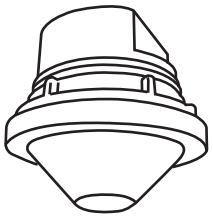
TRANS

REMOTE

MRD-510 series

SmartDALI Occupancy Sensor

INSTALLATION INSTRUCTIONS



w/Lens A/B/C

w/Lens D

*More lens options are available for this sensor.
Please refer to the Lens Datasheet for more details.

APPLICABLE REMOTE (order separately)

Model	Description	Remarks
SRP-280	TRANS Remote Programmer	Full functionality
URP-100	User Remote	Manual ON/OFF/DIM TIME/LUX setting

⚠ WARNING & CAUTION

- **Risk of Electric Shock - Disconnect power supply before servicing.**
- **Do NOT touch the square window of infrared sensor under the lens assembly.**
- **Use AWG 16-20 solid conductor wires Strip length 8-9 mm / 0.31-0.35 in.**
- **Open Type Photoelectric Switches.**
- **Cycling the power to the sensors will cause failure over time.**

OVERVIEW

The MRD-510 series member of the TRANS family is a two-way IR remote programmable DALI occupancy sensor featuring bi-level StepDIM or continuous SmartDIM control to the lighting with DALI driver or ballast. The sensor can be powered by either line voltage or DALI bus to provide multi-mode occupancy sensing control with DALI Broadcast commands.

The sensor will command DALI driver to provide the programmed output when it detects the presence of an occupant, or vehicle, and automatically dim to the low level or shut off the light after the area is vacant for a period of time. An exclusive two-way handheld remote programmer (SRP-280) allows you to configure sensor setting, or download the existing settings of the installed sensor from the floor.

Like all sensors in the TRANS family, the MRD-510 series can be directly integrated or flexibly attached with lighting fixture. Additionally, the sensor can be mounted on the ceiling by combining a specific mounting bracket. Interchangeable lens options provide different coverage for sensor mounted at different heights. This innovative modular design concept provides a second-to-none broad applications and complete installation flexibility.

MOUNTING OPTIONS

The sensor can be mounted on the ceiling, or integrated with a lighting fixture in various formats via specific mounting bracket. Please refer to the mounting instruction sheet separately attached for more details.

LENS OPTIONS

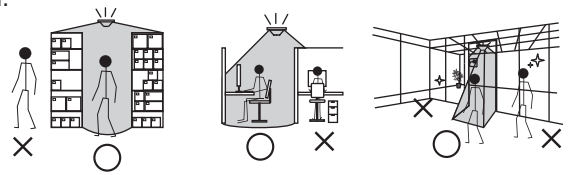
Different lenses can be applied to provide specific coverage at different mounting heights. Please refer to the lens datasheet attached for more details.

IMPORTANT !

- **To enable primary (master) and auxiliary (slave) control, ensure to have one sensor set as primary (ON/OFF, OSO, OSLA, OSLATO, OFF), and all other sensors set as auxiliary (DALI AUX.) per DALI lighting control network.**
- **The area lighting will be abnormal if no sensor or multiple sensors are set as primary in a DALI lighting control network.**
- **The ambient light sensor (ALS) will work only if the sensor is set as primary. For area lighting controlled by primary and auxiliary sensors, set the sensor at proper position as the primary if daylight harvesting control is required.**

APPLICATION NOTES

1. The 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 to be detected.
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 activations.
4. The sensor cannot “see” the movements behind obstacles, such as furniture, shelf, glass or partition. As a general rule, each occupant should be able to clearly view the sensor unit.
5. For open office areas with partition which could block the sensor view to occupant movements, it is best to place the sensors over the intersection of multiple workstations. For large areas of open office or space, place multiple sensors so that there is overlap coverage with each adjacent sensor.



SPECIFICATIONS

Power supply	230-240VAC or DALI bus power
Power consumption	<0.5W @230VAC or <15 mA with DALI bus
Infrared sensor	Omni-directional pyroelectric
Photo sensor	Digital ambient light sensor
DALI bus power	100 mA max.
Control protocol	DALI Broadcast
Detectable speed	0.3 ~ 3 m/sec. (1~10 ft/sec.)
Mounting height	Subject to the lens applied
Detection range	Subject to the lens type and mounting height
Remote range	10 m (33 ft) typical, indoor, 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”)

www.irtec.com P/N: 058-51017-002 Printed in Taiwan

iR-TEC

CONTROL MODE

The MRD-510 sensor can be programmed by SRP-280 remote programmer to control the lighting in one of the following modes. For more details of specific control mode, please visit www.irtec.com or contact an IR-TEC team member directly.

ON/OFF : ON-OFF Switching
OSO : Occupancy Sensing Only
OSLA : Occupancy Sensing at Low Ambient
OSLATO : Occupancy Sensing at Low Ambient with Time-Off
OFF : Light OFF all the time

Mode	Control
ON/OFF	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. Turn **OFF** the light after occupant leave and delay time elapses.
OSO	1. Ambient light sensor disabled. 2. Dim the light to **LOW DIM** at **all time** under vacancy. 3. Switch the light to **HIGH DIM** under occupancy. 4. Dim the light to **LOW DIM** after occupant leave and delay time elapses.
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**.
OFF	1. All lighting controlled by the sensor will remain **OFF** until another mode is selected.

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	-	-

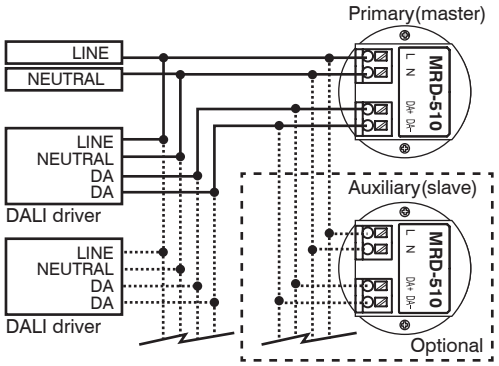
SENSOR SETTINGS

The followings are settings and options available with MRD-510 that can be configured through the operation of SRP-280 remote programmer. For more details of remote sensor setting, please refer to the operation instruction of SRP-280.

Settings	Description	Options	Default
CONTROL	The mode that the sensor will control. NOTE: The sensor/s set as DALI AUX. (slave) will report to primary (master) sensor when it detects movement. All other settings will be disabled.	ON/OFF, OSO, OSLA, OSLATO, OFF, DALI AUX.	OSLATO
AMBIENT LUX	The ambient light level that sensor will perform 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.	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. Only available if OSLATO is selected.	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
DALI POWER	Enable/disable the sensor to provide DALI bus power. NOTE: If total DALI bus power will exceed 250mA after adding the sensor powered by line voltage, please "DISABLED" the DALI POWER.	ENABLED/DISABLED	ENABLED
LED INDICATOR	Enable/disable the LED indicator of sensor.	ENABLED/DISABLED	ENABLED
SENSITIVITY	The sensitivity of occupancy sensor.	HIGH/NORMAL/LOW	HIGH
MIN. DIM	The lowest dim level applicable on the sensor.	12%/15%/DISABLED	DISABLED
DAY O'RIDE	Enable/disable daylight override control. Sensor will shut off the light when ambient lux exceeds the override level set below. Only available if AMBIENT LUX is enabled.	ENABLED/DISABLED	DISABLED
O'RIDE LEVEL	The ambient lux level to enable daylight override. Only available if DAY O'RIDE is enabled.	HIGH(~1.8X)/NORMAL(~1.5X)/LOW(~1.3X)	NORMAL

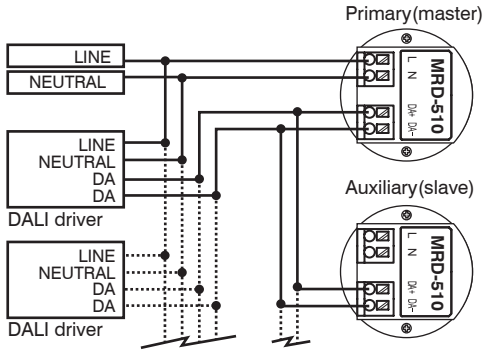
WIRING DIAGRAM

All sensor/s powered by line voltage



NOTE: 1. Ensure no DALI bus power output from DALI driver(s).
2. Ensure total DALI power consumption of driver(s) does not exceed 100mA.

Primary sensor powered by line voltage, auxiliary sensor/s powered by the primary sensor



NOTE: 1. Ensure no DALI bus power output from DALI driver(s).
2. Ensure total DALI power consumption of driver(s) and auxiliary sensor(s) does not exceed 100mA (max 4 auxiliary sensors).
3. Power consumption of auxiliary sensor is 15mA (max) each.