

## MRB-510 series

### Modbus Occupancy & Daylight Sensor



## OVERVIEW

The MRB-510 series member of the TRANS family is an occupancy and daylight sensor designed for Modbus control network. This slave sensor is able to provide occupied/vacant status and ambient light level outputs in Modbus communication protocol for area lighting or HVAC control of building management systems.

This Modbus multi-sensor employs a cutting edge quad element passive infrared (PIR) sensor to provide omni-directional occupancy sensing capability, and an advanced digital ambient light level sensor to provide dynamic ambient light level sensing performance for energy efficient building control. The sensor operation settings can be achieved remotely via Modbus control network.

The innovative interchangeable lens design allows the sensor to provide different occupancy detection coverage without changing or relocating the sensor. Like all sensors in the TRANS family, the MRB-510 series is also available with various mounting options, including ceiling recess, ceiling surface, and junction box mounted. These design innovations offer second to none flexibility for all applications of commercial building control.

## FEATURES

- Excellent occupancy sensing performance
- Digital data control ambient light sensor
- 12~24VDC low voltage power operation
- Modbus network communication protocol
- Space occupied/vacant status data output
- Real-time ambient light level data output
- Network programmable operation settings
- Built-in termination resistor to be enabled
- Available with variety of mounting options
- Available with interchangeable lens options

## APPLICATION

- Light Control
- HVAC Control
- Building Management

The MRB-510 series can be used to provide automatic control of area lighting and/or HVAC operation via Modbus network.

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#### OPERATIONS

The MRB-510 series is an occupancy and daylight multi-functional sensor designed for Modbus building control network. Powered by low voltage DC, the sensor not only detects the presence of occupant and occupancy status within its detection coverage, but also reports the real-time ambient light level for energy efficient lighting control. All sensor operation and communication settings, including ON/OFF delay times and ambient light level sensing ranges, transmission rate and serial port, can be remotely programmed via Modbus network.

#### Mounting Options

The MRB-510xx series can be mounted on the ceiling in various options by combining with a specific mounting bracket as below chart listed. The mounting bracket will be shipped with the sensor when ordered with the respective code.

Code	Mounting Option	Mounting Bracket
R	Ceiling Recess	RMB-500
C	Junction Box	CMB-500
S	Ceiling Surface	SMB-500

#### Lens Options

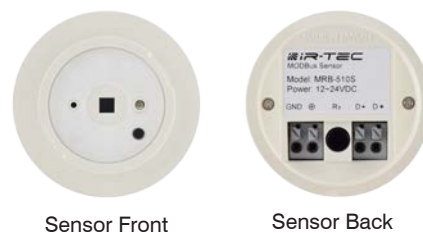
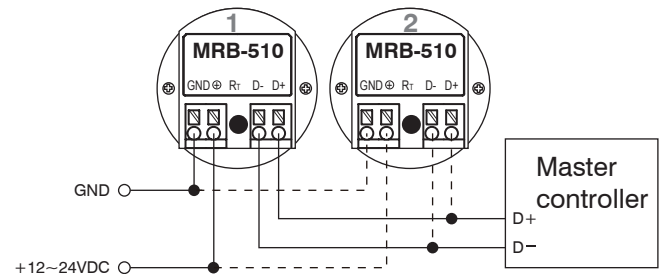
The MRB-510xx series is available with following lens options which provide different coverage at different mounting height (H). When adding the lens code the lens is then automatically shipped with the sensor.

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

#### Example: MRB-510SCB

This sensor would come with CMB-500 mounting bracket for 4" junction box mount and lens with extra wide detection. Specific mounting bracket or lens may be ordered separately if needed. For help selecting sensors with proper mounting and lens options please visit [www.irtec.com](http://www.irtec.com), or contact an IR-TEC team member directly.

#### Wiring Diagram



#### SPECIFICATIONS

Power supply	12~24 VDC±10%
Current drain	<12 mA @24VDC, standby
Output protocol	Modbus, RS-485
Infrared sensor	Omni-directional quad element pyroelectric
Detectable speed	0.3~3 m/sec (1~10 ft./sec.)
Mounting height	Subject to the lens type applied
Detection range	Subject to the lens applied and mounting height
Baud rate	1200/2400/4800/9600/19200/38400/57600/115200
ALS sampling rate	2~60 sec. network programmable
ALS ranges	1~200/2~2,000/20~20,000 lux
ON delay setting	0~5 min. network programmable
OFF delay setting	5 sec.~30 min. network programmable
Op. temperature	-10°C~50°C (-14°F~122°F)
Op. humidity	Max. 95% RH
Dimensions	Ø60 x H37mm (Ø2.36"x H1.45")