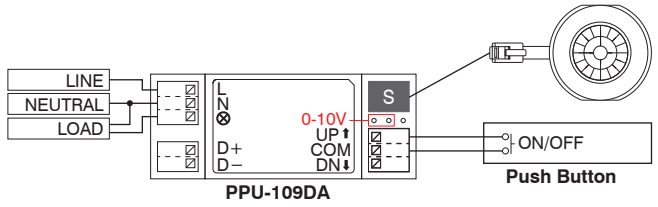


3. 0-10V(dim-to-off) driver control



*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



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