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LETTER OF TRANSMITTAL

Project 561A4-18-102
Lyons VA -Correct FCA

03/01/2023

To: Mr. Gary Boehner

General Engineer
Montrose Campus
151 Knollcroft Rd
Lyons, NJ 07939

Submittal # 15

We are sending you ☐ Herewith ☐ Delivered by Hand ☐ Under Separate Cover ☒ Via **ELECTRONIC**

☐ Plans ☐ Prints ☐ Shop Dwgs ☐ Samples ☐ Specifications ☒ Other _____

Copies	Item	# Pages	Description
			Division 26 - Electrical Sub Section 26 09 23
1	1	3	Legrand Wall Switches- Model LMSW-101-W
1	2	3	Legrand Occupancy Sensor- Model LMUC-100-2
1	3	3	Legrand Room Controller- Model LMRC-211
1	4		
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1	7		
1	8		
1	9		
1	10		

The Above Listed Items are transmitted as indicted below:

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☐ Approval ☐ As Requested ☐ For Your Use ☐ For Construction

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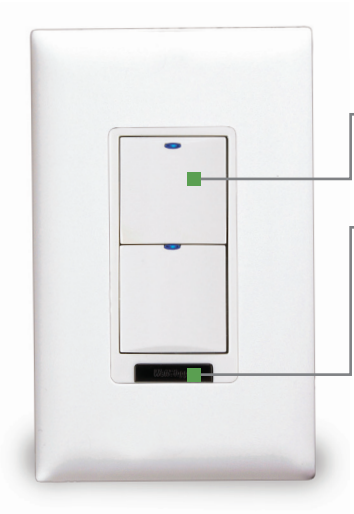
WALL SWITCHES

LMSW-100 SERIES

Low voltage pushbutton switches for control of multiple loads

Components of Digital Lighting Management integrated control system

Plug to other components using Cat 5e cables with RJ45 connectors eliminating wiring errors



Customizable buttons with LED status indicators

IR transceiver for wireless configuration and remote control

Plug n' Go automatic configuration and Push n' Learn for personalization

DESCRIPTION

LMSW-100 Series Wall Switches are low voltage devices for energy-saving manual on/off control of one or more loads from one or more locations. They are part of a Digital Lighting Management (DLM) system and can control any load(s) connected to DLM room controllers.

OPERATION

LMSW-100 Series Switches operate on Class 2 power supplied to a DLM local network by one or more room controllers. The switches send a digital signal for on or off whenever a pushbutton is pressed by a user. Plug n' Go™ automatic configuration assigns each load to a switch button upon system startup. If the number of buttons equals the number of loads, each button operates one load. If there are more loads than buttons, the last button controls multiple loads. Any extra buttons are unassigned. When multiple switches are installed, default operation is for multi-way control; each switch controls all of the loads on the system. Button assignments may be quickly reconfigured using Push n' Learn™. Button configuration may be changed from load control to scene control using DLM configuration tools.

BUTTON FEATURES & IR COMMUNICATIONS

An LED shows the status of the load(s) or scene assigned to each button on a switch. Switches are available with one, two, three, four or eight buttons. When an unassigned button is pressed, the LED will blink. Each button (in a two or more button switch) can dim the load up or down. Each switch may be personalized in the field with custom-engraved buttons. The IR transceiver in each LMSW-100 Series Wall Switch allows two-way communication for both wireless system configuration and operation.

APPLICATIONS

LMSW-100 Series Wall Switches are recommended for virtually all applications, including offices, conference rooms and classrooms. They are ideal for any area where manual on/off control is desired. They are also perfect for applications requiring multi-way control. LMSW-100 Series Switches increase energy savings and improve the return on investment of any Digital Lighting Management system.

FEATURES

- Hidden configuration button for easy access to Push n' Learn
- Digital Lighting Management components plug together on a free-topology Category 5e DLM local network
- Infrared (IR) transceiver for wireless configuration and control
- Sleek single gang devices fit decorator wall plates; 1-, 2-, 3-, 4-, and 8-button models
- Switches may be used for multi-way control
- Each button can control individual or multiple loads, or one scene; LED indicates status
- Each switch button can be used to dim the load (except for LMSW-101)
- Six color options and custom engraving options; standard buttons may be replaced in the field
- The product meets the materials restrictions of RoHS
- BAA/TAA-compliant models available

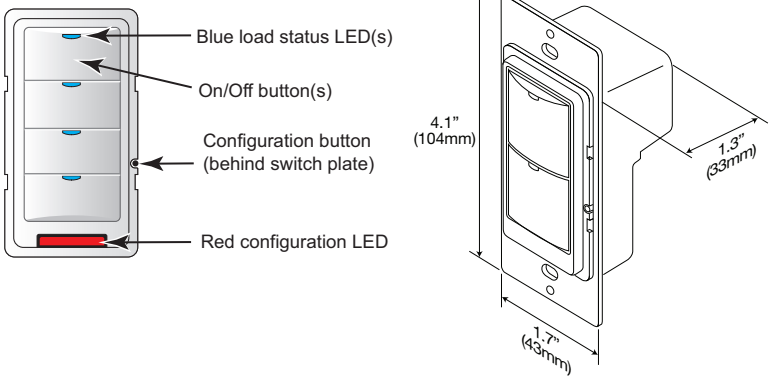
PROJECT		LOCATION/ TYPE	

SPECIFICATIONS

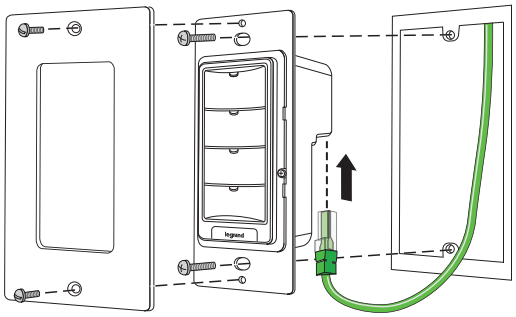
- Input voltage: 24VDC from DLM local network
- Current consumption: 5mA
- DLM local network connection: 2 RJ45 ports
- 1, 2, 3, 4 or 8 control buttons, each with LED status indicator
- Hidden configuration button to access Push n' Learn
- Infrared (IR) transceiver
- Operating conditions: for indoor use only; 32-131°F (0-55°C); 5-95% RH, non-condensing
- UL and cUL listed
- FCC part 15 compliant
- Five year warranty

CONTROLS & MOUNTING

Product Controls, Dimensions and Models



Mounting

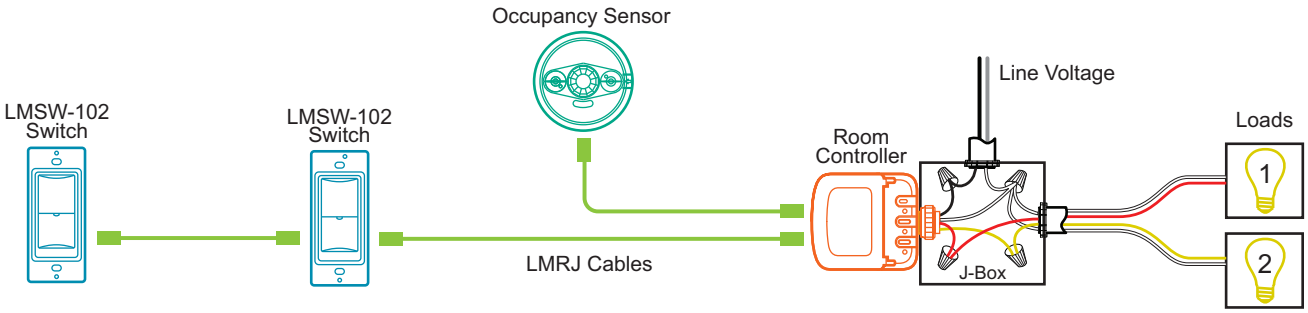


LMSW-100 Series Switches fit in standard single gang boxes.

LMSW-101 LMSW-102 LMSW-103 LMSW-104 LMSW-108

CONNECTING

Sample Connection Diagram with Multi-way Bi-level Control



Plug DLM local network components together in any configuration using Cat 5e cables with RJ45 connectors.

ORDERING INFORMATION

Catalog #	Color	Description
LMSW-101-W	White	1-Button Wall Switch (Rocker)
LMSW-101-LA	Light Almond	
LMSW-101-I	Ivory	
LMSW-101-G	Gray	
LMSW-101-B	Black	
LMSW-101-R	Red	
LMSW-102-W	White	2-Button Wall Switch
LMSW-102-LA	Light Almond	
LMSW-102-I	Ivory	
LMSW-102-G	Gray	
LMSW-102-B	Black	
LMSW-102-R	Red	
LMSW-103-W	White	3-Button Wall Switch
LMSW-103-LA	Light Almond	
LMSW-103-I	Ivory	
LMSW-103-G	Gray	
LMSW-103-B	Black	
LMSW-103-R	Red	
LMSW-104-W	White	4-Button Wall Switch
LMSW-104-LA	Light Almond	
LMSW-104-I	Ivory	
LMSW-104-G	Gray	
LMSW-104-B	Black	
LMSW-104-R	Red	
LMSW-108-W	White	8-Button Wall Switch
LMSW-108-LA	Light Almond	
LMSW-108-I	Ivory	
LMSW-108-G	Gray	
LMSW-108-B	Black	
LMSW-108-R	Red	

Note: Switches do not include face plates.
Order decorator style plate separately.

Catalog #	Color	Description
LMSW-101-W-U	White	1-Button Wall Switch (Rocker), BAA/TAA-compliant*
LMSW-101-I-U	Ivory	
LMSW-102-W-U	White	2-Button Wall Switch, BAA/TAA-compliant*
LMSW-102-I-U	Ivory	
LMSW-103-W-U	White	3-Button Wall Switch, BAA/TAA-compliant*
LMSW-103-I-U	Ivory	
LMSW-104-W-U	White	4-Button Wall Switch, BAA/TAA-compliant*
LMSW-104-I-U	Ivory	
LMSW-108-W-U	White	8-Button Wall Switch, BAA/TAA-compliant*
LMSW-108-I-U	Ivory	

*Product is compliant with Buy American Act and Trade Agreement Act

27394r4 Rev 02/22

ULTRASONIC CEILING MOUNT OCCUPANCY SENSOR

LMUC-100

Ultrasonic sensor with diffusers for comprehensive coverage

Component of Digital Lighting Management integrated control system

Quick access to Push n' Learn for system personalization

Digital sensor with LCD display and programming pushbuttons behind snap-off cover

IR transceiver for wireless configuration and remote control

Low profile design for architectural appeal

DESCRIPTION

The LMUC-100 low profile Digital Ultrasonic Ceiling Mount Occupancy Sensor uses ultrasonic diffusion technology to achieve 360° occupancy sensing for energy-efficient control of lighting and plug loads. It is a digital sensor, and is part of a Wattstopper Digital Lighting Management (DLM) system.

OPERATION

The LMUC-100 operates on Class 2 power supplied to a DLM local network by one or more DLM room controllers. It works with the room controller(s) to turn loads on and off based on occupancy. Default operation is established by Plug n' Go, which automatically configures system components to maximize energy savings. Initially, all occupancy sensors control all loads on the same local network. Each LMUC-100 may be assigned to a specific load; load assignments and load parameters may be changed using Push n' Learn. The LMUC-100 may be reconfigured either using the pushbuttons and an LCD screen conveniently located behind the snap-off front sensor cover, or with a wireless configuration tool.

DIGITAL SETTINGS AND IR COMMUNICATIONS

The LMUC-100 includes a unique, easy-to-access, LCD screen that displays sensor parameters and simplifies changing those parameters. Time delay and sensitivity can be precisely adjusted and walk through mode can be activated. Changes are made at the sensor with easy-to-use pushbuttons, or via the LMCT-100-2 wireless configuration tool that communicates with the sensor using a bi-directional infrared (IR) signal. The LMUC-100 IR transceiver allows wireless system operation in addition to configuration. The LCD display also facilitates system personalization, showing load information when in Push n' Learn mode.

APPLICATIONS

The LMUC-100 can sense motion in areas with partial obstructions, and is ideal for spaces with ceilings up to ten feet high. The LMUC-100 sensor is recommended for restrooms and open office areas. Multiple sensors may be used to control large partitioned office spaces when configured in zone patterns.

FEATURES

- Plug n' Go™ automatic configuration for quick installation and maximum energy savings
- Push n' Learn™ functionality for customization without the need for tools or a PC
- Digital Lighting Management components plug together on a free-topology Category 5e DLM local network
- Ultrasonic diffusion technology spreads coverage to a wider area (patented); 40KHz signal
- Infrared (IR) transceiver for wireless configuration and control
- Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
- Sensor coverage tested to NEMA Guide Publication WD 7-2000
- The product meets the materials restrictions of RoHS
- BAA/TAA-compliant models available

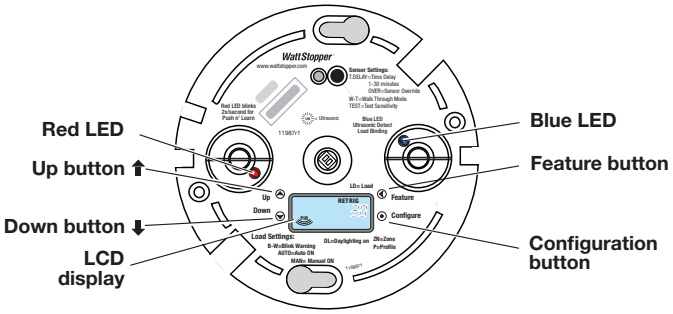
PROJECT		LOCATION/ TYPE	

SPECIFICATIONS

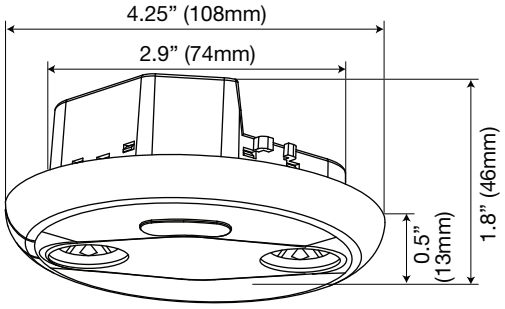
- Input voltage: 24VDC from DLM network
- Current consumption: 20mA
- DLM local network connection: 2 RJ45 ports
- LCD display and pushbuttons for setting sensor and system parameters
- Infrared (IR) transceiver
- Ultrasonic frequency: 40 kHz
- Coverage: Major motion, 1,000 ft2 (93 m2)
  Minor motion, 450 ft2 (42 m2)
- Operating conditions: for indoor use only; 32-104°F (0-40°C); 5-95% RH, non-condensing
- UL and cUL listed
- FCC part 15 compliant
- Five year warranty

CONTROLS & DIMENSIONS

Product Controls and Sensor Settings



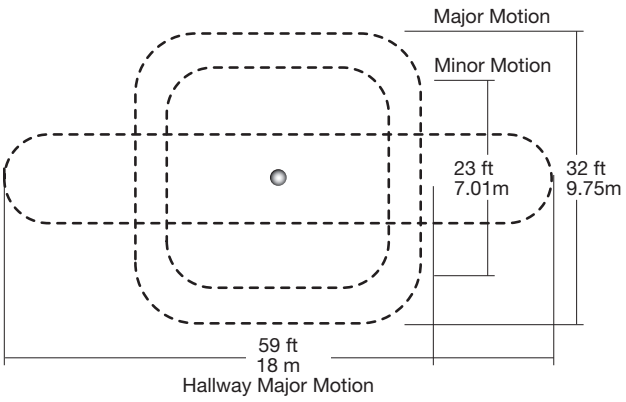
Product Dimensions



Sensor Parameter	Available Options	Default Setting
Time Delay	1-30 min. (1 min. increments) /Override	20 minutes
Walk Thru	On/Off	Off
Ultrasonic Sensitivity	10-100% (10% increments)/Off	70%
Test Mode	Activate	Off

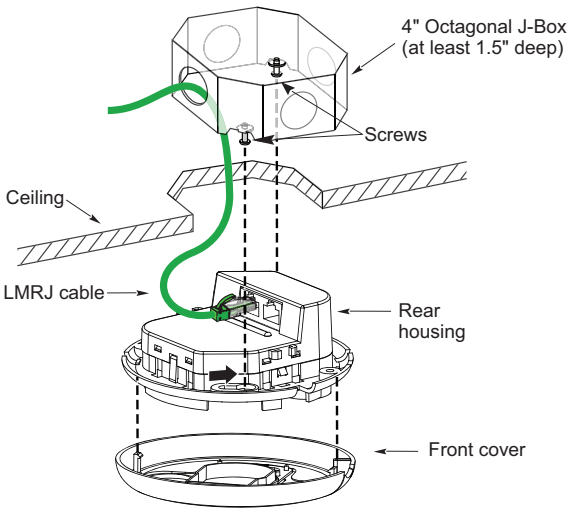
COVERAGE & MOUNTING

Coverage Pattern



For optimal sensing of large spaces, place sensors so that coverage overlaps.

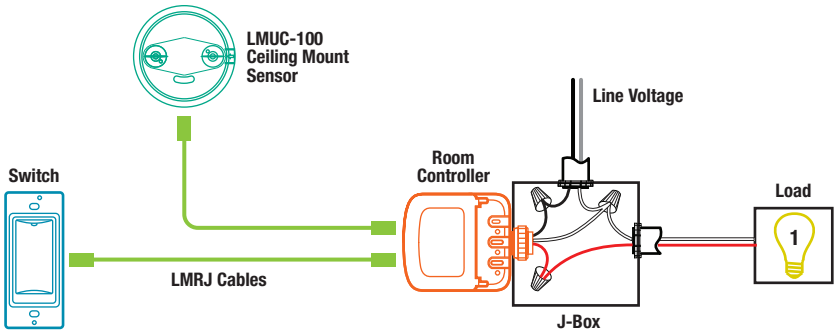
Mounting Options



Mount to a 4" octagonal box (as shown) or directly to ceiling tile using spring clips (included). Box mounting required for plenum rating. See installation instructions for more details.

WIRING

Sample Connection Diagram



Plug DLM local network components together in any configuration using Cat 5e cables with RJ45 connectors.

ORDERING INFORMATION

Catalog #	Color	Description
LMUC-100-2	White	Digital Ultrasonic Ceiling Mount Occupancy Sensor, 1,000 ft2 coverage
LMUC-100-2-U	White	Digital Ultrasonic Ceiling Mount Occupancy Sensor, 1,000 ft2 coverage, BAA/TAA-compliant*
LMCT-100-2		Digital Wireless Configuration Tool

*Product is compliant with Buy American Act and Trade Agreement Act

27159r3 Rev 09/21

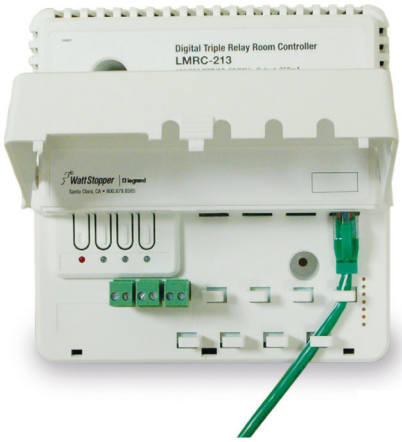
ON/OFF/0-10 VOLT DIMMING ROOM CONTROLLERS

LMRC-210 SERIES

Plenum-rated controllers with line voltage relay(s) and 0-10 volt dimming output(s)

120/230/240/277 volt and 347 volt models

Built-in RJ45 ports and IPv6 Mesh for support of both wired and wireless DLM devices, minimizing wiring errors



Plug n' Go automatic configuration for maximum energy efficiency

Store load preset level and 16 scene preset levels for each load

Support energy saving manual-on, bi-level, tri-level and dimming control strategies

DESCRIPTION

LMRC-210 Series Digital Room Controllers include one, two or three relay(s) to switch a total of 15 or 20 amps, a high-efficiency switching power supply and one 0-10 volt output per relay for control of dimmable loads including electronic ballasts (Advance Mark 7, or equivalent). They are the foundation of a Wattstopper Digital Lighting Management (DLM) system, and allow integration of occupancy sensors, daylighting controls and switches for energy-efficient lighting control.

OPERATION

LMRC-210 Series Room Controllers operate on one 120, 230, 240, or 277 volt, 20 amp, or 347 volt, 15 amp, feed and provide Class 2 power to sensors and switches via the DLM local network. Once powered up, Plug n' Go automatically configures system components for the most energy-efficient operation. The room controllers then dim or switch lighting or motor loads in response to input from the communicating devices. When a dimming input is received, the relay switches on when the dimmed level rises above zero, and off when it reaches zero, to coordinate control of power and the 0-10 volt signal to the load. They also monitor the current draw of the total connected load. Each room controller stores up to 16 scene preset levels for each dimmed output. Additionally, the LMCT-100-2 wireless configuration tool can be used for load configuration.

Room controllers built starting Q3 of 2012 include circuity to open their 0-10V signal on loss of LMRC's power, so any separately powered ballast or driver connected to those 0-10V wires will go to full brightness.

PLUG N' GO AUTOMATIC CONFIGURATION

DLM room controllers manage Plug n' Go automatic system configuration, which establishes functionality based on the installed components. When room controllers are connected only to occupancy sensors, the system defaults to automatic on/off operation. If a wall switch is added to a system with one load, the load defaults to manual-on/automatic-off operation. If there is a wall switch and multiple loads, load one turns on automatically, while additional loads default to manual-on control; all loads turn off automatically. At system startup, default dimming parameters are established including: levels for scene presets 1-4; fade times; and fade and ramp rates. Dimming and system parameters may be customized using Push n' Learn.

APPLICATIONS

LMRC-210 Series Room Controllers are ideal for single or multiple zone on/off or dimming lighting control applications. They are appropriate for applications in private offices, open offices, conference rooms and classrooms in any commercial building. LMRC-210 Series Room Controllers also help facility managers who want to track building power usage by monitoring current for lighting or other loads. A network bridge (LMBC-300) is required to expose DLM local network power data readings to a Segment Manager or BAS.

PROJECT		LOCATION/ TYPE	

FEATURES

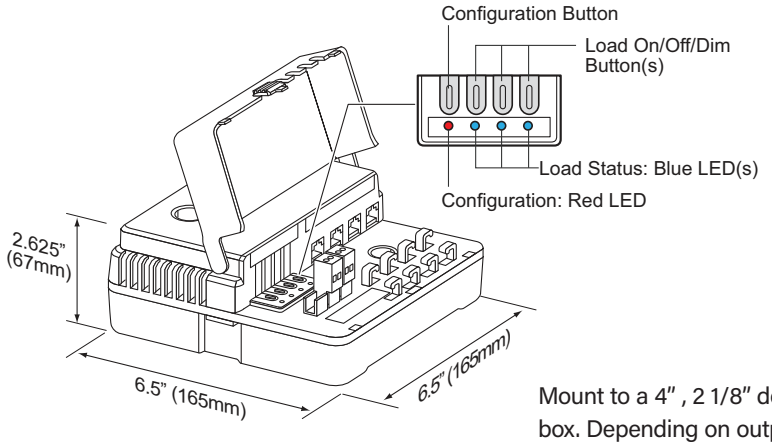
- Plug n' Go™ automatic configuration for quick installation and maximum energy savings
- Push n' Learn™ functionality for personalization without the need for tools or a PC
- Digital Lighting Management components plug together on a free-topology Cat 5e DLM local network
- On/Off/Dim local override button for each load
- LED indicates status of each load
- 0-10V signal opens on loss of LMRC power
- Integral current monitoring of total connected load
- Optional lamp burn in; 12 or 100 hours
- 4 RJ45 ports with integral strain relief
- Zero-crossing circuitry for each relay for reliability and increased product life
- UL 2043 plenum rated
- The product meets the materials restrictions of RoHS
- BAA/TAA-compliant models available

SPECIFICATIONS

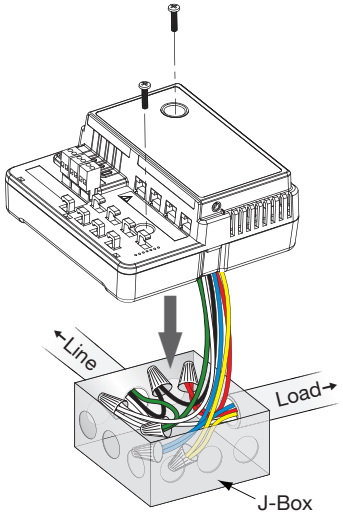
- Voltage: Single Phase 120/230/240/277VAC or 347VAC; 50/60Hz
- Maximum 20A combined load per Room Controller; each relay rated for: @ 120/277V, 20A ballast or incandescent, 16A E-ballast (per NEMA410),or 1Hp motor load; @ 347V, 15A ballast only
- Class 2 dimming control signal: 0-10VDC, sinks up to 100mA per channel for control of compatible ballasts (50 if each sources 2mA)
- Class 2 output to DLM local network: 24VDC, up to 250mA across 4 RJ45 ports
- Operating conditions: for indoor use only; @ 120/277V: 32-158°F (0-70°C), @ 347V 32-140°F (0-60°C); 5-95% RH, non-condensing
- DLM local network parameters:
  - Maximum current: 800mA
  - Category 5e cable: 150' per device to 1,000' max.
  - Up to 64 loads
  - Up to 48 communicating devices
  - Maximum 4 LMPB-100, LMPL-101 or LMRC-100 Series Room Controllers
- UL (E101196) and cUL listed
- FCC part 15 compliant
- Five year warranty

DIMENSIONS & MOUNTING

Dimensions



Mounting



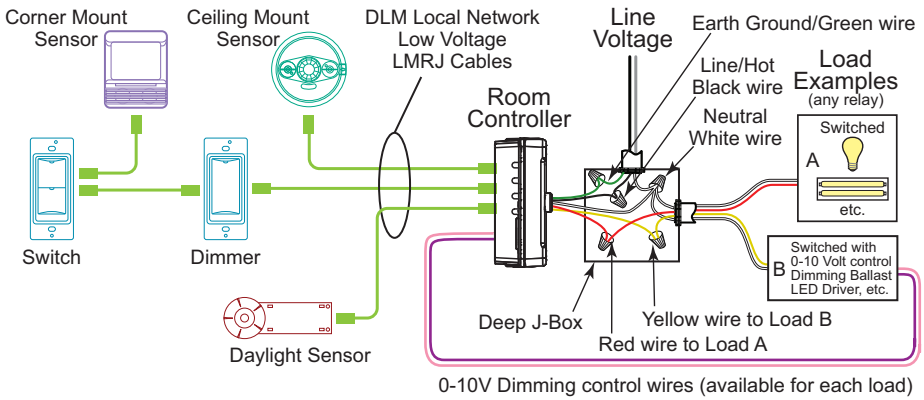
Mount to a 4" , 2 1/8" deep electrical box. Depending on outputs used, an extension box may be needed. Connect to single 20A (120 or 277V) circuit.

CONTROLS

Load Parameter (for each dimmed output)	Default Setting	Available Options
High trim	100%	1-100%
Low trim	0%	0-99%
Preset level: Scenes 1-16	1: 100%, 2: 75%, 3: 50%, 4: 25%, 5-16: 100%	All: 0-100%
Preset fade time	2 seconds	0 seconds -18 hours
Lamp burn in time	0	0, 12 or 100 hours

CONNECTING

Sample Connection Diagram with Wired and Wireless Switches and Sensors



Plug DLM local network components together in any configuration using Cat 5e cables with RJ45 connectors.

ORDERING INFORMATION

				Total Load Rating (any/all relays)			
Catalog #		Description	Single Phase Voltage 50/60Hz	Ballast	Incan	Motor	Class 2 Outputs
☐	LMRC-211	1 Relay Room Controller, 0-10V dimming	120/230/240/ 277VAC	20A	20A	1 Hp	24VDC, 225mA and 0-10VDC
☐	LMRC-211-U	1 Relay Room Controller, 0-10V dimming, BAA/TAA compliant*					
☐	LMRC-211-347	1 Relay Room Controller, 0-10V dimming	347V only	15A	-	-	
☐	LMRC-212	2 Relay Room Controller, 0-10V dimming	120/230/240/ 277VAC	20A	20A	1 Hp	
☐	LMRC-212-U	2 Relay Room Controller, 0-10V dimming, BAA/TAA compliant*					
☐	LMRC-212-347	2 Relay Room Controller, 0-10V dimming	347V only	15A	-	-	
☐	LMRC-213	3 Relay Room Controller, 0-10V dimming	120/230/240/ 277VAC	20A	20A	1 Hp	
☐	LMRC-213-U	3 Relay Room Controller, 0-10V dimming, BAA/TAA compliant*					
☐	LMRC-213-347	3 Relay Room Controller, 0-10V dimming	347V only	15A	-	-	
☐	LMCT-100-2	Digital Wireless Configuration Tool					
☐	LMRC-CA	Conduit Adapter for Low Voltage Connections					

*Product is compliant with Buy American Act and Trade Agreement Act

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