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Wattstopper®
DLM - Analog Sensor Input Module

Installation Instructions • Instructions d'Installation • Instrucciones de Instalación

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Catalog Number • Numéro de Catalogue • Número de Catálogo: LMIO-201

Country of Origin: Made in China • Pays d'origine: Fabriqué en Chine • País de origen: Hecho en China

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This unit is pre-set for Plug n' Go™ operation, adjustment is optional.

For full operational details, adjustment and more features of the product, see the DLM System Installation Guide provided with Wattstopper room controllers, and also available at www.legrand.us/wattstopper.

Installation shall be in accordance with all applicable regulations, local and NEC codes. Wire connections shall be rated suitable for the wire size (lead and building wiring) employed.
For Class 2 DLM devices and device wiring: To be connected to a Class 2 power source only. Do not reclassify and install as Class 1, or Power and Lighting Wiring.

SPECIFICATIONS

Voltage 24VDC
Current Consumption 20mA
Power Supply ....Wattstopper Room Controller
Connection to the DLM Local Network...........2 RJ-45 ports
Environment ....For Indoor Use Only
      Operating Temperature .... 32° to 104°F (0° to 40°C)
      Storage Temperature .... 23° to 176°F (-5° to 80°C)
      Relative Humidity .... 5 to 95% (non condensing)
RoHS compliant, UL2043 Plenum rated
Patent Pending

DESCRIPTION

The Lighting Management LMIO-201 device is a single channel low voltage analog sensor to DLM interface. It communicates a single state of occupancy; however it may be driven by multiple physical sensors wired together. Usage of the device requires an auxiliary DC power source such as a BZ power pack or AT-120/277 power supply.


MOUNTING AND WIRING

Installation shall be in accordance with all applicable regulations, wiring practices, and codes. Connect to a Class 2 power source only.

- Class 2 Device Wiring Only – Do Not Reclassify and Install as Class 1, 3 or Power and Lighting Wiring.
- Wire connections shall be rated suitable for the wire size (lead and building wiring) employed.

The LMIO-201 is UL2043 Plenum rated.

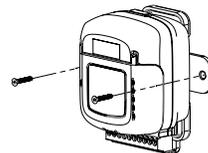All connections to the LMIO-201 are Class 2 low voltage.

If code requires that the LMIO-201 be mounted in an enclosure, it can be mounted inside a 4" x 4" junction box, inside a 21/8" deep (or deeper) 2-gang wall box, in a 3" or 4" octagonal box, or on a DIN rail inside a panel.
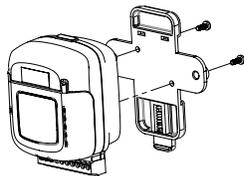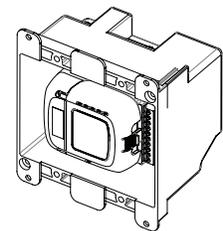

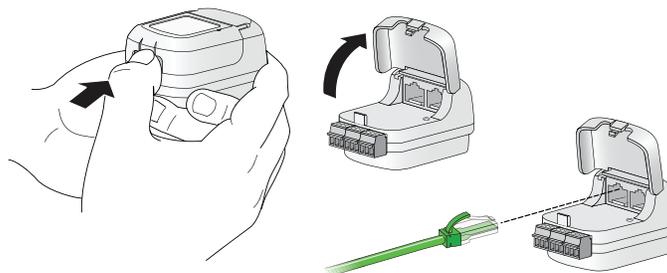**Attach din rail clip**   **Option 1: Attach to din rail**   **Option 2: Mount to wall**   **Inside a 2-gang J-box**


ATTACH THE LMRJ CABLE

The DLM local network uses free topology low voltage wiring. The LMIO-201 can connect anywhere on the DLM local network

CONNECTIVITY

The illustration below show examples of free-topology wiring. The LMIO-201 device communicates to all other Digital Lighting Management devices connected to the low voltage DLM Local Network, regardless of their position on the DLM Local Network.

CAUTION: TO CONNECT A COMPUTER TO THE DLM LOCAL NETWORK USE THE LMCI-100. **NEVER CONNECT THE DLM LOCAL NETWORK TO AN ETHERNET PORT** – IT MAY DAMAGE COMPUTERS AND OTHER CONNECTED EQUIPMENT.
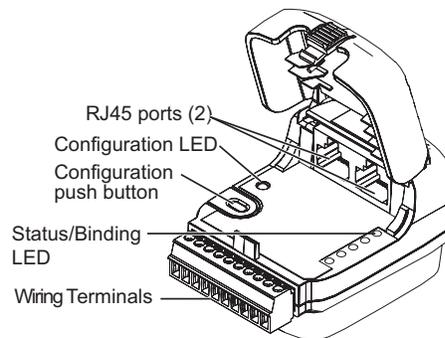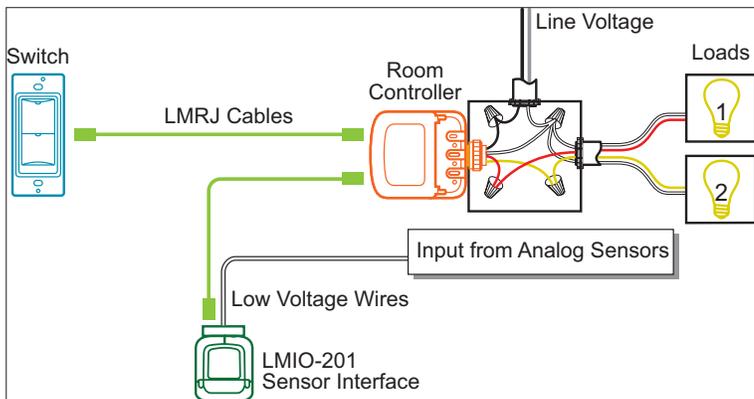
Buttons and Indicators

LED FUNCTIONALITY

"Status/Binding" LED blink patterns shall indicate occupancy, vacancy, and countdown when not in PnL mode. The following status indications will be indentified per their respective specific pattern:

- **LED off:** indicates that either no analog control input is detected or analog control input has expired and the LMIO-201 time delay has expired.
- **LED blinking @1Hz (1x/second):** indicates the analog sensor(s) time delay has expired and the LMIO-201 time delay has begun.
- **LED blinking @3Hz (3x/second):** indicates that the LMIO-201 is connected, but has no bindings.
- **LED on solid:** indicates that the LMIO-201 is connected, has bindings, and that the load(s) bound to it has been commanded per the sensor mode configuration.

The red "Configuration" LED behaves similarly to other DLM devices. When in PnL the red LED will flash to confirm communication, and the LED will flash periodically when DLM Local Network traffic is received. Solid red indicates problems with DLM Local Network communication likely caused by wiring.

WIRING DIAGRAM

Wiring terminal naming is shown below. An auxiliary relay is provided inside the LMIO-201 for cycling power to any connected sensors if desired. Simply wire the +24VDC power source to the sensors through the NC relay terminals and the LMCT-100 or LMCS software can issue commands to cause relay cycling.

The LED's of many Wattstopper analog occupancy sensors will blink noticeably allowing this capability to be used to identify which sensors are wired back to a given LMIO-201.

The relay contacts are rated for 500mA at 24VDC. The ground terminal must be wired in common with the DC power source such as BZ-150 Power Pack or AT-120/277 auxiliary DC power supply. The Sensor Detect signal wire from each of the sensors connected to a given LMIO-201 must be wired to the Sensor Detect input of the LMIO-201 forming one zone of occupancy.
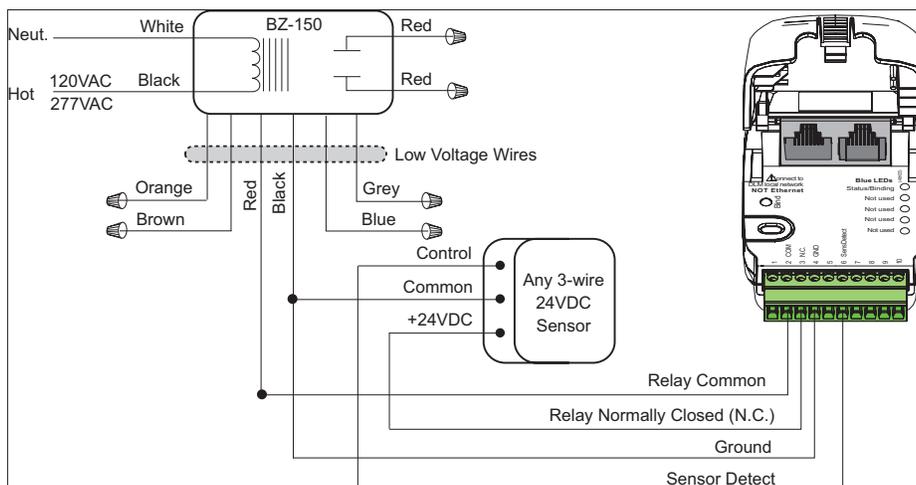
CONFIGURATION OPTIONS AND USE CASES

The LMIO-201 will implement most DLM Occupancy Sensor functionality including digital occupancy state, separate Normal Hours and After Hours time delays, binding to multiple loads, preset on/off and scene actions, and writeable location and description properties.

Independent time delay

In order to have digitally configurable time delays to avoid using the analog sensor DIP switches after installation, set the analog sensors' time delays at product minimum. Analog occupancy sensor minimum time settings will vary. After the analog sensor delay(s) expire the LMIO-201 will see the control input go low and begin its own countdown. The time delay will reset whenever the analog control line goes high next, or, upon expiration will send "vacancy" messages to the loads bound to it. The delay of the analog sensor(s) and the LMIO-201 itself are additive, so an LMIO-201 set to 15 minute delay connected to sensors set to a 1 minute minimum time delay will initiate vacancy after 16 minutes without motion.

Push n' Learn (PnL) procedure for binding LMIO-201

Since the Configuration Button is the only available button on the LMIO-201, PnL must be entered and loads cycled via another device. The LMIO-201 can then be bound or unbound from any DLM load present on its local DLM Local Network. Pressing the button will bind or un-bind the LMIO-201 to the currently active load. The "Status/Binding" LED indicates binding status (LED on indicates that the load is bound). Once at least one bound load is active and PnL has been exited, pressing the button will de-activate all bound loads. When all bound loads are inactive, pressing the button will activate all bound loads.

Procedure for clearing LMIO-201 bindings

When not in PnL, all bindings can be cleared by pressing and holding the Configuration Button for 10 seconds. Once the bindings are cleared the "Status/Binding" LED will blink 3x to indicate the action was successful.

Sensor-dependent features

Walk Through, detection schemes (i.e. trigger/retrigger modes), and sensitivity must be set at each sensor using its DIP switches. Reference the installation instructions for the product being used for exact feature support.
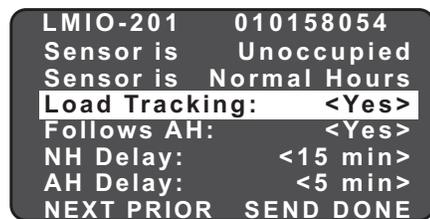
LMCT-100 USAGE

LMCT-100 Usage

LMIO-201 settings can be accessed via LMCT-100 IR handheld remote through the "Sensor Configuration" menu using firmware versions 5.19 or later. A new option has been added specifically for this purpose titled "Analog Occ Sensor":

```
                      BAT=■■■
Sensor Configuration

Current Settings
Test Mode
Saved Configurations
Analog Occ Sensor
```
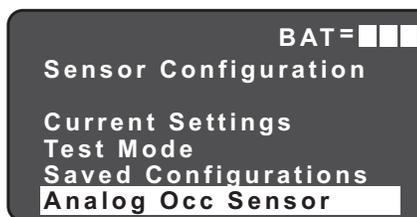
Entering the "Analog Occ Sensor" sub-menu will prompt the user to point to an available IR window on the local DLM room network to which the LMIO-201 is connected. If at least one LMIO-201 is detected the next menu will display its current settings. If more than one LMIO-201 is detected, the settings for the LMIO-201 with the highest serial number will be displayed first and the "NEXT" and "PRIOR" options can be used to select which LMIO-201 is to be configured.

```
LMIO-201    010158054
Sensor is    Unoccupied
Sensor is   Normal Hours
Load Tracking:     <Yes>
Follows AH:        <Yes>
NH Delay:      <15 min>
AH Delay:       <5 min>
NEXT PRIOR   SEND DONE
```

The following options are available for each parameter shown:

- Load Tracking: Choices are "Yes" and "No", and determines whether the status of the LMIO-201 is maintained as a network status only or whether occupancy/vacancy messages actually affect bound loads' states.
- Follows AH: Choices are "Yes" and "No", and determine whether After Hours transitions enforce secondary configuration parameters and transition modes.
- NH Delay: Choices are a value in minutes from None to 30, and "Override" and sets the sensor timeout value for Normal Hours.
- AH Delay: Choices are a value in minutes from None to 30, and "Override" and sets the sensor timeout value for After Hours.
- After changing parameter settings, point the LMCT to the nearest IR window and press "Send" to commit the parameters to the LMIO-201.

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