

The world's first lighting controls
smart enough to automatically
save the most energy



DIGITAL LIGHTING MANAGEMENT

ROOM CONTROLLERS, OCCUPANCY SENSORS, SWITCHES, DAYLIGHTING SENSORS AND MORE

PUTTING A STOP TO ENERGY WASTE

WattStopper®



Discover the benefits of
Digital Lighting Management



Table of Contents

Product Line
Introduction
4-13

Application and Design
14-33

Product Details
DLM System
34-37

Room Controllers
38-45

Occupancy Sensors
46-57

Personal Controls
58-73

Daylighting Sensors
74-79

Configuration Tools
80-85

Interfaces and
Accessories
86-93

What's Next for DLM
94-95

- **Fastest** - plugs together for quick error-free installation
- **Easiest** - automatically configures to maximize energy efficiency
- **Best** - saves energy beyond code requirements for the greatest return on investment



Introducing Digital Lighting Management

It's like having a personal energy manager in every room

Digital Lighting Management (DLM) is an intelligent, distributed control system that automatically maximizes lighting energy efficiency. Its powerful features provide a higher return on investment (ROI) than any other lighting control solution.

DLM lets you layer your choice of control strategies to meet project goals including energy code compliance, sustainable construction and building aesthetics.

Many DLM systems begin with occupancy sensing for basic code compliance. They frequently incorporate manual controls, daylighting controls, plug load controls and interfaces providing connectivity to third party devices for enhanced energy performance.

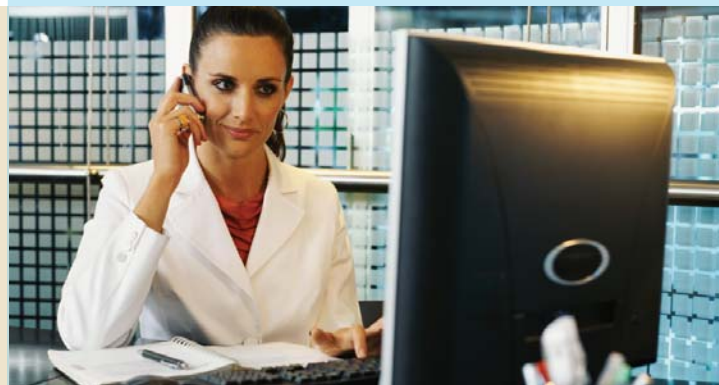


Digital occupancy sensors include pushbuttons for changing settings, rather than dials or DIP switches. LCD screens display sensor parameters.



The first truly digital system, with digital sensors, DLM controls both dimmed and switched loads. It even integrates plug load control, extending the benefits of code-compliant occupancy sensors farther than other systems.

A handheld remote allows ladder-free configuration.



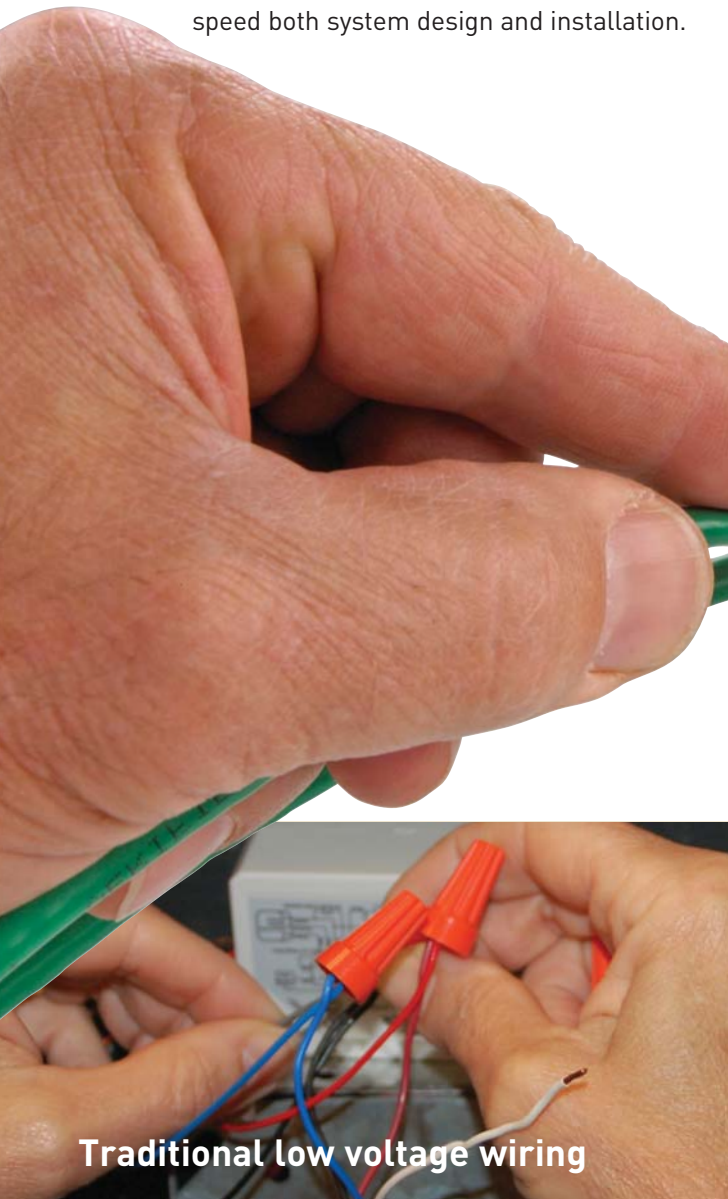


Eliminate wiring diagrams and requirements for special skills

Digital Lighting Management's modular design makes installation a snap. Gone is the need for complex wiring diagrams, different types of low voltage cable and expensive training or highly skilled specialty contractors.

System components operate on a free-topology DLM local network. Simple connecting diagrams speed both system design and installation.

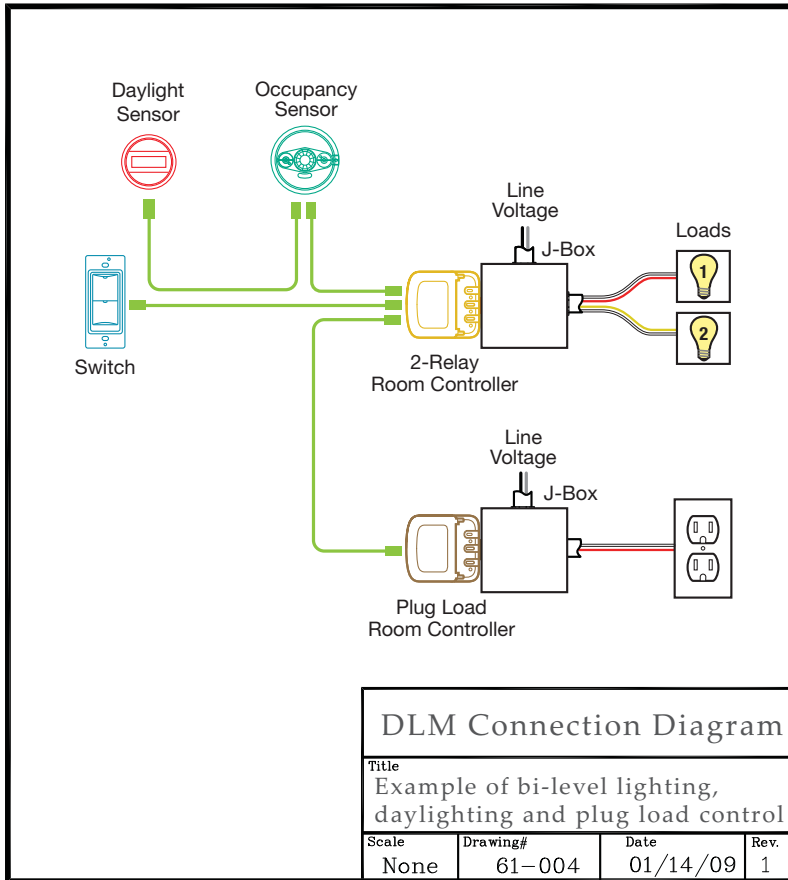
Installers simply plug components together using Cat 5e cables with pre-terminated RJ45 connectors. They can complete each job quickly and accurately. Digital Lighting Management not only saves labor, it eliminates the headaches and costs of call backs.



Traditional low voltage wiring

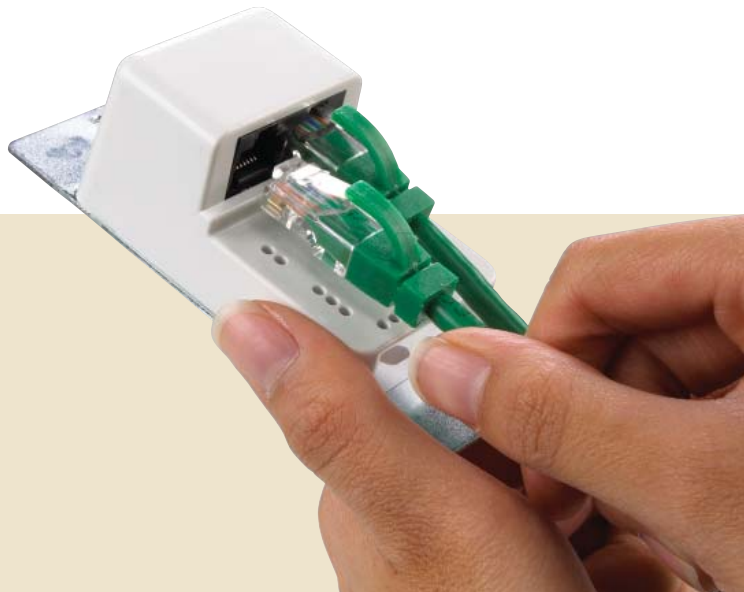


DLM plug together connection



On average, a DLM system can be installed in just half the time it takes to install traditional energy saving lighting controls.

Pre-terminated plenum-rated cables are available in various lengths.



Free-topology plug together network simplifies design and installation.



Let Plug n' Go™ configure the system

Digital Lighting Management is the first system that automatically configures itself to operate in the most energy-efficient mode. Plug n' Go establishes functionality based on the installed components.

Just include the controls you want to use. Plug n' Go will configure each system to take advantage of every available component, ensuring added savings when switches, dual relay room controllers and daylighting sensors are installed. For most applications, no additional configuration or adjustment will ever be needed.



Adding switches to a system improves the bottom line by accelerating system payback.

Plug n' Go Default Operation



DLM components provide optimal energy savings right out of the box.

Example #4

- Dual Relay Room Controller
- + Occupancy Sensor
- + Switch
- + Daylighting Sensor

Bi-level, auto-on to 50% unless light level is adequate/auto-off

Default Operation for Plug Loads

When a Plug Load Controller is added to any system, Plug n' Go will configure it for auto-on/auto-off operation of controlled outlets.

Independent research confirms that personal controls increase energy savings and improve occupant satisfaction.*

*According to studies by California Lighting Technology Center and Lighting Research Center

Best...



Enjoy a quick payback from beyond code savings

With Digital Lighting Management you don't have to settle for typical system paybacks, and simply meeting code.

DLM products designed for beyond code savings are extremely affordable. With DLM, it is actually more cost-effective to use lighting control strategies that exceed basic energy code requirements.

Not only will you quickly recapture your investment, but by dramatically curtailing energy use you'll save on operating costs for the life of the system. These savings go hand in hand with sustainability goals such as LEED certification.

According to the Energy Information Administration (EIA), 30-40% of electrical use in commercial buildings is for lighting.

Lighting Energy Savings

Control Strategy
Automatic on and off



Basic code compliance

Begin with:
Occupancy Sensors



Room Controllers



Enhanced Control Strategies

Manual and bi-level control

By adding switches and bi-level lighting, you can use 52% less energy than you would using automatic-on occupancy sensors alone. ROI improves, as shown in the example on page 11.

Selected codes; EPAct

Based on California Lighting Technology Center research

add:
Wall Switches



Dual Relay Room Controllers



How enhanced control strategies boost ROI: An open office example

A 1,600 sq. ft. open office space could be **automatically** controlled using four occupancy sensors and a room controller for **basic code compliance**.

The same space would be better controlled using **bi-level lighting, a dual relay room controller** and a **two-button wall switch**. Energy savings more than double providing a greater return on investment from these **enhanced control strategies**.

	Basic code compliance	Enhanced bi-level solution
Installed cost	\$903	\$1,119*
Annual energy savings	\$249	\$534
Payback	3.6 years	2.1 years *
Annual return on investment	28%	48%*

* If coupled with qualifying energy performance, an EPAct tax deduction could offset much of the equipment cost for an even greater ROI.

Enhanced Control Strategy

Daylight harvesting



By adding daylighting controls, you can use 40% less energy than you would using automatic-on occupancy sensors alone. Manual and multi-zone controls compound the savings.

Based on case studies

add:
Daylighting
Sensors



Dimming
Room Controllers

Selected codes;
LEED certification

Plug Load Energy Savings

Control Strategy

Occupancy-based
plug load control



Plug load controls save energy by shutting off previously uncontrolled loads. They work with sensors installed for code compliance and allow you to further leverage your code-mandated investment.

Based on case studies

Up to 14% of electrical
use in commercial
buildings is for plug loads.
(EIA statistic)

add:
Plug Load
Controllers



Personalize functionality quickly and conveniently

While the Plug n' Go configuration serves most projects well, Digital Lighting Management includes unique features to simplify customization. Users can personalize DLM in one of three ways.

Pushbuttons on DLM components

Pushbuttons facilitate simple changes to default operation without the need for any tools. As an example, users or installers can quickly reassign loads to selected buttons on DLM switches using the switch buttons themselves. They can also change sensor assignments or parameters using buttons on the sensors.

Handheld wireless configuration tool

A wireless tool can be used to adjust occupancy sensor time delay and sensitivity settings from the floor. It can upload, download and change sensor or system settings, and is the first tool in the industry that also provides data storage capability.



Traditional sensor configuration



With DLM, sensor settings or system configuration can be changed without tools or ladders.

This means users can customize one DLM local network, and then quickly apply the same settings to other DLM local networks throughout an installation or even on another project. There's no need for ladders or repeated entry of the desired parameters.

USB interface and PC software

Designers of larger and more complex installations can configure DLM using a personal computer and connect to each DLM local network through a USB key. This convenient option also simplifies the preparation of LEED documentation.

Push n' Learn™ facilitates custom configuration, which may be performed using the programming pushbuttons on the installed controls, a specially designed wireless tool or PC software.





Putting Digital Lighting Management to work



DLM's unique blend of convenience, energy efficiency and simplicity reaps major rewards in common applications found in most buildings.

Ideal space types include:

- Private offices
- Open offices
- Conference / Board rooms
- Classrooms

The applications in this section provide an overview of suggested DLM control strategies for each space type, as well as connection diagrams, product listings, and energy savings information.

Bring flexibility and energy savings to common applications using DLM

Starting with basic code compliance out of the box, DLM enables a seamless build up to the desired energy performance level, whether this is to achieve a faster ROI, earn a LEED rating or EPC Act tax deductions, or comply with code requirements in specific jurisdictions.

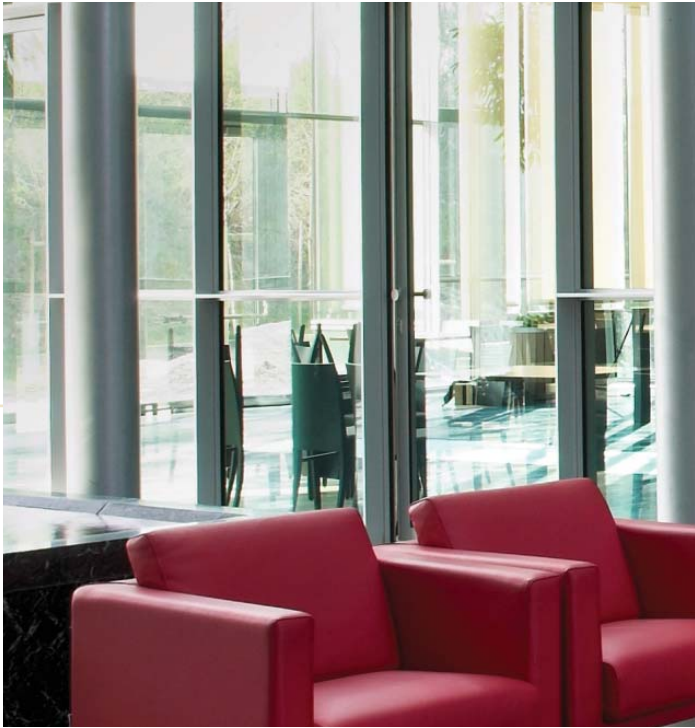
Basic code compliance (Baseline energy performance)
Team DLM occupancy sensors with room controllers to achieve code-mandated automatic shutoff.

Enhanced energy performance
Access a range of lighting control strategies (also referred to as LCMs, or lighting control measures) for energy savings beyond basic code compliance.

Bi-level switching (auto-on to 50%/manual-on)
Implement more energy-efficient operating profiles by adding a wall switch. Energy codes (e.g., CA Title 24) and sustainability rating systems (LEED) increasingly utilize these strategies.

Plug load control
Extend occupancy-based control beyond lighting. With plug loads accounting for up to 14% of a building's total electrical load, turning them off boosts energy savings and ROI.

Integrated HVAC control
Leverage investments in occupancy sensors by integrating lighting and HVAC control. This increases energy savings and speeds ROI.





**Daylight-responsive control
(on/off, continuous dimming)**

Boost energy savings dramatically with daylighting controls that turn lighting off, or dim it, when adequate daylight levels exist. This can increase energy savings by as much as 40%, for a stronger LEED rating or an EAct tax deduction.

Personal controls

Offer occupants handheld controls for greater autonomy and comfort in controlling their personal work environment. Research indicates that personal controls typically increase energy-efficient operation as well as individual productivity.

Scene control and dimming

Provide occupants complete control of lighting levels for improved comfort and ambience as well as repeatable scenes. Energy savings are virtually proportional to the reduction in lighting output.



Enhance work environments while maximizing energy savings

Occupying as much as one-third of all office building space, private offices consume the lion's share of all lighting energy. Implementing easily-deployed and adjustable lighting control solutions in these spaces helps occupants work

productively while maximizing energy savings. DLM offers the ability to capture additional energy savings by cost-effectively leveraging the code-compliant control solution.

DLM control strategies for private offices

Basic code compliance (Baseline energy performance)

- Mandatory automatic lighting shutoff

Enhanced energy performance

- Bi-level switching
- Daylight-responsive switching
- Plug load control
- Integrated control of HVAC



Private Offices

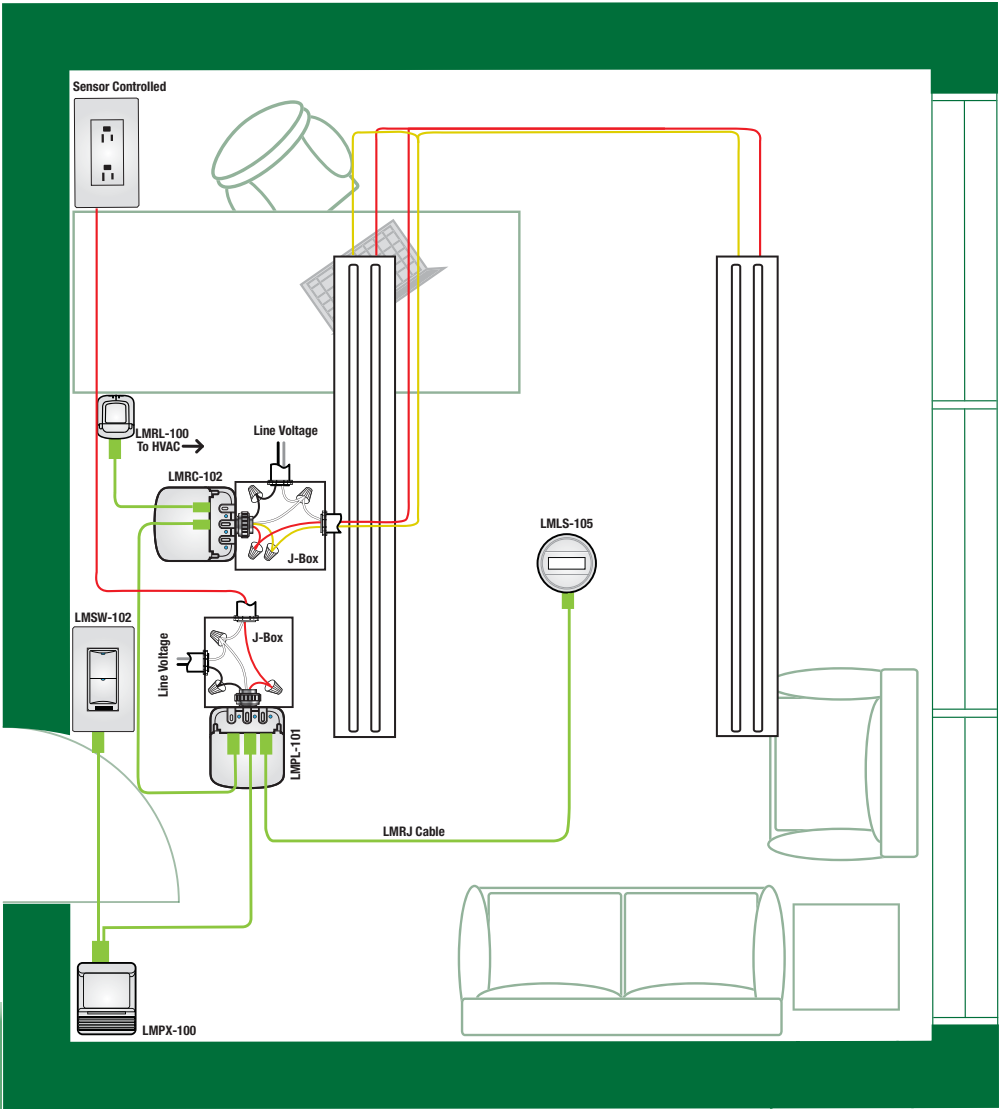
Accounting for as much as **35%** of total floor space in office buildings, private offices should provide distraction-free environments for reading, computer work, and meetings.



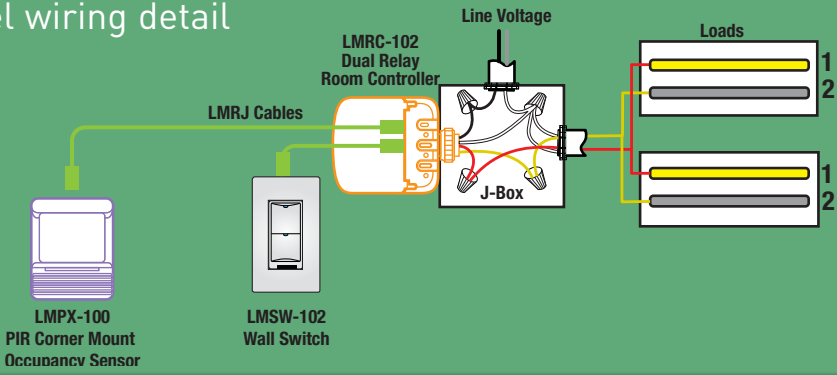
Bi-level switching

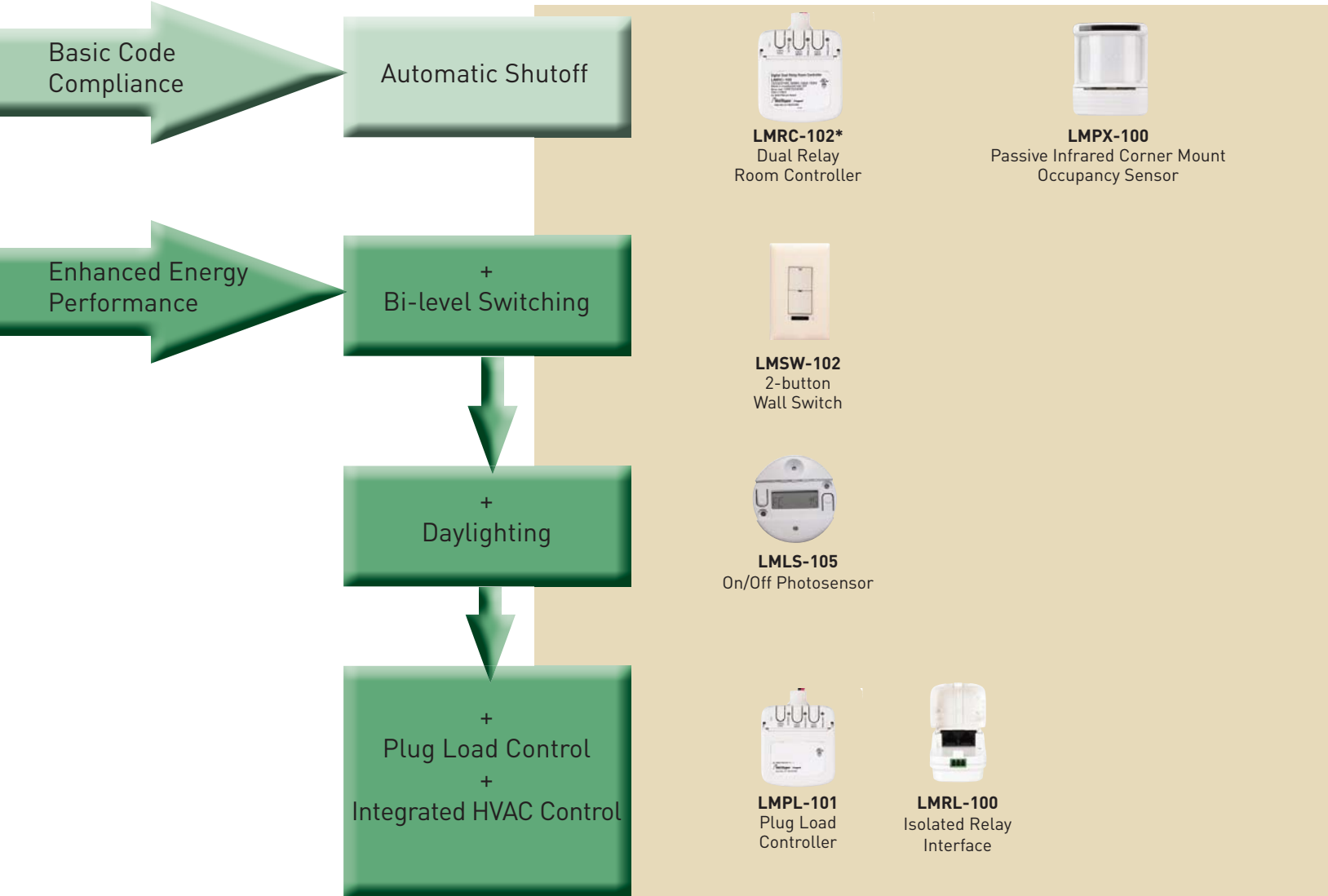
Required by EAct and California's Title 24, bi-level switching offers a cost-effective and easy way to maximize energy savings in single-occupant spaces. A choice of lighting levels, from 33 to 67% of full output, offers flexibility in installation as well as options for individual comfort and convenience.

DLM control strategies for private offices

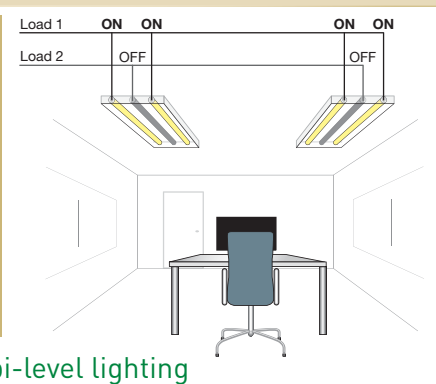
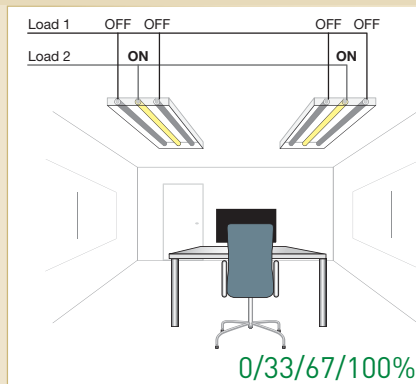
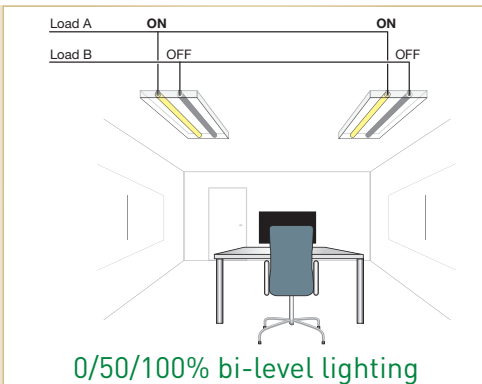


Bi-level wiring detail





*Used to achieve most cost-effective implementation of bi-level switching



Leverage lighting controls for greater ROI

Cubicle occupants rely on plug-in desktop devices for productivity and convenience—task lighting, computer monitors, calculators, fans, shredders, and more. These plug loads continue to increase, accounting for as much as 31 billion kilowatt hours of electricity usage and up to 14% of the total electrical load of typical office buildings.

Adding a DLM plug load controller offers a simple way to extend occupancy sensor control to automatically turn off task lighting and other common desktop loads.

DLM control strategies for open offices

Basic code compliance (Baseline energy performance)

- Mandatory automatic lighting shutoff

Enhanced energy performance

- Plug load control
- Integrated control of HVAC
- Coordinated control of emergency and normal lighting

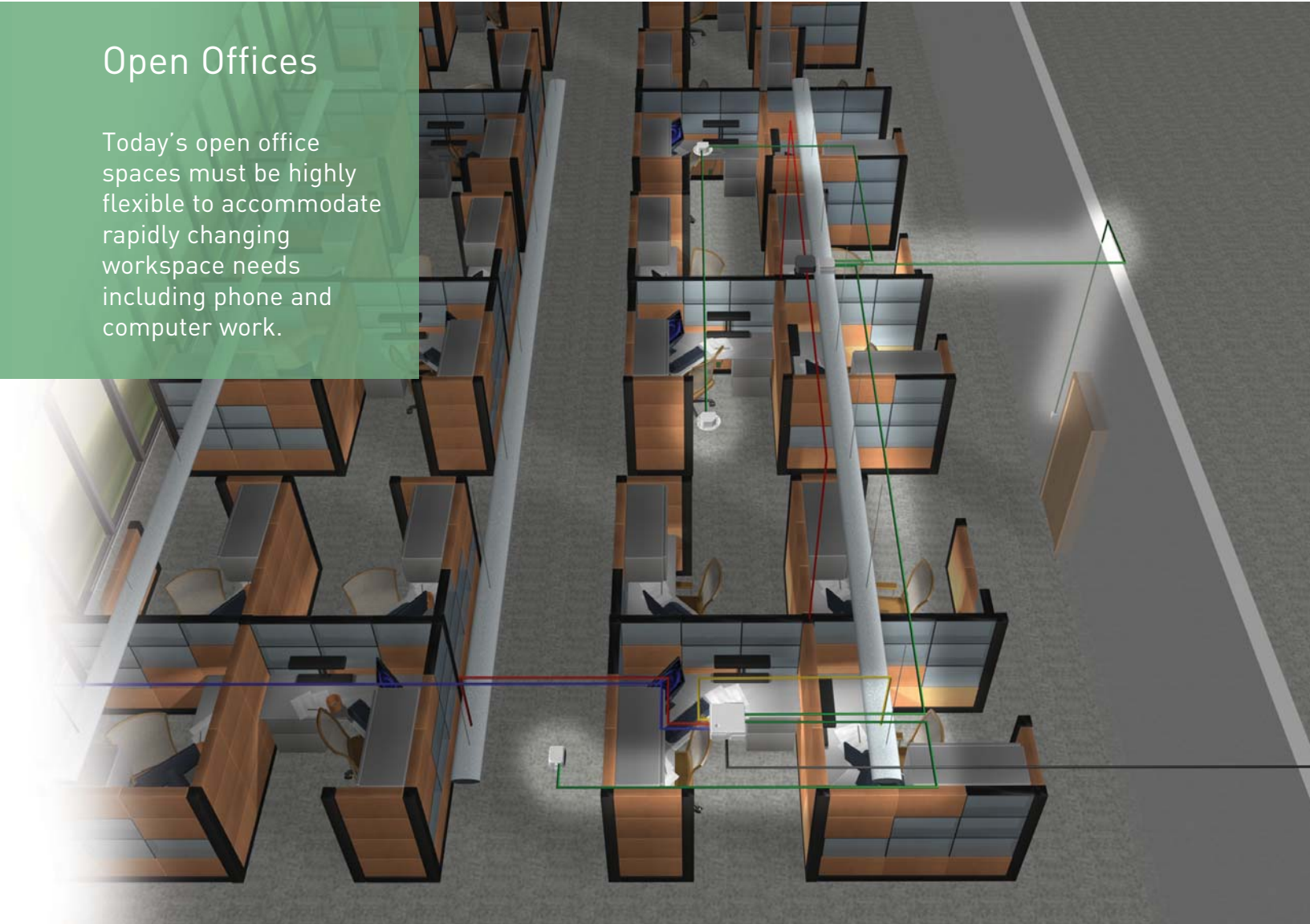


Plug load control

According to research conducted by Lawrence Berkeley National Laboratory, the average office cubicle of 80 to 100 square feet includes three or more plug loads. With each work space consuming 1,500 kWh annually, at an average cost of \$150, extending automatic shutoff capabilities from lighting controls already in the space makes good sense for energy efficiency and economics.

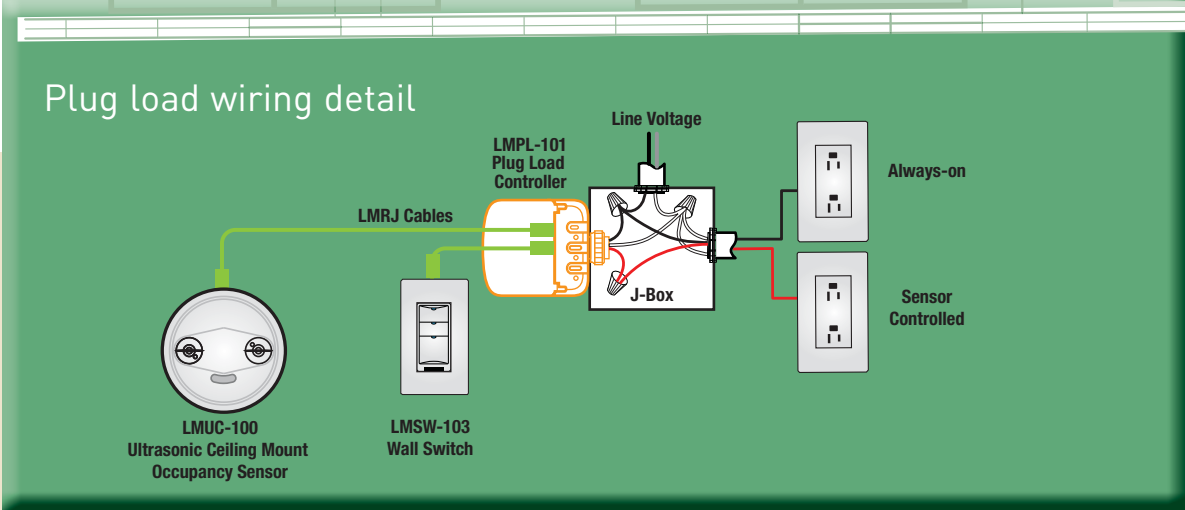
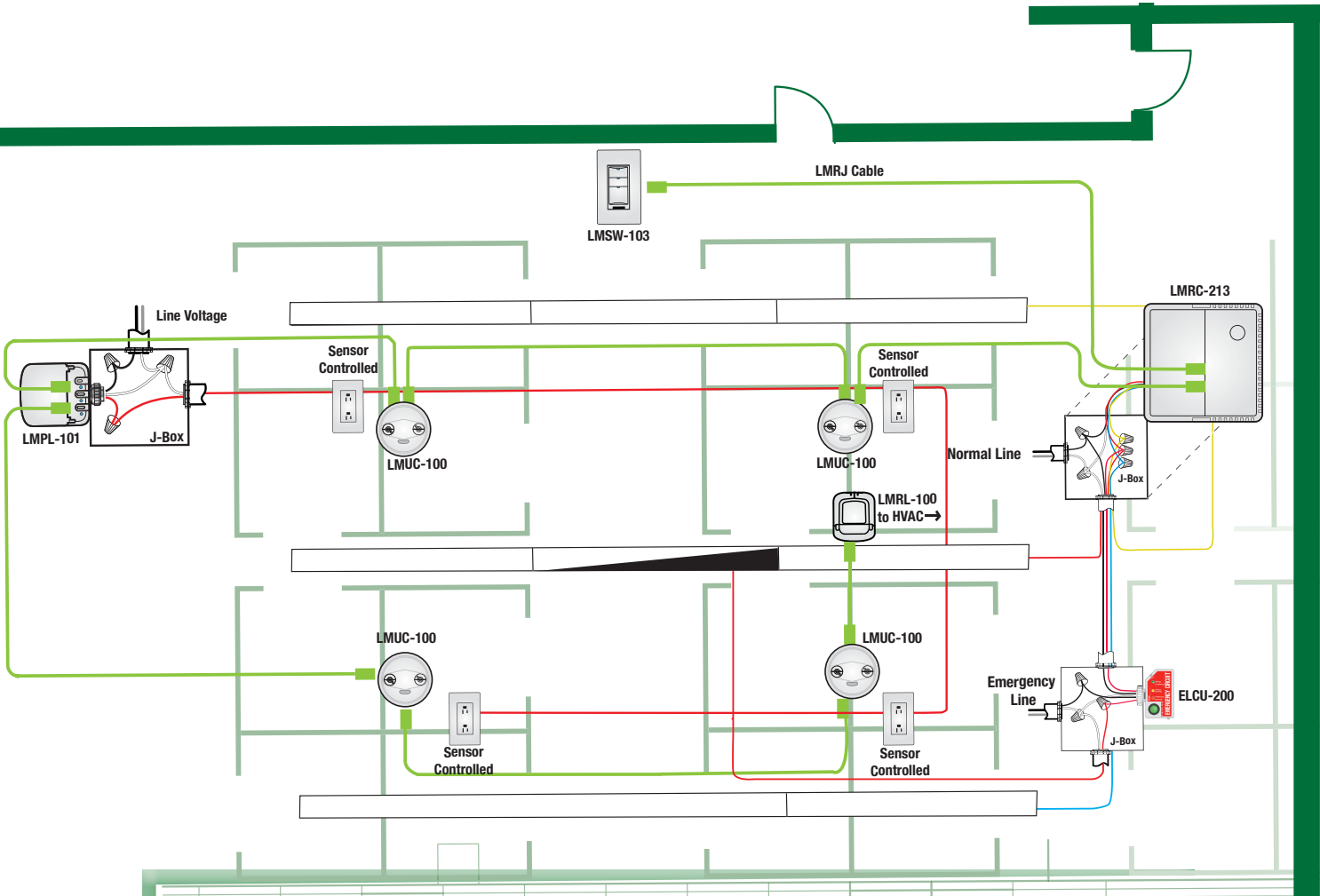
Open Offices

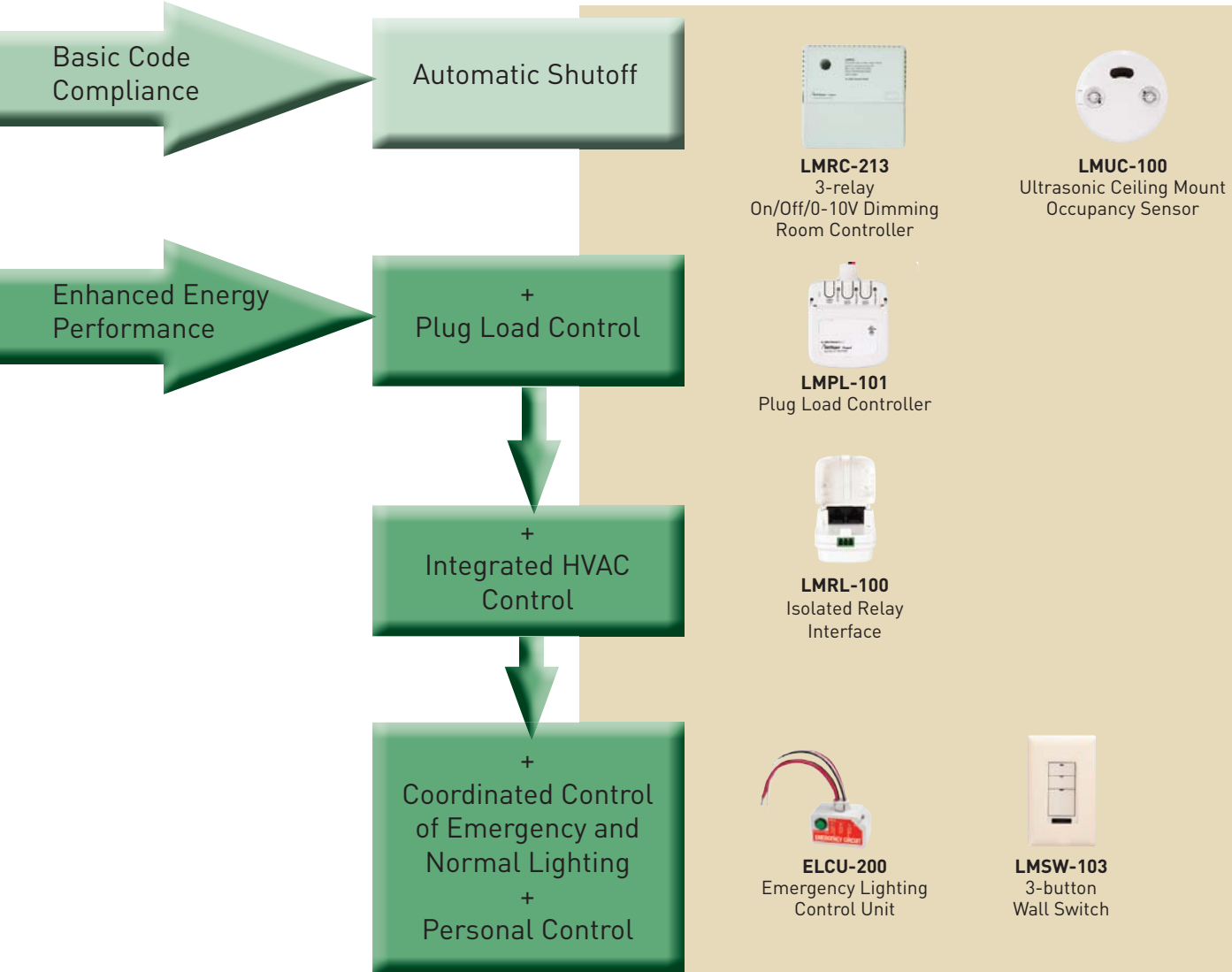
Today's open office spaces must be highly flexible to accommodate rapidly changing workspace needs including phone and computer work.



Task lighting is a common plug load. Under provisions of ASHRAE 90.1-2007, task lighting that is controlled by an occupancy sensor can be excluded from lighting power density calculations.

DLM control strategies for open offices





Plug loads that should not be controlled by an occupancy sensor, such as laptops or desktop computers, should be plugged into always-on outlets. Non-essential plug loads, such as task lighting and computer monitors, should be plugged into outlets that can be turned off automatically by an occupancy sensor after the space becomes unoccupied.

Combine scene control and energy savings in a single simplified approach

Conference and board rooms typically remain unused for the greater portion of the day. When they are in use, occupants value comfort and convenience above all other considerations.

Implementing cost-effective automatic shutoff with DLM devices ensures that lighting turns

off, and remains off, for the long periods when these spaces are vacant. Providing scene control and dimming capabilities with wall switches and handheld remote controls ensures that occupants can easily establish the scenes they need for specific activities, such as presentations, video conferences, and more.

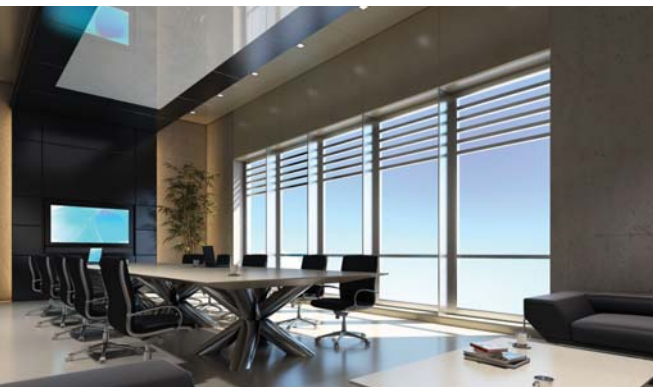
DLM control strategies for conference and board rooms

Baseline code compliance (Baseline energy performance)

- Mandatory automatic lighting shutoff

Enhanced energy performance

- Scene control and dimming
- Integrated control of HVAC
- Personal controls

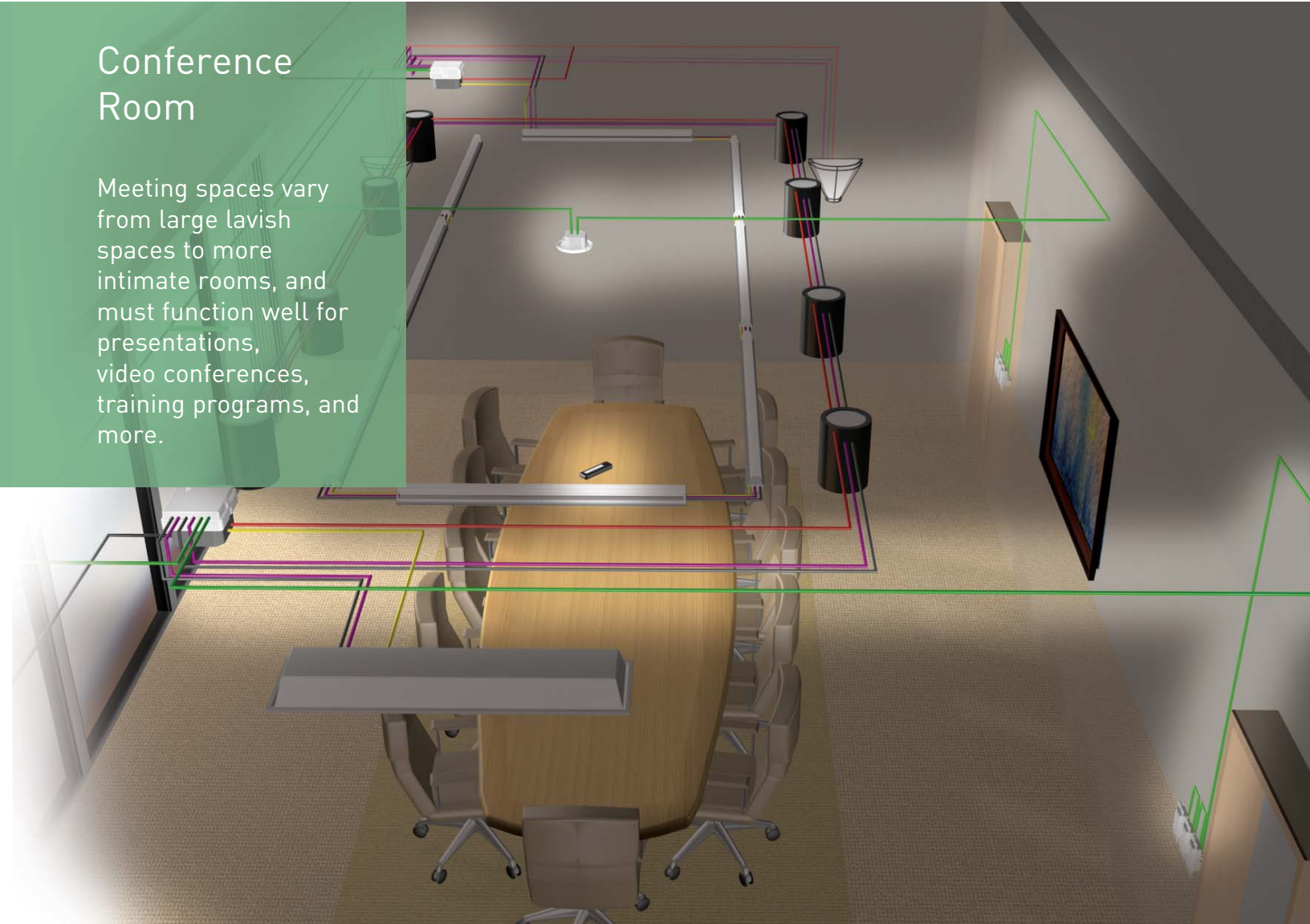


Scene control and dimming

Dimming is often used for purposes other than saving energy, such as creating ambience or enhancing occupant comfort. Whatever the application, dimming also provides the added benefit of energy savings that are virtually proportional to the reduction in light output.

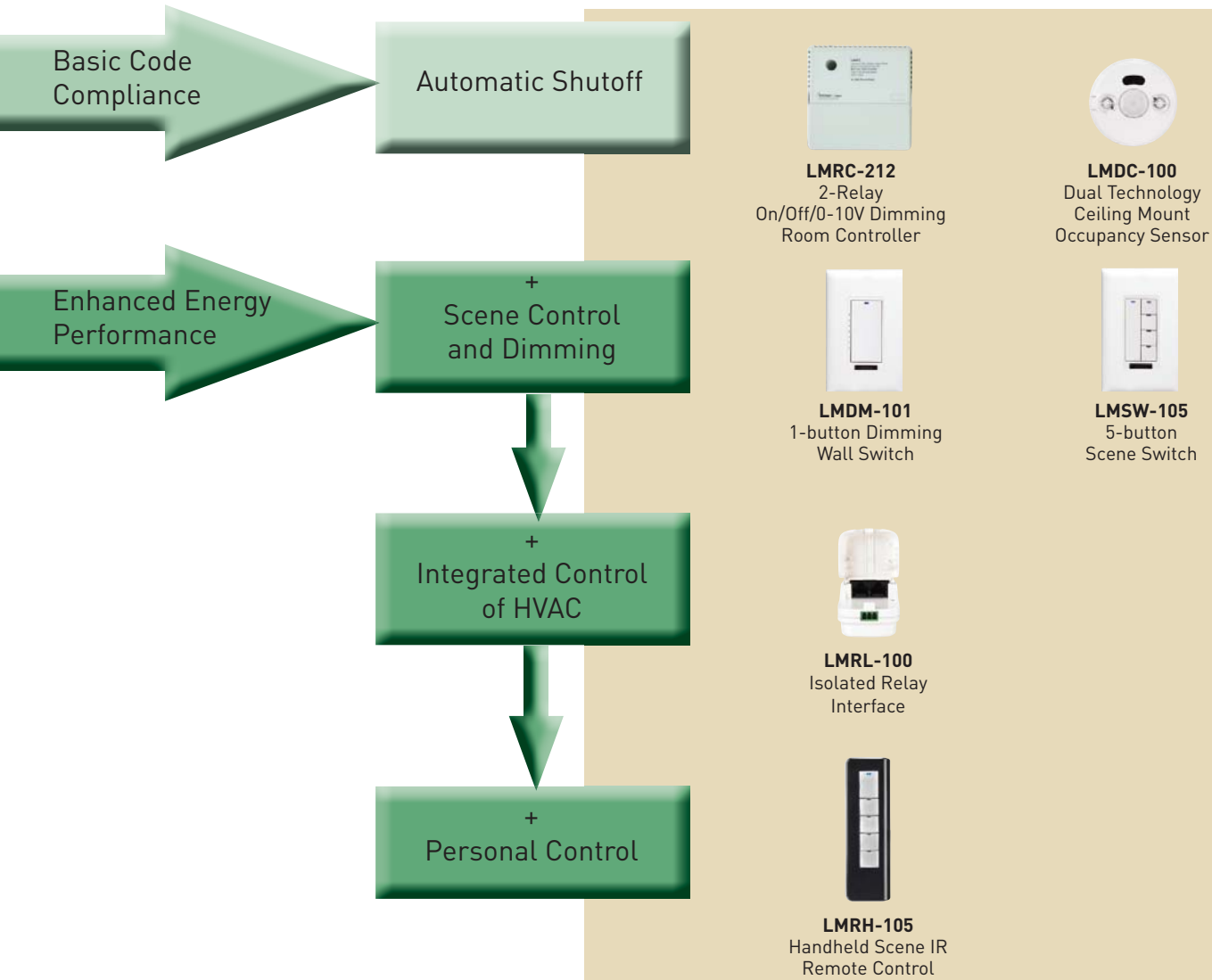
Conference Room

Meeting spaces vary from large lavish spaces to more intimate rooms, and must function well for presentations, video conferences, training programs, and more.



Using personal controls, such as handheld remotes, to adjust lighting or activate scenes often increases energy savings as well as individual productivity.*

*"Personal Control: Boosting Productivity, Energy Savings," C. DiLouie, www.aboutlightingcontrols.org/education/papers/personalcontrol.shtml



The most common conference room scenes reflect the most frequent usage of such spaces, including meetings and general purpose activities such as when visitors or guests temporarily occupy these rooms to work. Lighting needs for certain styles of presentations, such as multimedia presentations using projectors, will differ from lighting desired for whiteboard or blackboard style presentations.

Leverage architectural daylighting design with easy-to-use daylighting controls

Since the publication of research more than a decade ago on the benefits of daylighting in schools, its presence in classrooms has become more prevalent. Dimming lighting automatically when daylight levels are adequate leverages this renewable lighting resource and boosts overall energy performance.

Adding a DLM daylighting controller to occupancy sensors offers a single-source control system for ease of use as well as ROI.

DLM control strategies for classrooms

Basic code compliance (Baseline energy performance)

- Mandatory automatic lighting shutoff

Enhanced energy performance

- Daylighting-responsive dimming control
- Bi-level switching
- Personal controls
- Integrated control of HVAC

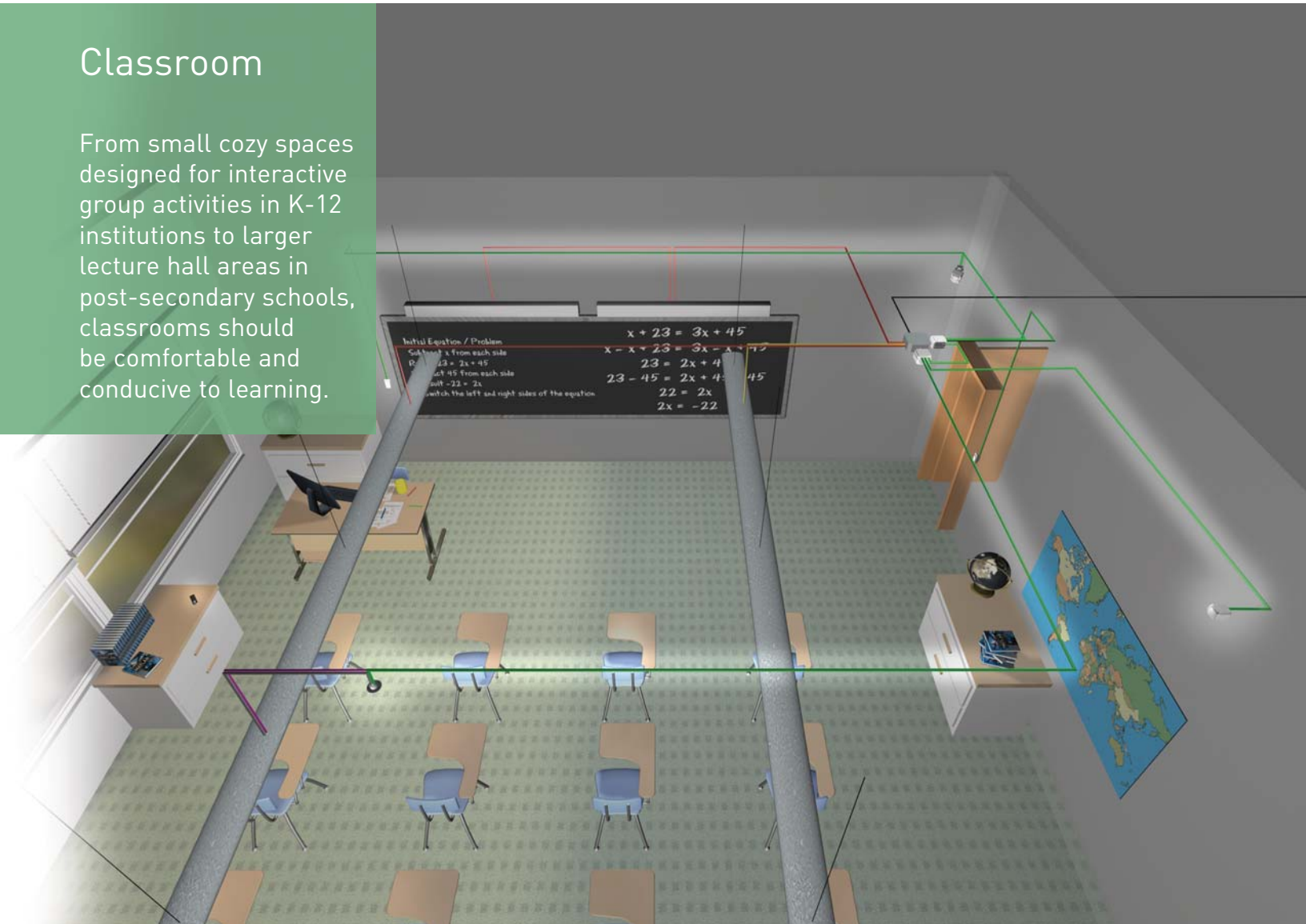


Daylighting

Applications that feature architectural daylighting design are ideal for lighting controls capable of extending the benefits of daylight to energy savings. Controls that turn lights off, or dim them, when daylight levels are adequate are critical to maximizing energy performance.

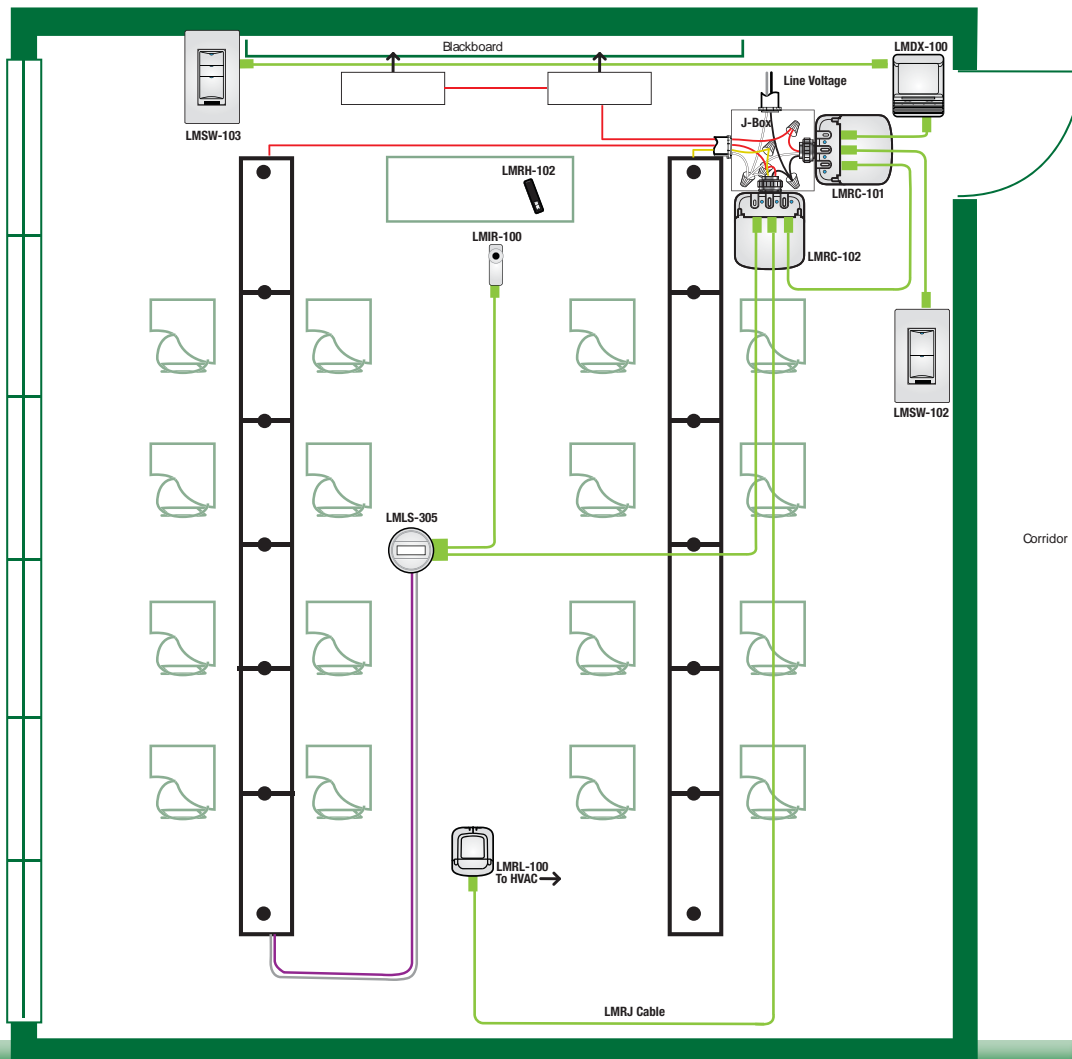
Classroom

From small cozy spaces designed for interactive group activities in K-12 institutions to larger lecture hall areas in post-secondary schools, classrooms should be comfortable and conducive to learning.

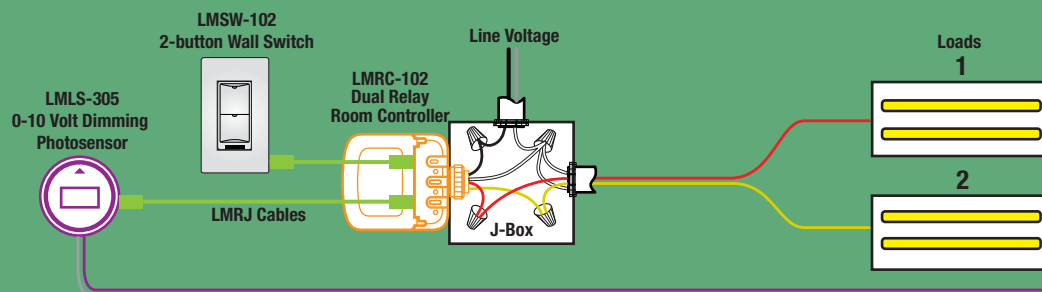


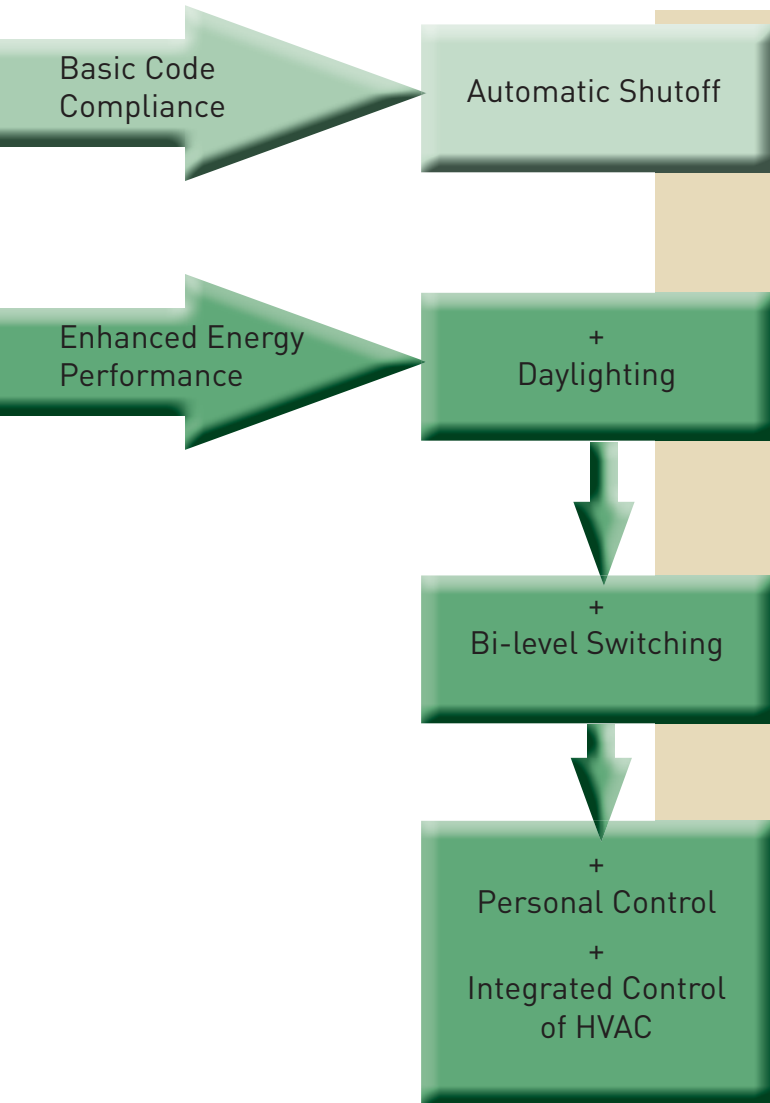
According to the Department of Energy's Energy Efficiency and Renewable Energy (EERE) program, the benefits from daylighting are maximized when both occupancy and daylighting sensors are used for lighting control (www1.eere.energy.gov/buildings/commercial/lighting.html).

DLM control strategies for classrooms



Daylighting wiring detail





LMRC-101/LMRC-102
Single and Dual Relay Room Controller



LMDX-100
Dual Technology Corner Mount Occupancy Sensor



LMLS-305
0-10 Volt Dimming Photosensor



LMSW-102
2-button Wall Switch



LMSW-103
3-button Wall Switch (Teacher's Control)



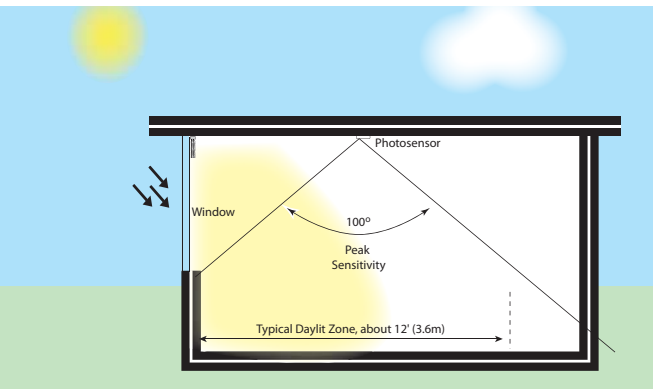
LMRH-102
Handheld Scene IR Remote Controller



LMIR-100
IR Ceiling Mount Receiver



LMRL-100
Isolated Relay Interface



Classrooms commonly use sidelighting in architectural daylight design. In closed loop applications the photosensor measures the total ambient light level. While sensor placement is dictated by a number of factors, it should not directly view the window or the lighting fixtures.

Take a closer look at the DLM suite of controls

The following section of cut sheets includes details about each DLM product, but before you plan a system, take a few minutes to review some pertinent details about how the components operate together, and how they differ from traditional energy saving lighting controls.

Power and communication network

Room controllers replace traditional power packs, and are the intelligent heart of the DLM system. They provide power to the control devices over the DLM local network, which also carries the bi-directional control signals.

Room controllers wire to the loads conventionally, but have no traditional individual low voltage wire leads, just RJ45 jacks for the DLM network connection.

Occupancy sensors, switches and daylighting sensors operate on DLM local network power. A network with just one room controller will have more than enough power for multiple sensors and switches.



DLM products are RoHS compliant to best support the cradle to grave philosophy of sustainable construction. RoHS compliance prevents hazardous waste as a result of manufacturing operations, protects the health of workers and facilitates the recycling of products at the end of their life cycles.



Load assignments and configuration options

Digital occupancy sensors allow reconfiguration of load assignments from the sensor, as well as changes to system and sensor parameters. These configuration changes may also be made using a wireless configuration tool or PC software.

Switch button load assignments are always configured from the switch buttons themselves.

Interfacing to low voltage devices

If 0-10 volt dimming ballasts, or other 0-10 volt devices will be used, low voltage wiring will be required from the ballast to either a room controller or daylighting sensor, depending on the application. Traditional wiring is also used between DLM interfaces and other non-DLM building systems.



Digital Lighting Management

Plug n' Go™ automatic configuration for quick installation and maximum energy savings

Push n' Learn™ for simple personalization without sophisticated tools or expensive software

Plugs together using Cat 5e cable and RJ45 connectors eliminating wiring errors

Exclusive wireless tool for ladder-free configuration

First suite of digital room controllers, occupancy sensors, switches and more

Integrates plug load and lighting control



PROJECT
LOCATION/TYPE

Product Overview

Description

Digital Lighting Management (DLM) is an intelligent, distributed control system that automatically maximizes lighting energy efficiency. DLM includes room controllers, occupancy sensors, switches, daylighting sensors, plug load controls, interfaces and accessories that provide convenient, energy-saving control of dimmed and switched loads. System components plug together with Category 5e cables with RJ45 connectors.

Operation

Digital Lighting Management components operate on a free-topology DLM local network. Each DLM local network is managed by one or more room controllers that, upon startup, automatically configure system components for the most energy-efficient sequence of operation using Plug n' Go technology. Devices may be personalized using Push n' Learn pushbutton programming. DLM occupancy sensors and switches feature two-way infrared (IR) communication that enables personal control from handheld remotes, as well as optional remote configuration. A handheld wireless configuration tool can be used to view, modify and store system parameters.

Plug n' Go and Push n' Learn

Plug n' Go establishes default functionality based on the installed components. If a system consists of only a room controller and an occupancy sensor, it will default to auto-on/auto-off operation. If a system includes a single relay room controller, an occupancy sensor and a switch, it will default to manual-on/auto-off operation. A dual relay room controller, an occupancy sensor and a switch will default to bi-level auto-on/auto-off operation; relay 1 turns on automatically while relay 2 defaults to manual-on (both automatically shut off). Push n' Learn mode allows any load to be selected and assigned to any sensor(s), switch(es) and switch button(s). It also allows load parameters such as operating mode (manual- or auto-on), blink warning and daylighting setpoints to be modified.

Energy Savings Beyond Code

Digital Lighting Management has been engineered to meet and exceed energy codes, facilitate sustainable development and provide an unprecedented return on investment for both new construction and retrofit projects. Features, such as bi-level control, daylight harvesting, plug load control and dimming are provided by a range of room controllers, sensors and switches that control virtually all lighting sources in a wide variety of applications. DLM simplifies designing for ASHRAE 90.1, IECC, EAct, California Title 24 and LEED.

Features

- Sensors and switches include infrared (IR) transceiver for bi-directional communication
- On/off and dimming control options
- Handheld remotes for personal control
- Digital sensors feature easy-to-read LCD displays
- Includes self-calibrating daylighting sensors
- Components plug together in any configuration on a free-topology Category 5e DLM local network
- Boot loading capabilities for firmware upgrades
- All DLM products are RoHS compliant



Network Characteristics

WattStopper DLM Local Network Parameters

- Communication and power delivered via Cat 5e cables with RJ45 connectors
- 24VDC power provided by room controller(s)
- Room controllers provide cumulative current output; maximum network capacity 800mA
- Maximum of 4 LMRC-100 Series or LMPL-101 room controllers per DLM local network
- Free topology permits both star and daisy-chain connection patterns
- Up to 1,000 feet of cable per DLM local network
- Maximum of 300 feet between communicating devices
- Supports Plug n' Go and Push n' Learn patent pending technologies

When LMRC-100 Series and/or LMPL-101 Room Controllers are used:

- 150mA per room controller (maximum 4)
- Up to 24 communicating devices
- Up to 8 loads

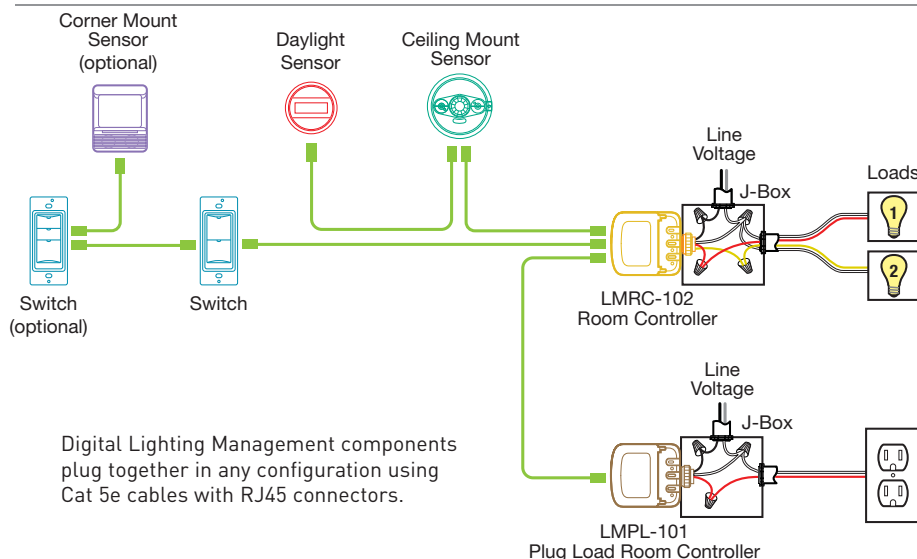
When LMRC-210 Series Room Controllers are used:

- Up to 250mA per room controller (output is limited if network is fully powered)
- Up to 48 communicating devices
- Up to 64 loads

note: LMRC-210 Series Room Controllers can be combined with up to 4 LMRC-100 Series and LMPL-101 Room Controllers on 1 DLM local network.

Connecting

DLM system with bi-level lighting, daylighting and plug load control



System Components

Room Controllers	
LMRC-101 Digital On/Off Room Controller with 1 relay	
LMRC-102 Digital On/Off Room Controller with 2 relays	
LMRC-211 Digital On/Off/0-10 Volt Dimming Room Controller with 1 relay and 1 0-10 volt dimming output	
LMRC-212 Digital On/Off/0-10 Volt Dimming Room Controller with 2 relays and 2 0-10 volt dimming outputs	
LMRC-213 Digital On/Off/0-10 Volt Dimming Room Controller with 3 relays and 3 0-10 volt dimming outputs	
LMPL-101 Digital Plug Load Room Controller	
Occupancy Sensors	Personal Controls
LMPX-100 Digital PIR Corner Mount Occupancy Sensor	LMSW-101 Digital 1-Button Wall Switch
LMPC-100 Digital PIR Ceiling Mount Occupancy Sensor	LMSW-102 Digital 2-Button Wall Switch
LMUC-100 Digital Ultrasonic Ceiling Mount Occupancy Sensor	LMSW-103 Digital 3-Button Wall Switch
LMDX-100 Digital Dual Technology Corner Mount Occupancy Sensor	LMSW-104 Digital 4-Button Wall Switch
LMDC-100 Digital Dual Technology Ceiling Mount Occupancy Sensor	LMSW-108 Digital 8-Button Wall Switch
	LMDM-101 Digital 1-Button Dimming Wall Switch
	LMSW-105 Digital 5-Button Scene Switch
	DLM Switch Button Kits and Switch Button Engraving
	LMRH-102 Digital 2-Button IR Remote Control
	LMRH-101 Digital Dimming IR Remote Control
	LMRH-105 Digital Scene IR Remote Control
Daylighting Sensors	Configuration Tools
LMLS-105 On/Off Photosensor	LMCT-100 Digital Wireless Configuration Tool
LMLS-305 0-10 Volt Dimming Photosensor	DLM Computer Interface Tools and Software
Interfaces and Accessories	
LMRJ Series Pre-Terminated Cables and Accessories (available in 6", 3', 10', 15', 25', 50', and 100' lengths, in plenum and non-plenum rated versions)	
LMIR-100 Digital IR Ceiling Mount Receiver	
LMRL-100 Isolated Relay Interface	
LMIO-101 Digital Input/Output Interface	

Room Controllers

Room Controllers are the intelligent foundation of a distributed Digital Lighting Management system. They drive the loads, in place of basic power packs.

DLM room controllers are available for lighting circuits and plug loads. Enhanced room controllers even include power monitoring capabilities.

Designed for Versatility and Reliability

- Onboard control button and status LED for each load
- Accept inputs from occupancy sensors, switches, daylighting sensors and third party systems
- Hinged dust cover and strain reliefs to protect low voltage connections

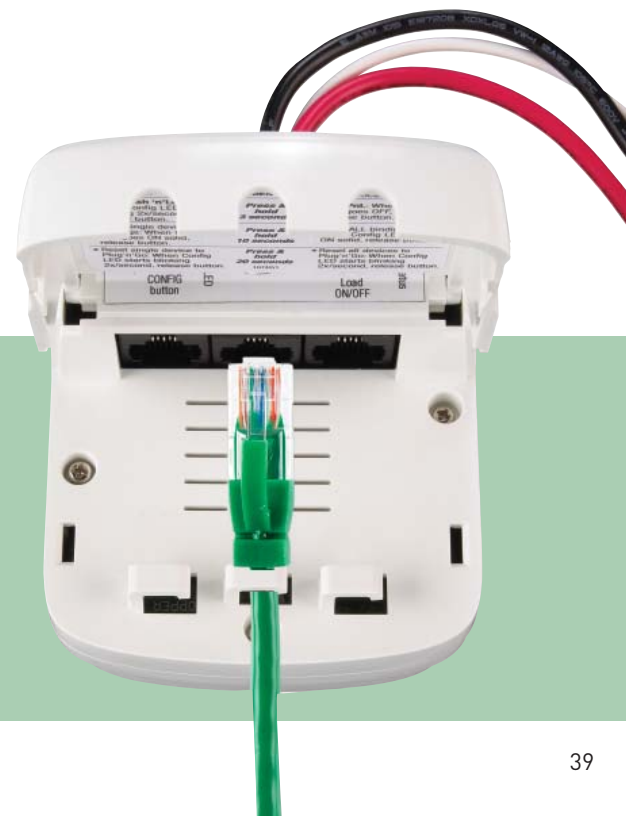


On/off or Dimming Control

- High capacity relays for switching
- 0-10 volt output for dimming

Multiple Zones or Control Channels with One or More Controllers

- Single or dual relay basic controllers
- Enhanced controllers for 1, 2 or 3 zones or channels
- Single relay plug load controller



LMRC-100 Series Digital On/Off Room Controllers

Plenum-rated controllers with high capacity relay(s) and switching power supply

Plug n' Go automatic configuration for maximum energy efficiency

Components of Digital Lighting Management integrated control systems



Plug to other components using Cat 5e cable and RJ45 connectors eliminating wiring errors

Support energy saving manual-on and bi-level lighting control strategies

PROJECT
LOCATION/TYPE

Product Overview

Description

LMRC-100 Series Digital Room Controllers include one or two relay(s) for on/off control of a total of 20 amps, and a high-efficiency switching power supply. They are the foundation of a WattStopper Digital Lighting Management (DLM) system, and allow integration of occupancy sensors, daylighting sensors and switches for energy-efficient lighting control.

Operation

LMRC-100 Series Room Controllers operate on one 120/230/277 VAC, 50/60Hz 20A 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 switch lighting or motor loads on and off in response to input from the communicating devices. The DLM system may be reconfigured using Push n' Learn without the need for tools or a PC.

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, an LMRC-101 defaults to manual-on/automatic-off operation while an LMRC-102 defaults to bi-level automatic-on/automatic-off operation. Relay 1 on the LMRC-102 turns on automatically, while relay 2 defaults to manual-on control; both relays turn off automatically.

Applications

LMRC-100 Series Room Controllers are ideal for single or multiple zone on/off lighting control applications. The LMRC-101 helps specifiers comply with basic ASHRAE 90.1 requirements, while the LMRC-102 is designed for bi-level switching in IECC, EAct, California Title 24 or LEED projects. Both controllers are appropriate for applications in private offices, open offices, conference rooms, lunch rooms and break rooms in any commercial building.

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 button for each load
- LED indicates status of connected load
- 3 RJ45 ports with integral strain relief and hinged dust cover
- Zero-crossing circuitry for each relay for reliability and increased product life
- Attach to standard electrical box through ½" knockout; UL2043 plenum rated
- RoHS compliant

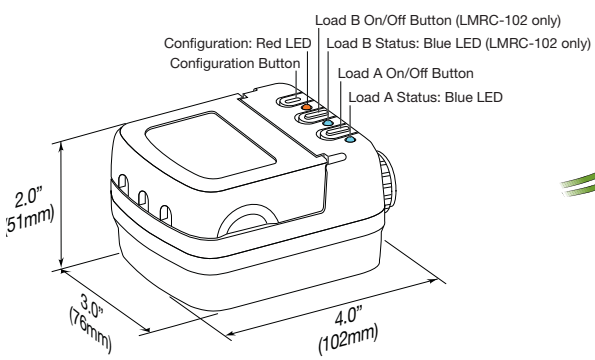


Specifications

- Input/output voltage: 120/230/277VAC, 50/60Hz
- Load ratings per relay and per Room Controller:
 - Ballast: 20A @ 120/277VAC
 - Incandescent: 20A @ 120VAC
 - Motor load: 1Hp @ 120VAC
- Class 2 output to DLM local network: 24VDC, 150mA across 3 RJ45 ports
- DLM local network parameters with LMRC-100 Series and/or LMPL-101 Room Controllers only:
 - Maximum current: 600mA
- Category 5e cable, up to 1,000'; 300' maximum between communicating devices
- Maximum of 4 room controllers, controlling up to 8 loads
- Up to 24 communicating devices
- 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

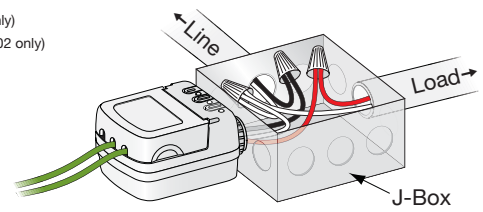
Controls & Mounting

Controls and Dimensions

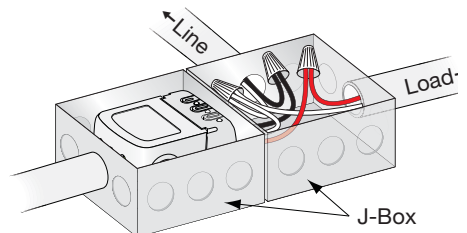


LMRC-100 Series Room Controllers include a 1/2" (12.7mm) threaded nipple and locking ring.

Mounting and Wiring



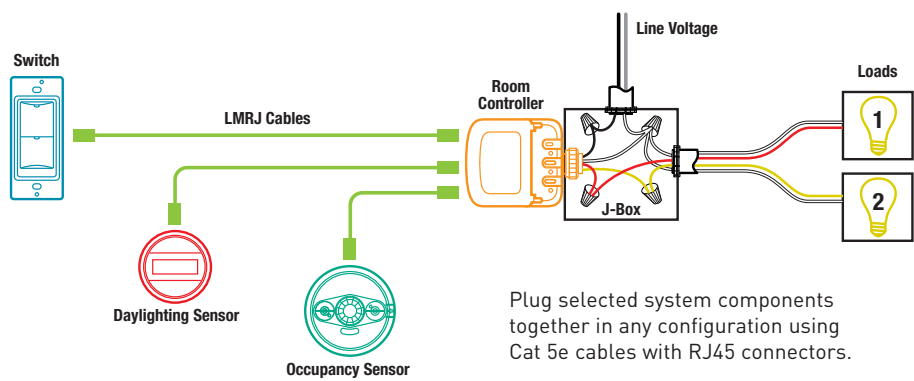
Mounting outside a j-box (plenum space). Two LMRC Room Controllers may be mounted to the j-box.



Mounting inside a j-box.

Connecting

Sample Connection Diagram for Bi-Level Control Using LMRC-102



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Description	Total Load Rating				Class 2 Output
		Voltage	Ballast(A)	Incan(A)	Motor	
<input type="checkbox"/> LMRC-101	Single Relay Room Controller	120/230/277VAC	20	20	1 Hp	24 VDC
<input type="checkbox"/> LMRC-102	Dual Relay Room Controller	50/60Hz				150 mA

LMRC-210 Series Digital On/Off/0-10 Volt Dimming Room Controllers

Plenum-rated controllers with high capacity relay(s) and 0-10 volt dimming output(s)

Components of Digital Lighting Management integrated control systems

Plug to other components using Cat 5e cable and RJ45 connectors eliminating wiring errors



Plug n' Go automatic configuration for maximum energy efficiency

Store 16 preset lighting levels for each load

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

PROJECT

LOCATION/TYPE

Product Overview

Description
LMRC-210 Series Digital Room Controllers include one, two or three relay(s) to switch a total of 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 120/230/277 VAC, 50/60Hz 20A 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. Each room controller stores up to 16 preset levels for each dimmed output. The DLM system may be reconfigured using Push n' Learn without the need for tools or a PC.

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 button for each load

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, an LMRC-211 defaults to manual-on/automatic-off operation while an LMRC-212 or 213 defaults to bi-level automatic-on/automatic-off operation. Relay 1 on the LMRC-212 turns on automatically, while relay(s) 2 (and 3) defaults to manual-on control; all relays turn off automatically. At system startup, default dimming parameters are established including: levels for presets 1-4; fade times; and fade and ramp rates. Dimming and system parameters may be customized.

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.

- LED indicates status of each connected load
- Integral current monitoring of total connected load
- Optional lamp burn in, from 1-100 hours
- 4 RJ45 ports with integral strain relief
- Zero-crossing circuitry for each relay for reliability and increased product life
- UL 2043 plenum rated
- RoHS compliant

LMPL-101 Digital Plug Load Room Controller

Plenum-rated controller with high capacity relay and switching power supply

Component of Digital Lighting Management integrated control systems

Plugs to other components using Cat 5e cable and RJ45 connectors eliminating wiring errors



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

Accepts occupancy sensor signal for energy saving control of plug loads

PROJECT
LOCATION/TYPE

Product Overview

Description

LMPL-101 Plug Load Room Controllers include a 20 amp relay for on/off control of connected outlets, and a high-efficiency switching power supply. They are part of a WattStopper Digital Lighting Management (DLM) system, and enable energy-efficient control of plug loads.

Operation

LMPL-101 Plug Load Room Controllers operate on 120 VAC, 50/60Hz 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 plug load controllers then switch controlled outlets on and off in response to input from any communicating occupancy sensors. Plug Load Rooms Controllers have a fixed 30 minute time delay. When they receive an off signal from a sensor (following the sensor time delay) they count down the additional delay before switching off. The DLM system may be reconfigured using Push n' Learn without the need for tools or a PC.

Plug n' Go & Push n' Learn Configuration

Plug n' Go automatic configuration establishes system functionality based on the installed components. Plug Load Room Controllers are initially controlled by all of the occupancy sensors on the DLM local network, and default to automatic on/off operation whether or not there is a switch on the local network. DLM system operation may be reconfigured using Push n' Learn. As an example, a selected switch button may be bound to a plug load controller for manual-off control of outlets prior to the 30 minute time delay. Similarly, the plug load controller could be bound only to selected occupancy sensors.

Applications

LMPL-101 Plug Load Room Controllers ensure that energy is not wasted when portable loads such as task lighting and computer monitors are plugged into building outlets. Plug Load Room Controllers should be installed to switch outlets for lighting and non-essential equipment in private offices, open offices, lunch rooms and break rooms and other areas in commercial buildings. They are appropriate for LEED projects and help building owners realize a higher return on investment on energy code-required occupancy sensors.

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
- Load On/Off button
- LED indicates status of connected load
- 3 RJ45 ports with integral strain relief and hinged dust cover
- Zero-crossing circuitry for reliability and increased product life
- Attach to standard electrical box through 1/2" knockout; UL2043 plenum rated
- Ships with "Sensor Controlled" labels for connected outlets
- RoHS compliant

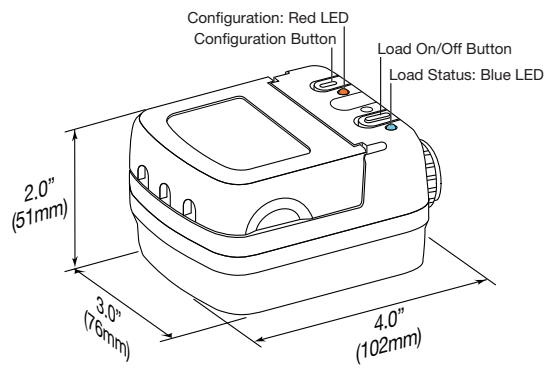


Specifications

- Input/output voltage: 120VAC, 50/60Hz
- Load ratings:
 - Ballast: 20A
 - Incandescent: 20A
 - Motor load: 1Hp
- Class 2 output to DLM local network: 24VDC, 150mA across 3 RJ45 ports
- DLM local network parameters with LMPL-101 and/or LMRC-100 Series Room Controllers only:
 - Maximum current: 600mA
 - Category 5e cable, up to 1,000'; 300' maximum between communicating devices
 - Maximum of 4 room controllers, controlling up to 8 loads
 - Up to 24 communicating devices
- Operating conditions: for indoor use only; 32-104°F (0-40°C); 5-95% RH, non-condensing
- UL and cUL listing pending
- FCC part 15 compliant
- Five year warranty

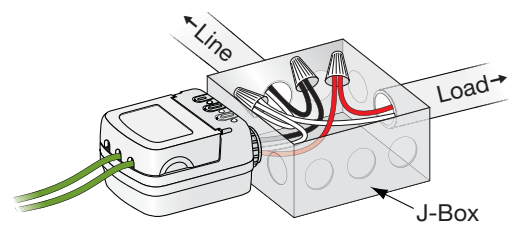
Controls & Mounting

Controls and Dimensions

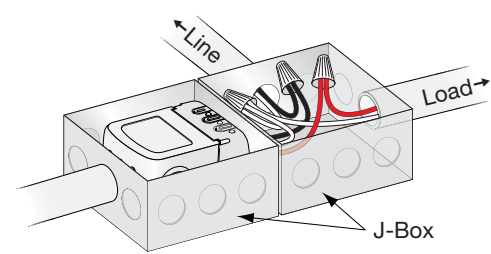


LMPL-101 Plug Load Room Controllers include a 1/2" (12.7mm) threaded nipple and locking ring.

Mounting and Wiring



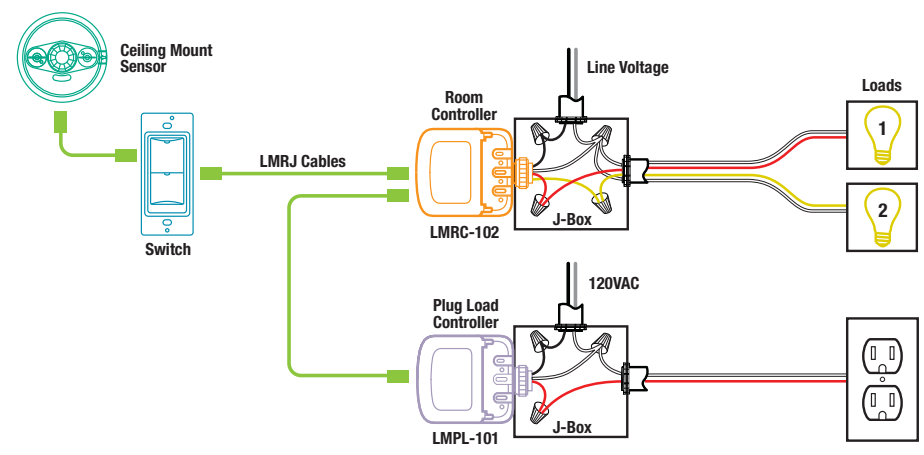
Mounting outside a j-box (plenum space). Two LMPL and/or LMRC Room Controllers may be mounted to the j-box.



Mounting inside a j-box.

Connecting

Sample Connection Diagram for Bi-Level Lighting and Plug Load Control



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Description	Voltage	Load Rating			Class 2 Output
			Ballast(A)	Incan(A)	Motor	
<input type="checkbox"/> LMPL-101	Plug Load Room Controller	120VAC; 50/60Hz	20	20	1 Hp	24 VDC 150 mA

Occupancy Sensors

New digital occupancy sensors are the smallest and lowest profile available, and include many industry firsts.

DLM sensors are available to suit any application. Simply choose the appropriate sensing technology and coverage pattern.

Fully Digital User Interface for Speed and Precision

- LCD display shows exact sensor and system settings
- Pushbuttons allow fast and accurate programming

Infrared (IR) Transceiver for Wireless Control

- Accepts input from handheld remotes
- Allows ladder-free configuration



Sleek Design for Architectural Appeal

- Low profile ceiling sensors
- Compact corner mount sensors

Multiple Sensing Technologies

- Passive infrared (PIR)
- Ultrasonic
- Dual technology



LMPX-100 Digital PIR Corner Mount Occupancy Sensor

Passive infrared sensor with a choice of four coverage patterns

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-down cover

IR transceiver for wireless configuration and remote control

Compact 2.4" x 3" sensor mounts easily on a wall or ceiling

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMPX-100 Digital PIR Corner Mount Occupancy Sensor uses passive infrared (PIR) technology and one of four lenses to detect occupancy in different types of spaces 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 LMPX-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 LMPX-100 may be assigned to a specific load; load assignments and load parameters may be changed using Push n' Learn. The LMPX-100 may be reconfigured either using the pushbuttons and an LCD screen conveniently located behind a snap-down cover on the front of the sensor, or with a wireless configuration tool.

Digital Settings and IR Communications

The LMPX-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 a wireless configuration tool that communicates with the sensor using a bi-directional infrared (IR) signal. The LMPX-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

LMPX-100 sensors, with different lenses for different spaces, are ideal for large areas including large offices, computer rooms, kindergarten classrooms, aiseways, warehouses and open offices where coverage cut-off is desired. The sensors can detect walking motion throughout a 2,000 square-foot area. The high density lens provides coverage of desktop activity for an area up to 1,000 square feet. The long range and aiseway lenses detect motion approaching the sensor as far out as 85 to 90 feet and 55 to 60 feet, respectively.

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
- Infrared (IR) transceiver for wireless configuration and control
- Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
- RoHS compliant

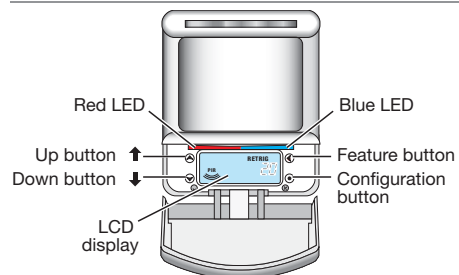


Specifications

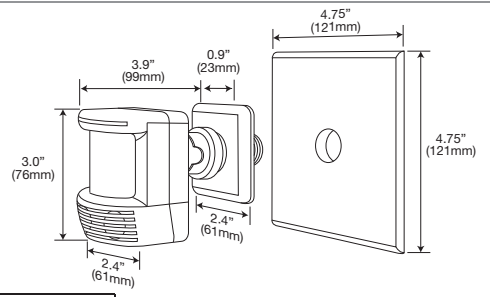
- Input voltage: 24VDC from DLM network
- Current consumption: 7mA
- DLM local network connection: 1 RJ45 port via RJ45 plug and coupler (included)
- LCD display and pushbuttons for setting sensor and system parameters
- Infrared (IR) transceiver
- Operating conditions: for indoor use only; 32-104°F (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



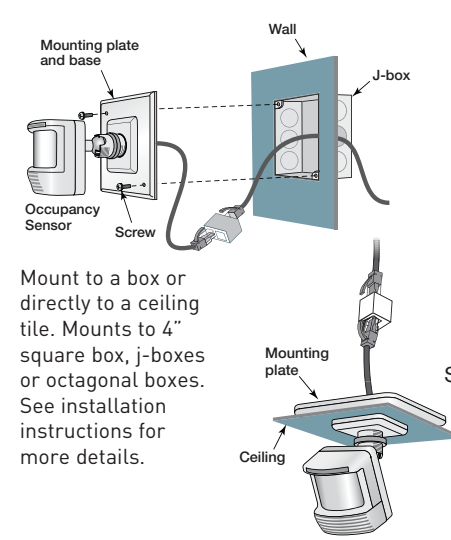
Product Dimensions



Sensor Parameter	Available Options	Default Setting
Time Delay	1-30 min. (1 min. increments) /Auto/Override	20 minutes
Walk Thru	On/Off	Off
PIR Sensitivity	10-100% (10% increments)/Off	90%
Test Mode	Activate	Off

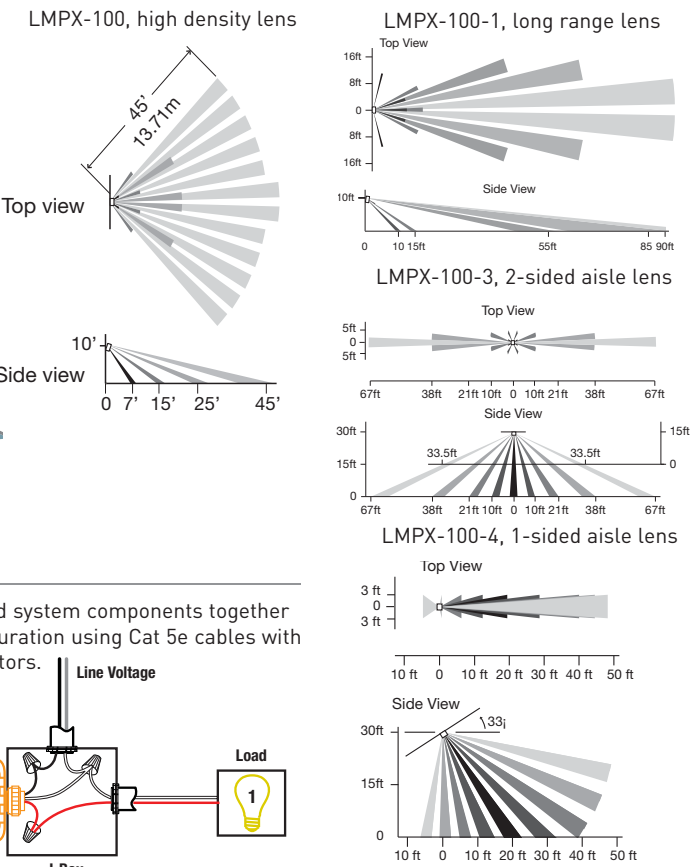
Mounting & Coverage

Mounting Options



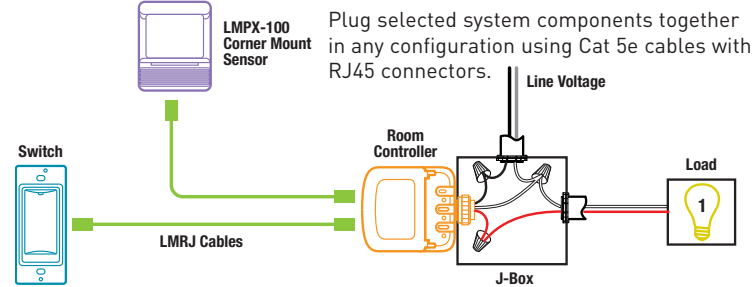
Mount to a box or directly to a ceiling tile. Mounts to 4" square box, j-boxes or octagonal boxes. See installation instructions for more details.

Coverage Patterns



Wiring

Sample Connection Diagram



Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMPX-100	White	Digital PIR Corner Mount Occupancy Sensor, high density lens
<input type="checkbox"/> LMPX-100-1	White	Digital PIR Corner Mount Occupancy Sensor, long range lens
<input type="checkbox"/> LMPX-100-3	White	Digital PIR Corner Mount Occupancy Sensor, 2-sided aisle lens
<input type="checkbox"/> LMPX-100-4	White	Digital PIR Corner Mount Occupancy Sensor, 1-sided aisle lens

LMPC-100 Digital PIR Ceiling Mount Occupancy Sensor

Passive infrared sensor with a choice of two 360° coverage patterns

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

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMPC-100 low profile Digital PIR Corner Mount Occupancy Sensor uses passive infrared (PIR) technology and one of two lenses to detect occupancy in different types of spaces 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 LMPC-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 LMPC-100 may be assigned to a specific load; load assignments and load parameters may be changed using Push n' Learn. The LMPC-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.

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
- Infrared (IR) transceiver for wireless configuration and control
- 360 degree PIR coverage
- Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
- RoHS compliant

Digital Settings and IR Communications

The LMPC-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 a wireless configuration tool that communicates with the sensor using a bi-directional infrared (IR) signal. The LMPC-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 LMPC-100 sensors, with different lenses for different spaces, are ideal for high and low ceiling areas including open office spaces, computer rooms, conference rooms, classrooms and warehouses. Sensor coverage for walking motion can reach up to 1,200 square feet using the extended range lens and 500 square feet using the high density lens. The high density lens is ideal for detecting desktop activity, and small motion coverage is up to 300 square feet.

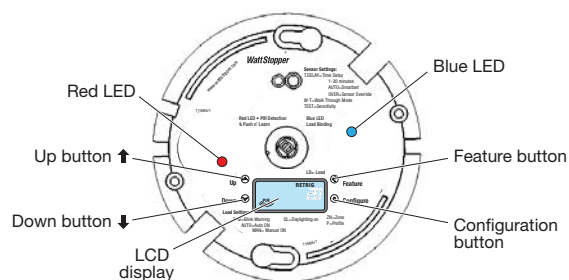


Specifications

- Input voltage: 24VDC from DLM network
- Current consumption: 7mA
- DLM local network connection: 2 RJ45 ports
- LCD display and pushbuttons for setting sensor and system parameters
- Infrared (IR) transceiver
- 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

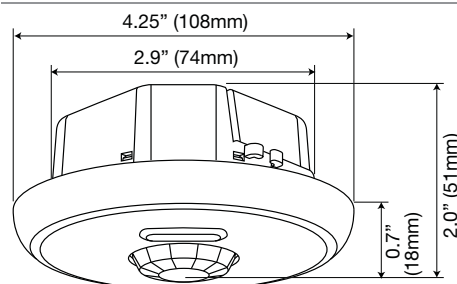
Controls & Dimensions

Product Controls and Sensor Settings



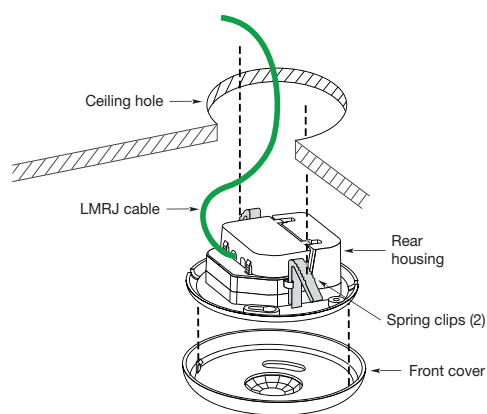
Sensor Parameter	Available Options	Default Setting
Time Delay	1-30 min. (1 min. increments) / Auto/Override	20 minutes
Walk Thru	On/Off	Off
PIR Sensitivity	10-100% (10% increments)/Off	90%
Test Mode	Activate	Off

Product Dimensions



Mounting & Coverage

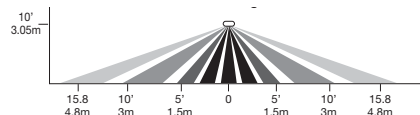
Mounting Options



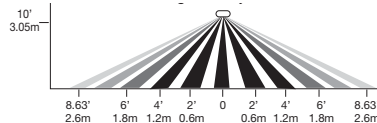
Mount directly to ceiling tile using spring clips (included) or to a 4" octagonal box. See installation instructions for more details.

Coverage Patterns

LMPC-100, extended range lens

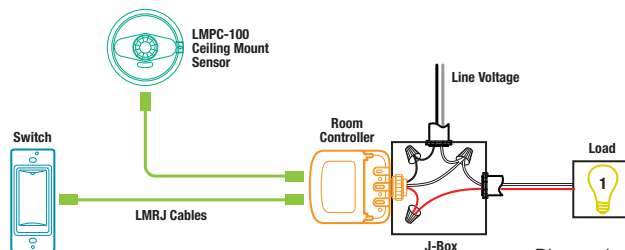


LMPC-100-1, high density lens



Wiring

Sample Connection Diagram



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMPC-100	White	Digital PIR Ceiling Mount Occupancy Sensor, extended range lens
<input type="checkbox"/> LMPC-100-1	White	Digital PIR Ceiling Mount Occupancy Sensor, high density lens

LMUC-100 Digital Ultrasonic Ceiling Mount Occupancy Sensor

Ultrasonic sensor with diffusers for comprehensive coverage

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

Component of Digital Lighting Management integrated control system

IR transceiver for wireless configuration and remote control

Quick access to Push n' Learn for system personalization

Low profile design for architectural appeal



PROJECT
LOCATION/TYPE

Product Overview

Description

The LMUC-100 low profile Digital Dual Technology 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 a 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
- Infrared (IR) transceiver for wireless configuration and control
- Ultrasonic diffusion technology spreads coverage to a wider area (patented); 40KHz signal
- Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
- RoHS compliant

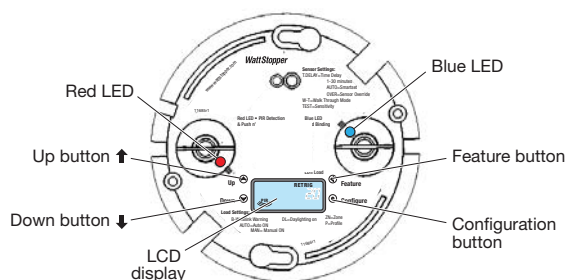


Specifications

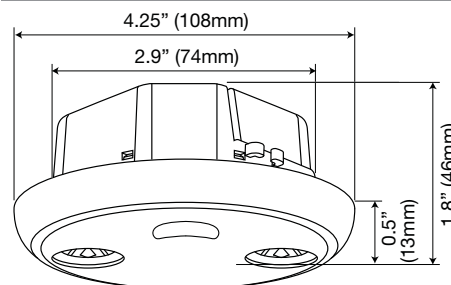
- Input voltage: 24VDC from DLM network
- Current consumption: 20mA
- DLM local network connection: 2 RJ45 ports
- LCD display and pushbuttons for setting sensor and system parameters
- Infrared (IR) transceiver
- Ultrasonic frequency: 40 kHz
- Coverage: Major motion, 1,000 ft² (93 m²)
Minor motion, 500 ft² (56 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



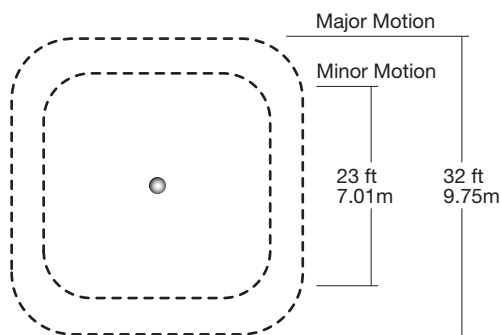
Product Dimensions



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

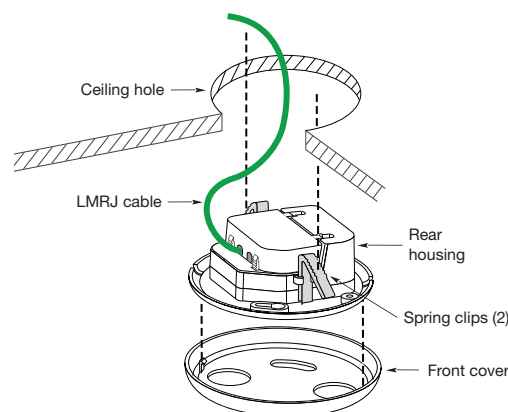
Coverage & Mounting

Coverage Pattern



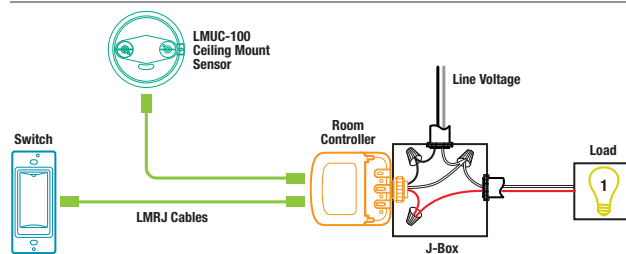
For optimal sensing of large spaces, place sensors so that coverage overlaps.

Mounting Options



Mount directly to ceiling tile using spring clips (included) or to a 4" octagonal box. See installation instructions for more details.

Wiring Sample Connection Diagram



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMUC-100-2	White	Digital Ultrasonic Ceiling Mount Occupancy Sensor, 1,000 ft ² coverage

LMDX-100 Digital Dual Technology Corner Mount Occupancy Sensor

Combines passive infrared and ultrasonic technologies for most 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-down cover

IR transceiver for wireless configuration and remote control

Compact 2.4" x 3" sensor mounts easily on a wall or ceiling

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMDX-100 Digital Dual Technology Corner Mount Occupancy Sensor uses both passive infrared (PIR) and ultrasonic technologies to achieve precise 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 LMDX-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 LMDX-100 may be assigned to a specific load; load assignments and load parameters may be changed using Push n' Learn. The LMDX-100 may be reconfigured either using the pushbuttons and an LCD screen conveniently located behind a snap-down cover on the front of the sensor, or with a wireless configuration tool.

Digital Settings and IR Communications

The LMDX-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. Additionally, walk through mode can be activated and detection and retrigger technologies may be changed. Changes are made at the sensor with easy-to-use pushbuttons, or via a wireless configuration tool that communicates with the sensor using a bi-directional infrared (IR) signal. The LMDX-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 LMDX-100 senses both large and small motions and is recommended for spaces including conference rooms, private offices, classrooms and computer rooms where using just one detection technology could result in false triggers. Mounted at ten feet, the LMDX-100 can detect walking motion throughout a 2,000 square-foot area and desktop motion across 1,000 square feet.

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
- Infrared (IR) transceiver for wireless configuration and control
- Ultrasonic diffusion technology spreads coverage to a wider area (patented); 40KHz signal
- Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
- RoHS compliant

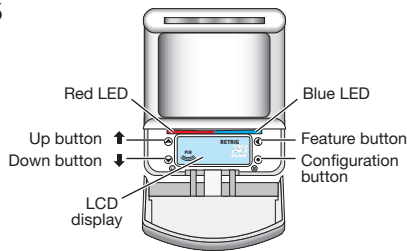


Specifications

- Input voltage: 24VDC from DLM network
- Current consumption: 20mA
- DLM local network connection: 1 RJ45 port via RJ45 plug and coupler (included)
- LCD display and pushbuttons for setting sensor and system parameters
- Infrared (IR) transceiver
- Ultrasonic frequency: 40 kHz
- 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 & Indicators

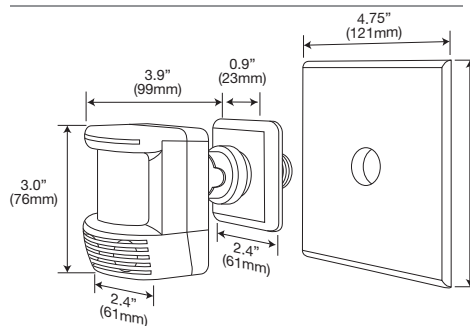
Product Controls and Sensor Settings



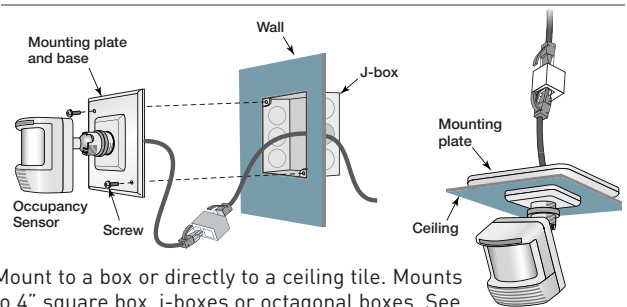
Sensor Parameter	Available Options	Default Setting
Time Delay	1-30 min. (1min. increments) /Auto/Override	20 minutes
Walk Thru	On/Off	Off
PIR Sensitivity	10-100% (10% increments)/Off	90%
Ultrasonic Sensitivity	10-100% (10% increments)/Off	70%
Test Mode	Activate	Off
Detection Technology	Ultrasonic/PIR/Both/Either	Both
Retrigger Technology	Ultrasonic/PIR/Both/Either	Either

Dimensions & Mounting

Product Dimensions



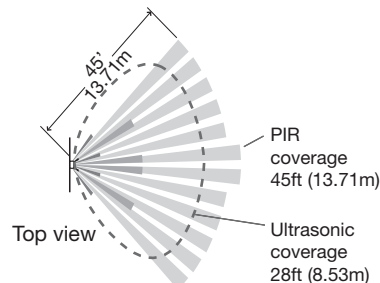
Wall and Ceiling Mounting Options



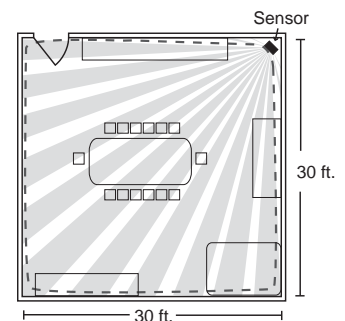
Mount to a box or directly to a ceiling tile. Mounts to 4" square box, j-boxes or octagonal boxes. See installation instructions for more details.

Coverage & Placement

Coverage Patterns

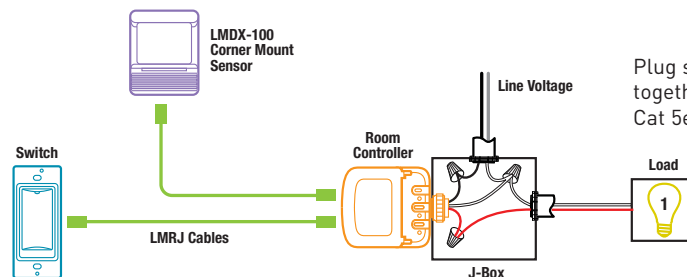


Sensor Placement



Wiring

Sample Connection Diagram



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMDX-100	White	Digital Dual Technology Corner Mount Occupancy Sensor

LMDC-100 Digital Dual Technology Ceiling Mount Occupancy Sensor

Combines passive infrared and ultrasonic technologies for most 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

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMDC-100 low profile Digital Dual Technology Ceiling Mount Occupancy Sensor uses both passive infrared (PIR) and ultrasonic technologies to achieve precise 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 LMDC-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 LMDC-100 may be assigned to a specific load; load assignments and load parameters may be changed using Push n' Learn. The LMDC-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 LMDC-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. Additionally, walk through mode can be activated and detection and retrigger technologies may be changed. Changes are made at the sensor with easy-to-use pushbuttons, or via a wireless configuration tool that communicates with the sensor using a bi-directional infrared (IR) signal. The LMDC-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 LMDC-100 senses both large and small motions and is recommended for spaces including conference rooms, private offices, open offices and classrooms where using just one detection technology could result in false triggers. Mounted at ten feet, the LMDC-100 can detect motion throughout a 1,000 square-foot area.

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
- Infrared (IR) transceiver for wireless configuration and control
- Ultrasonic diffusion technology spreads coverage to a wider area (patented); 40KHz signal
- 360 degree PIR coverage
- Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
- RoHS compliant

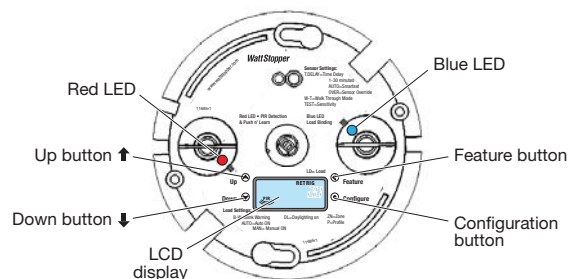


Specifications

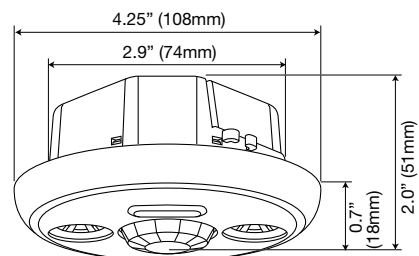
- Input voltage: 24VDC from DLM network
- Current consumption: 20mA
- DLM local network connection: 2 RJ45 ports
- LCD display and pushbuttons for setting sensor and system parameters
- Infrared (IR) transceiver
- Ultrasonic frequency: 40 kHz
- Operating conditions: for indoor use only; 32-104°F (0-40°C);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

Controls & Dimensions

Product Controls and Sensor Settings



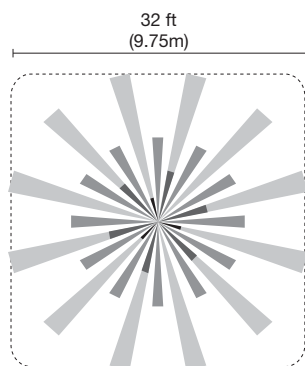
Product Dimensions



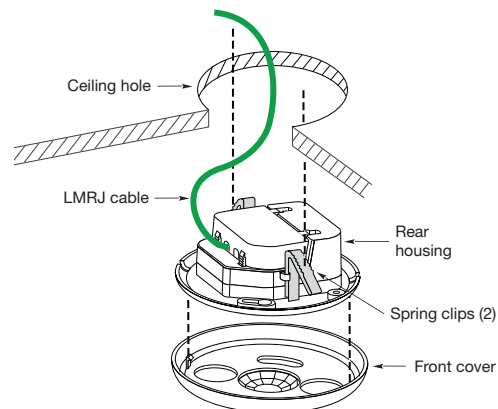
Sensor Parameter	Available Options	Default Setting
Time Delay	1-30 min. (1 min. increments) /Auto/Override	20 minutes
Walk Thru	On/Off	Off
PIR Sensitivity	10-100% (10% increments)/Off	90%
Ultrasonic Sensitivity	10-100% (10% increments)/Off	70%
Test Mode	Activate	Off
Detection Technology	Ultrasonic/PIR/Both/Either	Both
Retrigger Technology	Ultrasonic/PIR/Both/Either	Either

Coverage & Mounting

Coverage Patterns



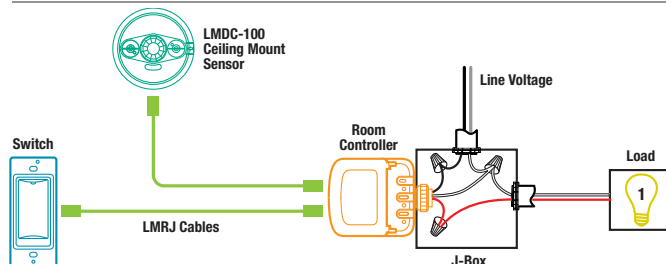
Mounting Options



Mount directly to ceiling tile using spring clips (included) or to a 4" octagonal box. See installation instructions for more details.

Wiring

Sample Connection Diagram



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMDC-100	White	Digital Dual Technology Ceiling Mount Occupancy Sensor

Personal Controls

Elegantly styled low profile wall switches and handheld remotes give users control of dimmed and switched loads.

Including personal control switches or remotes, in addition to DLM sensors, improves both return on investment and occupant satisfaction.

Multiple Control Options

- On/off
- Dimming
- Scene control



Simple Ergonomic Control

- Positive button feel
- LED status indicators
- Wireless control

Compatible with Building Design Standards

- Wall switches in 5 colors fit decorator style faceplates
- Infrared (IR) handheld remotes include wall holster



LMSW-100 Series Digital Wall Switches

Low voltage pushbutton switches for on/off control of multiple loads

Components of Digital Lighting Management integrated control system

Plug to other components using Cat 5e cable and 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

PROJECT
LOCATION/TYPE

Product Overview

Description

LMSW-100 Series Digital 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 Features and IR Communications

An LED shows the on/off status of the load(s) 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 switch may be personalized in the field with custom-engraved buttons. The IR transceiver in each LMSW-100 Series Digital Wall Switch allows two-way communication for both wireless system configuration and operation.

Applications

LMSW-100 Series Digital 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
- Each button can control individual or multiple loads; LED indicates status
- Switches may be used for multi-way control
- Five color options and custom engraving options; standard buttons may be replaced in the field
- RoHS compliant

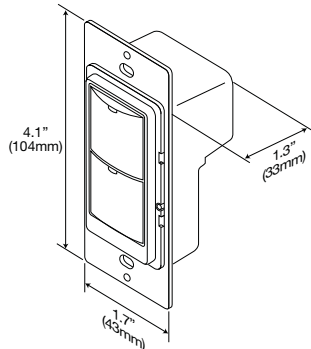
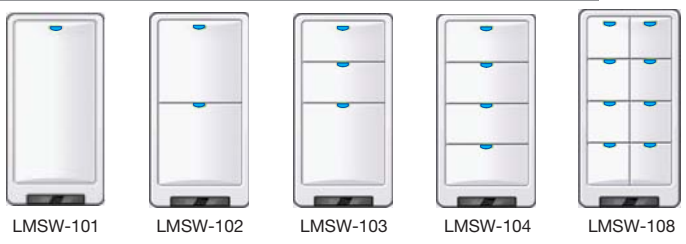
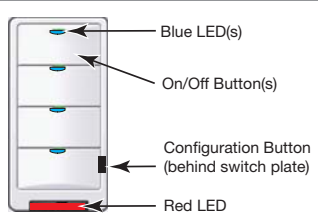


Specifications

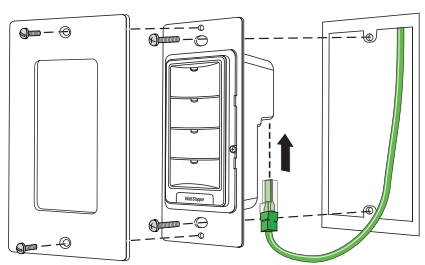
- Input voltage: 24VDC from DLM local network
- Current consumption: 5mA
- DLM local network connection: 2 RJ45 ports
- 1, 2, 3, 4 or 8 control buttons, each with LED status indicator
- Hidden configuration button to access Push n' Learn
- Infrared (IR) transceiver
- Operating conditions: for indoor 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



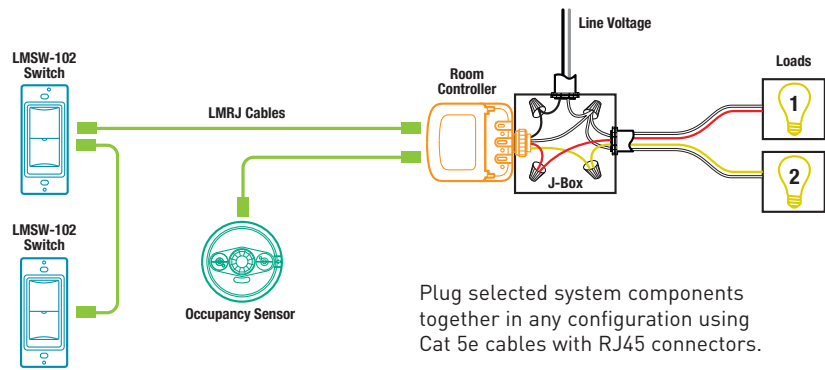
Mounting



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

Connecting

Sample Connection Diagram with Multi-way Bi-level Control



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Product Description	Catalog No.	Color	Product Description	
<input type="checkbox"/> LMSW-101-W	White	1-Button Digital Wall Switch	<input type="checkbox"/> LMSW-104-W	White	4-Button Digital Wall Switch	
<input type="checkbox"/> LMSW-101-LA	Light Almond		<input type="checkbox"/> LMSW-104-LA	Light Almond		
<input type="checkbox"/> LMSW-101-I	Ivory		<input type="checkbox"/> LMSW-104-I	Ivory		
<input type="checkbox"/> LMSW-101-G	Grey		<input type="checkbox"/> LMSW-104-G	Grey		
<input type="checkbox"/> LMSW-101-B	Black		<input type="checkbox"/> LMSW-104-B	Black		
<input type="checkbox"/> LMSW-102-W	White	2-Button Digital Wall Switch	<input type="checkbox"/> LMSW-108-W	White	8-Button Digital Wall Switch	
<input type="checkbox"/> LMSW-102-LA	Light Almond		<input type="checkbox"/> LMSW-108-LA	Light Almond		
<input type="checkbox"/> LMSW-102-I	Ivory		<input type="checkbox"/> LMSW-108-I	Ivory		
<input type="checkbox"/> LMSW-102-G	Grey		<input type="checkbox"/> LMSW-108-G	Grey		
<input type="checkbox"/> LMSW-102-B	Black		<input type="checkbox"/> LMSW-108-B	Black		
<input type="checkbox"/> LMSW-103-W	White	3-Button Digital Wall Switch	Switches do not include face plates. Order decorator style plate separately.			
<input type="checkbox"/> LMSW-103-LA	Light Almond					
<input type="checkbox"/> LMSW-103-I	Ivory					
<input type="checkbox"/> LMSW-103-G	Grey					
<input type="checkbox"/> LMSW-103-B	Black					

LMDM-101 Digital Dimming Wall Switch

Low voltage switch for control of dimmable loads

Component of Digital Lighting Management integrated control system

Plugs to other components using Cat 5e cable and RJ45 connectors eliminating wiring errors



LED bar graph indicates relative light level of controlled load

IR transceiver for wireless configuration and remote control

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

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMDM-101 Digital Dimming Wall Switch is a low voltage device for dimming control of one or more lighting loads. It is part of a Digital Lighting Management (DLM) system and can dim load(s) connected to DLM dimming room controllers and switch load(s) connected to DLM on/off room controllers.

Operation

The LMDM-101 operates on Class 2 power supplied to a DLM local network by one or more room controllers. Plug n' Go automatic configuration assigns all loads connected to dimming room controllers to the dimming switch upon system startup. When multiple switches are installed, default operation is for multi-way control; each switch controls all of the dimming room controller loads on the system. Dimming switches may be reconfigured using Push n' Learn to control only selected loads. Users raise or lower light levels by pressing and holding the top or bottom of the paddle. They recall a preset level by tapping the top of the paddle. A double tap at the top of the paddle turns lights immediately on to their highest level. To turn lights off, users simply tap the bottom portion of the paddle.

Features

- Hidden configuration button for easy access to Push n' Learn
- Requires DLM dimming room controller
- Digital Lighting Management components plug together on a free-topology Category 5e DLM local network
- Provides full function dimming control in multi-way applications, such as 3-way, 4-way, and beyond
- Infrared (IR) transceiver for wireless configuration and control
- LED status indicator
- Sleek single gang device fits decorator wall plates
- Five color options and custom engraving options; standard buttons may be replaced in the field
- RoHS compliant

LED Indicators and IR Communications

A single blue LED shows the on/off status of the load(s) assigned to the dimming switch. An LED array in the bezel of the switch tracks progress of a fade and indicates the output level to the load. Each dimming switch may be personalized in the field with custom-engraved buttons. The IR transceiver in the LMDM-101 allows two-way communication for both wireless configuration, using Push n' Learn and a wireless configuration tool, and system operation, using handheld remotes.

Applications

The LMDM-101 is ideal for use in applications where dimming control is desired, such as conference and board rooms, classrooms, training centers and private offices. Used together with the LMSW-105 DLM Scene Switch, the LMDM-101 works as part of a flexible scene-based preset dimming system.

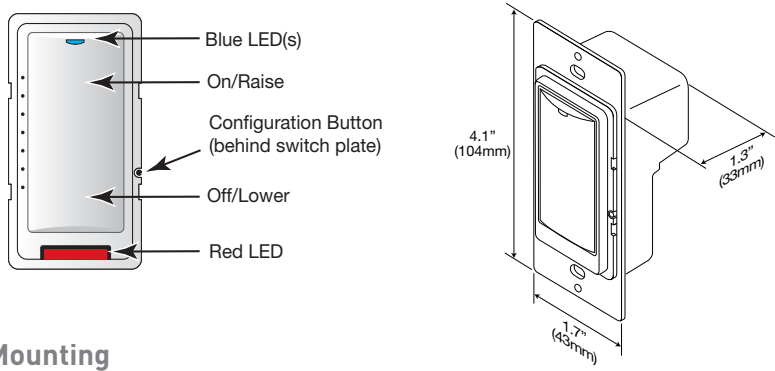


Specifications

- Input voltage: 24VDC from DLM local network
- Current consumption: 5mA
- DLM local network connection: 2 RJ45 ports
- Control button with LED status indicator
- 7-LED dimming level indicator
- Hidden configuration button for access to Push n'Learn mode
- 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

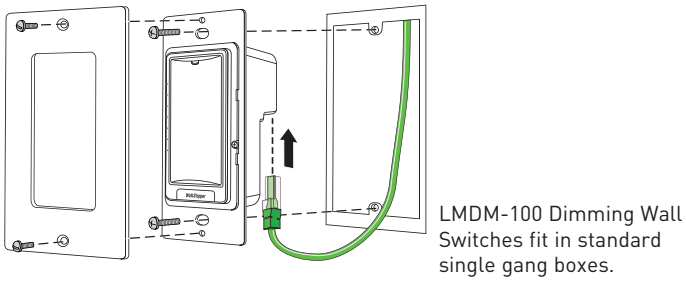
Controls & Dimensions

Product Controls and Dimensions

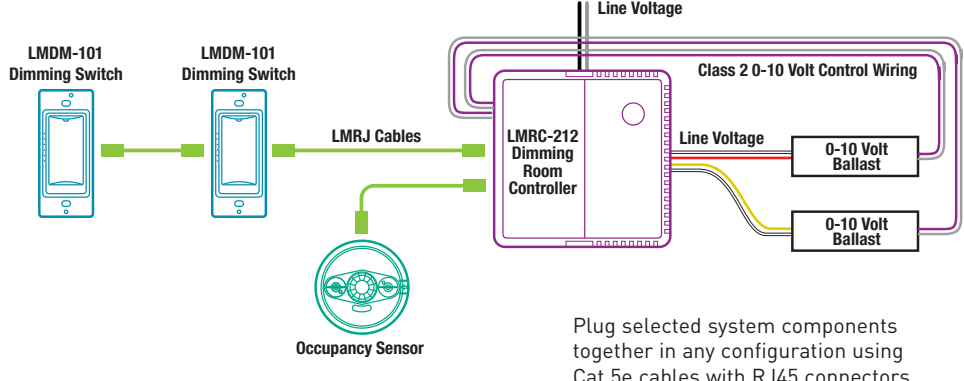


Mounting & Connecting

Mounting



Sample Connection Diagram with 0-10 Volt Dimming



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMDM-101-W	White	Digital 1-Button Dimming Wall Switch
<input type="checkbox"/> LMDM-101-LA	Light Almond	
<input type="checkbox"/> LMDM-101-I	Ivory	
<input type="checkbox"/> LMDM-101-G	Grey	
<input type="checkbox"/> LMDM-101-B	Black	

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

LMSW-105 Digital 5-Button Scene Switch

Low voltage switch for control of four preset scenes and raise/lower control of scenes or loads

Component of Digital Lighting Management integrated control system

Plugs to other components using Cat 5e cable and RJ45 connectors eliminating wiring errors



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

Customizable buttons with LED status indicators

IR transceiver for wireless configuration and remote control

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMSW-105 Digital Scene Switch is a low voltage device that sets and recalls preset lighting scenes and raises and lowers lighting levels. It is part of a Digital Lighting Management (DLM) system and controls loads connected to DLM room controllers by accessing four of the 16 scenes available in a DLM local network.

Operation

The LMSW-105 operates on Class 2 power supplied to a DLM local network by one or more room controllers. Plug n' Go automatic configuration assigns presets 1, 2, 3 and 4 to the scene buttons on the switch upon system startup. When multiple switches are installed, default operation is for multi-way control; each switch controls the same scenes. Scene switches may be reconfigured to control different scenes. Users activate a scene by tapping one of the scene buttons. They may press and hold the top or bottom of the master paddle to raise or lower light levels. A double tap at the top of the paddle turns lights immediately on to their highest level. To turn lights off, users simply tap the bottom portion of the paddle. Tapping the top of the paddle restores the previous light level.

Features

- Hidden configuration button for easy access to Push n' Learn mode
- Requires DLM dimming room controller
- Master raise/lower paddle and all-on/all-off control
- Infrared (IR) transceiver for wireless configuration and control

Personalizing Scene Switches

Plug 'n Go assigns all loads to each LMSW-105 upon system startup. Load assignments may be changed using Push n' Learn. Preset scene levels are stored by the room controllers, and default levels are established by Plug n' Go. Scene 1 is 100%, scene 2 is 75%, scene 3 is 50% and scene 4 is 25%. Preset levels can be easily changed by adjusting lighting to the desired level, typically using LMDM-101 dimming switches assigned to control each load, or channel, and pressing and holding a scene button on the LMSW-105 to memorize the new levels. Each scene button may be personalized in the field with custom-engraved buttons. The integral IR transceiver allows both wireless configuration and system operation.

Applications

The LMSW-105's sleek low profile appearance is ideally suited for use in conference and board rooms, classrooms, training centers, and other applications where preset scene-based dimming control is desired. The LMSW-105 Scene Switch works with LMDM-101 Digital Dimming Wall Switches to create a flexible and elegant small dimming system.

- Sleek single gang device fits decorator wall plates
- May be used for multi-way control applications
- LED status indicators
- Five color options and custom engraving options; standard buttons may be replaced in the field
- RoHS compliant

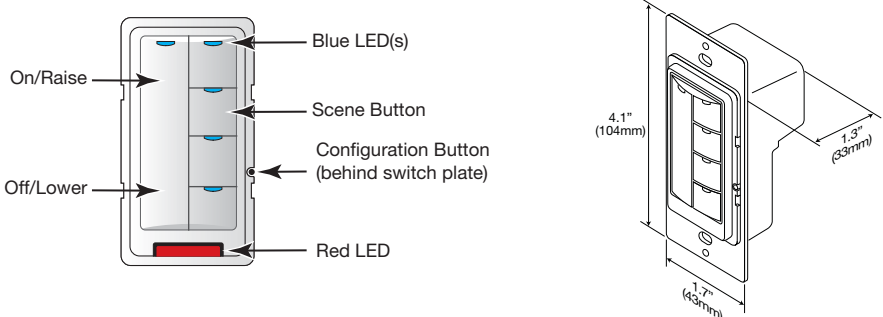


Specifications

- Input voltage: 24VDC from DLM local network
- Current consumption: 5mA
- DLM local network connection: 2 RJ45 ports
- Control button with LED status indicator
- Hidden configuration button for access to Push n'Learn mode
- 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

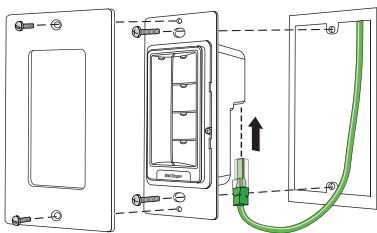
Controls & Dimensions

Switch Controls and Dimensions



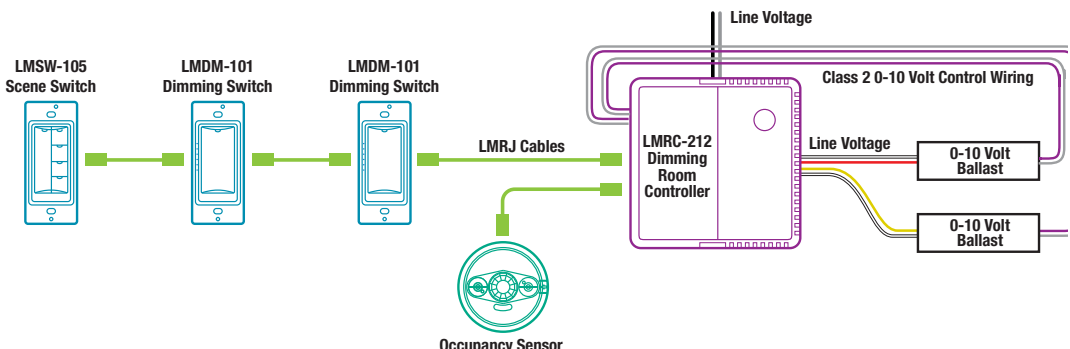
Mounting & Connecting

Mounting



LMSW-105 Scene Switches fit in standard single gang boxes.

Sample Connection Diagram with 0-10 Volt Dimming



Plug selected system components together in any configuration using Cat 5e cables with RJ45 connectors.

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> LMSW-105-W	White	Digital 5-Button Scene Switch
<input type="checkbox"/> LMSW-105-LA	Light Almond	
<input type="checkbox"/> LMSW-105-I	Ivory	
<input type="checkbox"/> LMSW-105-G	Grey	
<input type="checkbox"/> LMSW-105-B	Black	

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

DLM Switch Button Kits and Switch Button Engraving

Field replaceable buttons for LMSW-100 Series and LMDM-101 Wall Switches

Available for 1-, 2-, 3-, 4-, 8-button wall switches, 1-button dimming switch and 5-button scene switch

Choice of white, light almond, ivory, grey and black; includes matching trim ring for complete color change



Customized engraving option

• Button kits snap onto existing switches without tools for fast, easy color update or personalization

• Ideal for switch labeling, building remodeling, or repurposing of controls

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMSW-KIT-100 Series and LMDM-KIT-101 are replacement button trim color kits that are compatible with all Digital Lighting Management (DLM) LMSW-100 Series switches and LMDM-101 Dimming Wall Switches. They are available with or without custom engraving.

Installation

The button kits can be easily installed without removing the switch from the wall. With the wall plate off, the installer simply presses gently on each side of the existing buttons and pulls the trim ring off, followed by the buttons, which are part of a single unit. The new button unit replaces the old one, and the new trim ring snaps on to hold the buttons in place.

Engraved Button Labels

If labeled buttons are required, complete an order form for custom engraving. Each button can be custom-engraved with exacting detail, using indelible ink applied by a high speed laser etching machine. Full-width button labels for 1-, 2-, 3-, and 4-button switches may include up to fifteen characters. Half-width button labels for 5- and 8-button switches may include up to seven characters.

Applications

DLM button kits are ideal for changing the appearance of a switch as part of a remodel or new decoration scheme, or because of damage. Engraved button kits provide an easy, professional-style solution to personalizing switches for any application. Button labels typically comprise the name of the controlled lights or the purpose of the lighting scene (e.g. sconces, downlights and wallwashers, or meeting, AV and whiteboard).

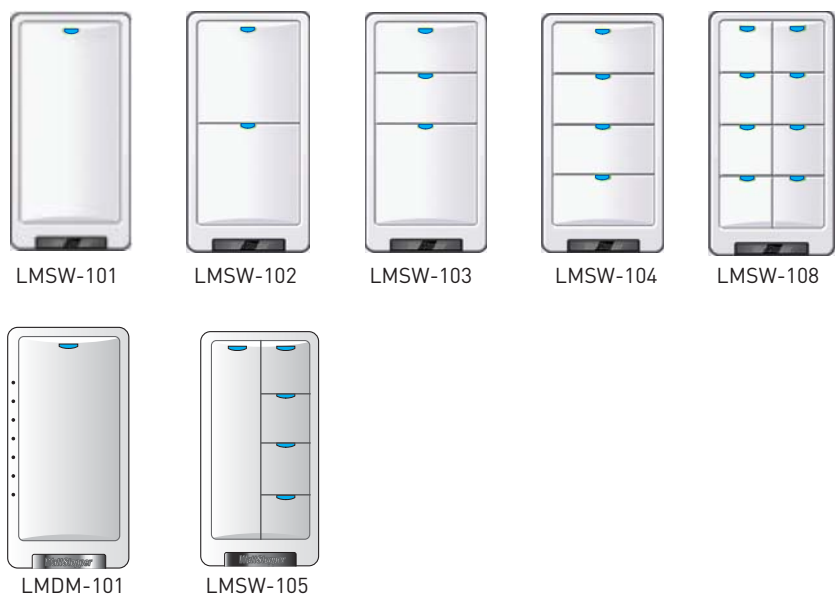
Features

- Kits available for all Digital Lighting Management wall switches, dimming switches and scene switches
- Five color options
- Optional engraving with custom text
- Easy to install in the field without removing the switch from the wall
- RoHS compliant



DLM Switch Models

Kits are Available for Wall Switches, Dimming Switch and Scene Switch



Ordering Information

Catalog No.	Color	Product Description	Catalog No.	Color	Product Description
<input type="checkbox"/> LMSW-KIT-101-W	White	1-Button Kit for Wall Switch, no engraving	<input type="checkbox"/> LMSW-KIT-104-W	White	4-Button Kit for Wall Switch, no engraving
<input type="checkbox"/> LMSW-KIT-101-LA	Light Almond		<input type="checkbox"/> LMSW-KIT-104-LA	Light Almond	
<input type="checkbox"/> LMSW-KIT-101-I	Ivory		<input type="checkbox"/> LMSW-KIT-104-I	Ivory	
<input type="checkbox"/> LMSW-KIT-101-G	Grey		<input type="checkbox"/> LMSW-KIT-104-G	Grey	
<input type="checkbox"/> LMSW-KIT-101-B	Black		<input type="checkbox"/> LMSW-KIT-104-B	Black	
<input type="checkbox"/> LMDM-KIT-101-W	White	1-Button Kit for Dimming Wall Switch, no engraving	<input type="checkbox"/> LMSW-KIT-105-W	White	5-Button Kit for Scene Switch, no engraving
<input type="checkbox"/> LMDM-KIT-101-LA	Light Almond		<input type="checkbox"/> LMSW-KIT-105-LA	Light Almond	
<input type="checkbox"/> LMDM-KIT-101-I	Ivory		<input type="checkbox"/> LMSW-KIT-105-I	Ivory	
<input type="checkbox"/> LMDM-KIT-101-G	Grey		<input type="checkbox"/> LMSW-KIT-105-G	Grey	
<input type="checkbox"/> LMDM-KIT-101-B	Black		<input type="checkbox"/> LMSW-KIT-105-B	Black	
<input type="checkbox"/> LMSW-KIT-102-W	White	2-Button Kit for Wall Switch, no engraving	<input type="checkbox"/> LMSW-KIT-108-W	White	8-Button Kit for Wall Switch, no engraving
<input type="checkbox"/> LMSW-KIT-102-LA	Light Almond		<input type="checkbox"/> LMSW-KIT-108-LA	Light Almond	
<input type="checkbox"/> LMSW-KIT-102-I	Ivory		<input type="checkbox"/> LMSW-KIT-108-I	Ivory	
<input type="checkbox"/> LMSW-KIT-102-G	Grey		<input type="checkbox"/> LMSW-KIT-108-G	Grey	
<input type="checkbox"/> LMSW-KIT-102-B	Black		<input type="checkbox"/> LMSW-KIT-108-B	Black	
<input type="checkbox"/> LMSW-KIT-103-W	White	3-Button Kit for Wall Switch, no engraving			
<input type="checkbox"/> LMSW-KIT-103-LA	Light Almond				
<input type="checkbox"/> LMSW-KIT-103-I	Ivory				
<input type="checkbox"/> LMSW-KIT-103-G	Grey				
<input type="checkbox"/> LMSW-KIT-103-B	Black				

Engraving Option

Engraving Details

Catalog No.	Description
<input type="checkbox"/> LM-Engraving	Engraving for button kit(s) selected from Catalog Numbers above

To order custom-engraved button kits, complete the online ordering form and provide complete labeling information.



LMRH-102 Digital 2-Button IR Remote Control

Provides wireless remote on/off control of two lighting loads

Component of Digital Lighting Management integrated control systems

Sleek, easy-to-operate design



Push n' Learn for personalization

Wall mount bracket and mounting hardware included

Infrared (IR) wireless signal for control within a 32 foot range

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMRH-102 Digital 2-Button IR Remote Control is a handheld on/off personal control device for convenient control of any loads connected to Digital Lighting Management (DLM) room controllers. It uses an infrared transceiver to communicate with a DLM system via any DLM IR-enabled devices.

Operation

The LMRH-102 operates on battery power and transmits a digital signal for on or off whenever a pushbutton is pressed by a user. By default, the top button controls the first load in the system and the bottom button controls the second load. Button assignments may be quickly reconfigured using Push n' Learn. The LMRH-102 will work with any DLM local network, operating loads one and two, if in default mode, or the loads it has been configured to control.

Personalized Control

To assign different lighting loads to the buttons, users can access Push n' Learn via the hidden configuration button on the remote. For instance, in a classroom a teacher might wish to assign all lighting loads to the second button so it serves as a master off button. Or, he or she may wish to assign whiteboard lighting to the second button while general classroom lighting is assigned to the first button.

Applications

The 2-button remote control can be used anywhere that convenient fingertip lighting control is desired. Conference rooms, training centers, lecture halls and private offices are all ideal applications for this device.

Features

- Provides infrared (IR) control of two lighting loads or zones in a DLM system
- Hidden configuration button for easy access to Push n' Learn
- Communicates with DLM local network through any DLM IR-enabled device
- Battery operated
- Includes wall mount holster and all necessary mounting hardware
- Each button can control individual or multiple loads
- LEDs confirm button presses
- RoHS compliant

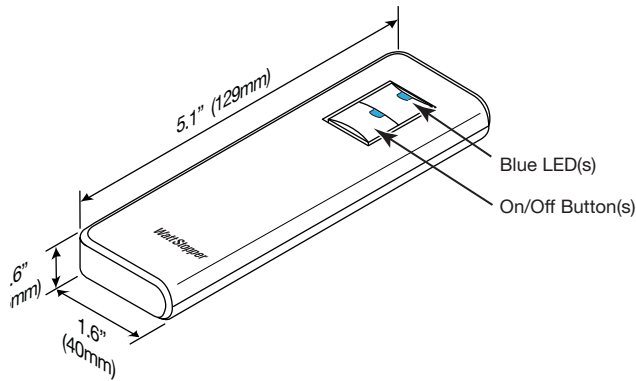


Specifications

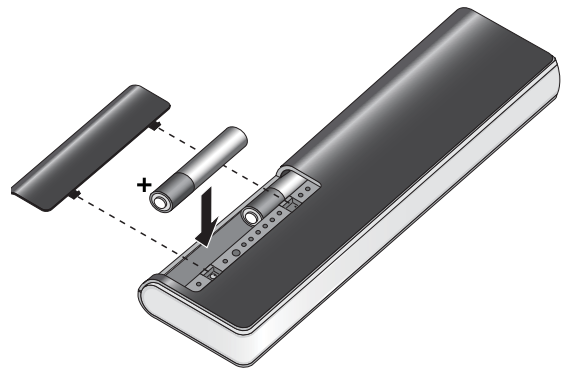
- Operates on 3 AAA 1.5 volt batteries (included)
- DLM local network connection: IR transceiver
 - Range of IR transmission: up to 32 ft. (10m)
 - Angle of IR reception: 30°
- 2 control buttons, each with LED indicator
- Hidden configuration button to access Push n' Learn
- Weight: approx. 3.2 oz. (91g), without mounting bracket
- Operating conditions: for indoor use only; 32-95°F (0-35°C); 5-95% RH, non-condensing
- FCC part 15 compliant
- Five year warranty

Controls & Dimensions

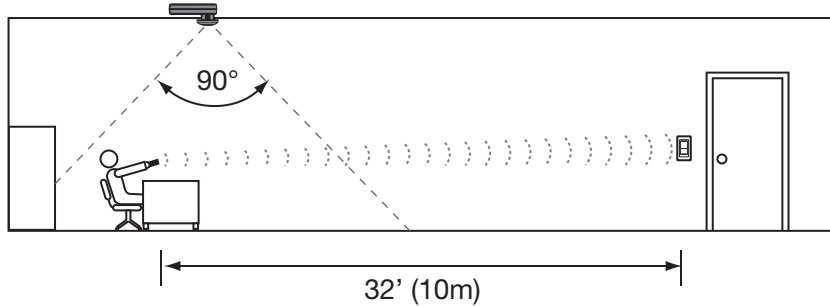
Product Controls and Dimensions



Inserting Batteries into the Remote



IR Range



The LMRH-102 operates DLM lighting loads by transmitting IR signals to any DLM IR-enabled device within line of sight in a range of approximately 32 feet (10 meters).

Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMRH-102	Digital 2-Button IR Remote Control



LMRH-101 Digital Dimming IR Remote Control

Provides wireless remote on/off and raise/lower control

Component of Digital Lighting Management integrated control systems

Communicates with any IR-enabled DLM device



Push n' Learn for personalization

Wall mount bracket and mounting hardware included

Infrared (IR) wireless signal for control within a 32 foot range

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMRH-101 Digital Dimming IR Remote Control is a handheld personal control device for convenient on/off and raise/lower control of any load(s) connected to Digital Lighting Management (DLM) dimming room controllers. It uses an infrared transceiver to communicate with a DLM system via any DLM IR-enabled devices.

Operation

The LMRH-101 operates on battery power. By default, it controls all loads on the DLM local network. The load assignment may be quickly reconfigured using Push n' Learn. To turn the load on, the user simply presses the top of the control button. Pressing the bottom of the button turns lights off. To raise or lower dimmable loads, the user presses and holds the top or bottom of the button until lighting reaches the desired level. The LMRH-101 will work with any DLM local network, operating all loads if in default mode, or the load(s) it has been configured to control.

Personalized Control

To assign a different lighting load, or loads, to the LMRH-101, users can access Push n' Learn via the hidden configuration button on the remote or using the wireless configuration tool.

Applications

The LMRH-101 remote control can be used anywhere that convenient handheld dimming control is desired. Conference rooms, training centers, lecture halls and private offices are all ideal applications for this device.

Features

- Provides remote IR dimming control of lighting in a DLM system in conjunction with at least one dimming room controller
- Hidden configuration button for easy access to Push n' Learn
- Communicates with DLM local network through any DLM IR-enabled device
- Battery operated
- Includes wall mount holster and all necessary mounting hardware
- Can control one or more loads
- LED confirms button presses
- RoHS compliant

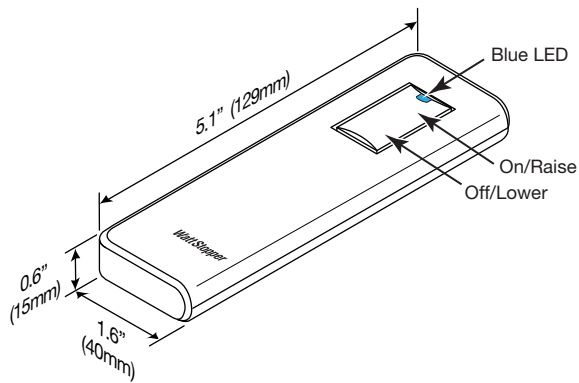


Specifications

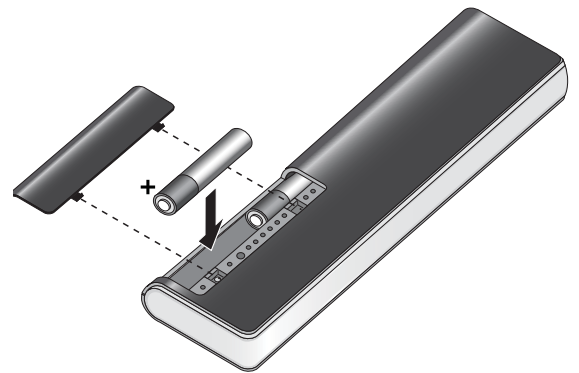
- Operates on 3 AAA 1.5 volt batteries (included)
- DLM local network connection: IR transceiver
 - Range of IR transmission: up to 32 ft. (10m)
 - Angle of IR reception: 30°
- 1 control button with LED indicator
- Hidden configuration button to access Push n' Learn
- Weight: approx. 3.2 oz. (91g), without mounting bracket
- Operating conditions: for indoor use only; 32-95°F (0-35°C); 5-95% RH, non-condensing
- FCC part 15 compliant
- Five year warranty

Controls & Dimensions

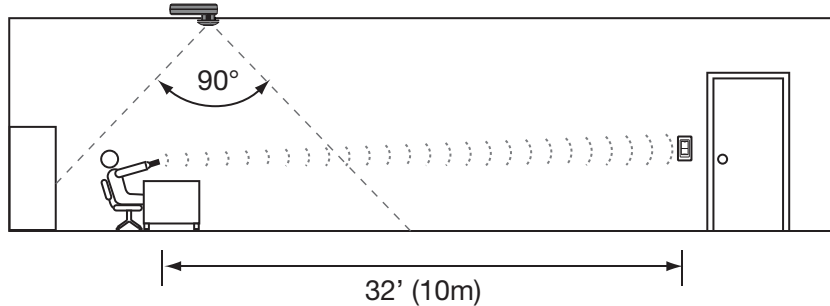
Product Controls and Dimensions



Inserting Batteries into the Remote Controls



IR Range



The LMRH-101 operates DLM lighting loads by transmitting IR signals to any DLM IR-enabled device within line of sight in a range of approximately 32 feet (10 meters).

Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMRH-101	Digital 1-Button IR Dimming Remote Control

LMRH-105 Digital Scene IR Remote Control

Provides wireless remote control of four preset scenes plus on and off

Component of Digital Lighting Management integrated control systems

Communicates with any IR-enabled DLM device



Push n' Learn for personalization

Wall mount bracket and mounting hardware included

Infrared (IR) wireless signal for control withing a 32 foot range

PROJECT

LOCATION/TYPE

Product Overview

Description

The LMRH-105 Digital Scene IR Handheld Remote Control is a personal control device for convenient on/off and scene control. It is part of a Digital Lighting Management (DLM) system and controls loads connected to DLM room controllers by accessing four of the 16 scenes available in a DLM local network. It uses an infrared transceiver to communicate with a DLM system via any DLM IR-enabled devices.

Operation of LMRH-101

The LMRH-105 operates on battery power. By default, it controls all loads on the DLM local network, and the scene buttons operate presets 1, 2, 3 and 4. The remote may be reconfigured to control different loads and different scenes. Users activate a scene by pressing one of the small scene buttons. Pressing the top of the large control paddle turns all of the lights on to their brightest level. Pressing the bottom of the paddle turns lights off. Pressing and holding the top or bottom of the paddle raises or lowers the active scene. The LMRH-105 will work with any DLM local network, operating the scenes and loads it has been configured to control.

Personalizing Scene Control

To assign a different lighting load, or loads, to the LMRH-105, users can access Push n' Learn via the hidden configuration button on the remote or using the wireless configuration tool. Scene assignments are changed using a configuration tool. Preset scene levels are stored by the room controllers, and default levels are established by Plug n' Go. Scene 1 is 100%, scene 2 is 75%, scene 3 is 50% and scene 4 is 25%. Preset levels can be easily changed by adjusting lighting to the desired level, typically using LMDM-101 dimming switches assigned to control each channel, and pressing and holding a scene button on the LMRH-105 to memorize the new levels.

Applications

The LMRH-105 can be used anywhere that convenient dimming and scene control is desired. Conference rooms, training centers, lecture halls, and private offices are all ideal applications for this device.

Features

- Provides remote IR scene control of lighting in a DLM system in conjunction with at least one dimming Room Controller
- Hidden configuration button for easy access to Push n' Learn
- Communicates with DLM local network through any DLM IR-enabled device
- Battery operated
- Includes wall mount holster and all necessary mounting hardware
- Controls four scenes plus on/off and raise/lower
- LEDs confirm button presses
- RoHS compliant

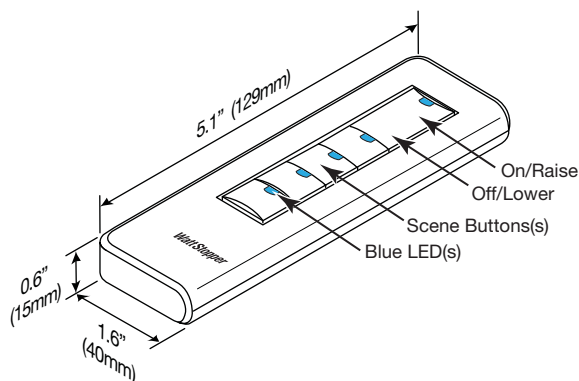


Specifications

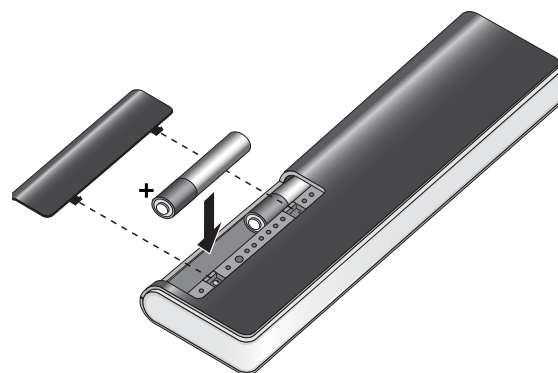
- Operates on 3 AAA 1.5 volt batteries (included)
- DLM local network connection: IR transceiver
 - Range of IR transmission: up to 32 ft. (10m)
 - Angle of IR reception: 30°
- 5 control buttons, each with LED indicator
- Hidden configuration button to access Push n' Learn
- Weight: approx. 3.2 oz. (91g), without mounting bracket
- Operating conditions: for indoor use only; 32-95°F (0-35°C); 5-95% RH, non-condensing
- FCC part 15 compliant
- Five year warranty

Controls & Dimensions

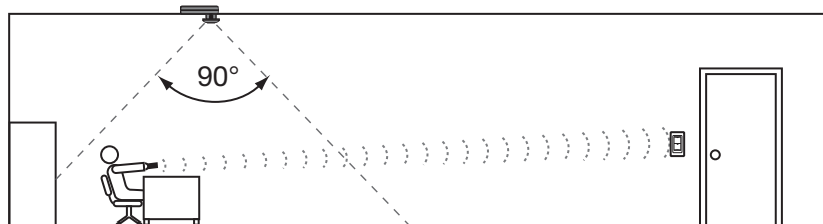
Product Controls and Dimensions



Inserting Batteries into the Remote Controls



IR Range



The LMRH-105 operates DLM lighting loads by transmitting IR signals to any DLM IR-enabled device within line of sight in a range of approximately 32 feet (10 meters).

Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMRH-105	Digital 5-Button IR Scene Remote Control

Daylighting Sensors

WattStopper has pioneered the latest control technologies, and makes it easy for specifiers and installers to successfully incorporate daylighting control in their projects.

Compact, low profile DLM sensors feature calibration that is simple, or even automatic.

Single Zone, Closed-Loop Control

- On/off control
- 0-10 volt dimming control
- Compatible with personal controls

Developed for Simplified Start Up

- Self-calibrating on/off sensor
- Dimming sensor is configured with handheld remote

Fully Featured for Reliable Operation

- Optimized field of view
- Accurate photocell response
- Adjustable setpoints and parameters



LMLS-105 On/Off Photosensor

Single zone, on/off switching daylighting sensor

Automatic calibration

Component of Digital Lighting Management integrated control systems



Multiple user-adjustable control parameters

Easy-to-read LCD display and LED status indicator

Digital multi-band photosensor

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMLS-105 On/Off Photosensor is a single zone switching device designed for closed loop daylighting applications. It includes an advanced digital multi-band photosensor positioned behind a 100° cone that cuts off unwanted light, preventing false triggers; an on-board microcontroller; and an LCD display. The LMLS-105 has an extended range of 1-1,400 footcandles and is an optional part of a WattStopper Digital Lighting Management (DLM) system.

Operation

The LMLS-105 operates on Class 2 power supplied to a DLM local network by one or more DLM room controllers. On and off setpoints can be selected either automatically or manually. When ambient light levels exceed the off setpoint, the controller turns lighting off. It will turn connected lighting back on when the on setpoint is triggered. Because of its automatic calibration feature, many applications require little or no adjustment of the settings. The LMLS-105 can be integrated with any DLM wall switch or occupancy sensor. In Plug n' Go mode, the LMLS-105 defaults to controlling the first load in the DLM system.

Features

- Easy-to-read LCD display prompts installer through setup
- User-adjustable on setpoint, off setpoint and off setpoint time delay
- Test mode overrides programmed time delay, enabling installer to verify accuracy of settings
- Programmable in most daylight conditions
- Control load status verification allows testing and confirmation that wiring is correct
- Form factor designed to eliminate misalignment
- LED status indicator identifies when device is in test mode, or if device has switched lights on or off
- Mounting options for top-lit or side-lit applications

Automatic Startup and Calibration Options

The LMLS-105 features automatic setpoint calculations. As part of the process, the controlled load is first turned on for a brief interval to warm up the lamps, and then switched off. This process is repeated several times. At the completion of the calibration, values for the on and off setpoints will have been established. If the user programs the overall percent of controlled electric lighting (e.g. 100%, 66%, 50% or 33%) during setup, the LMLS-105 will automatically select the best control algorithm for the application. Manually adjustable parameters include deadband and time delay settings. If desired, the deadband can be adjusted to a value of 25, 50, 75, or 100 percent above the setpoint. The time delay can be adjusted to 3, 10, 20 or 30 minutes.

Applications

The LMLS-105 Photosensor can control any type of lighting: incandescent, fluorescent, compact fluorescent (CFL), HID, and LEDs. It is recommended for peripheral offices, cafeterias, warehouses and any other indoor area with daylight contribution.



Specifications

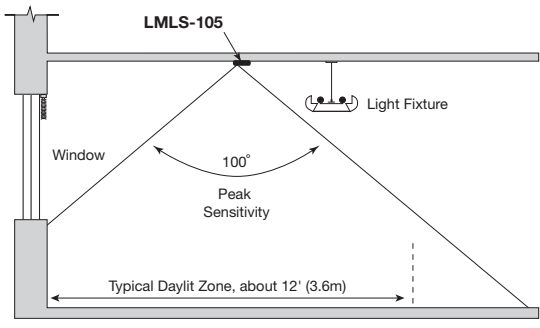
- Input voltage: 24VDC from DLM network
- Current consumption: 7 mA
- DLM local network connection: 1 RJ45 port via RJ45 plug and coupler (included)
- Automatic setpoint calculation
- Digital multi-band photosensor range: 1-1,400 fc (10-15,070 lux)
- On setpoint range: 1-850 fc (10-9,150 lux)
- Status indicator: multi-function green LED
- Operating conditions: for indoor use only; 32-120°F (0-49°C); less than 90% RH
- UL and cUL listed
- FCC part 15 compliant
- Five year warranty

Controls & Mounting

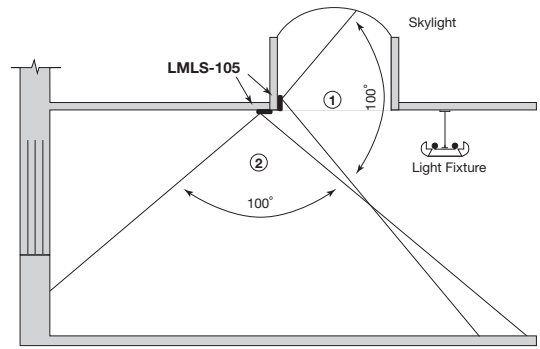
Product Controls and Deadband Adjustment Options

If the LMLS-105's photosensor lighting level drops below the on setpoint, the lights will remain on. If the sensor's lighting level rises above the off setpoint, the LMLS-105 will automatically turn the lights off. If the sensor's lighting level remains in the predetermined deadband range (25%, 50%, 75% or 100%) the lighting will be passive until the sensor's level reaches the high or low setpoints.

Placement for Side-lit Applications

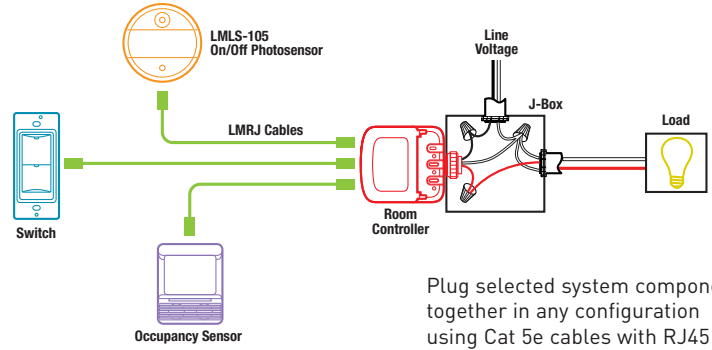


Placement for Top-lit Applications



Connecting

Sample Connection Diagram



Ordering Information

Catalog No.	Description	Photosensor Range	Deadband Adjustment Options
<input type="checkbox"/> LMLS-105	On/Off Photosensor	1-1,400 footcandles	25%, 50%, 75% & 100% above the on setpoint

LMLS-305 0-10 Volt Dimming Photosensor

Single zone, closed loop automatic dimming daylighting sensor

All setup performed remotely with LightSaver handheld or DLM wireless configuration tool

Component of Digital Lighting Management integrated control systems

Controls standard 0-10 VDC electronic dimming ballasts



Optional occupant adjustment via handheld remote

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMLS-305 0-10 Volt Dimming Photosensor is a single zone ceiling-mounted device that works with standard 0-10 VDC electronic dimming ballasts to dim lighting as the ambient light level increases. It is an optional part of a WattStopper Digital Lighting Management (DLM) system and is designed for closed loop daylighting applications.

Operation

The LMLS-305 operates on Class 2 power supplied to a DLM local network by one or more DLM room controllers. It is a closed loop photosensor that measures the total light level from daylight and electric light in the controlled area in order to adjust electric lighting levels. As the daylight contribution increases, the controlled lights dim down. The LMLS-305 features a sliding setpoint control algorithm to compensate for the different spatial distribution ratios of electric light and daylight. It calculates the required light level based on two setpoints. The night setpoint is the target level when no daylight is present. The day setpoint is the target level when significant daylight is present. In Plug n' Go mode, the LMLS-305 defaults to controlling the first load in the DLM system.

Adjustment via Handheld Remote Control

All LMLS-305 adjustments can be made either with the LightSaver LSR-301-S or the DLM LMCT-100 handheld remotes. The LSR-301-S provides five buttons for initial setup, which is easily completed by first raising or lowering electric lighting to desired levels, then programming this target level into the photosensor. The LMCT-100 uses simple, menu-driven screens for users to adjust daylighting parameters. In addition, an occupant remote control (LSR-301-P) provides an easy tool for use by occupants in adjusting light levels. With this optional tool, users can increase target light levels by up to 25% or reduce them to the lamp/ballast minimum level. Pressing the "Auto" button returns the control to programmed levels.

Applications

The LMLS-305 is designed to blend into its surroundings when installed in any environment. It provides one zone of daylighting control for applications such as private offices or classrooms. The LMLS-305 can be combined with a DLM occupancy sensor and a DLM wall switch.

Features

- Provides precise control of lighting to maintain desired light level
- Extremely linear photocell response with greater than 1% accuracy
- Designed to measure light as the human eye perceives it and eliminate overreporting of illumination levels provided by daylight
- Separate handheld remote controls for setup and occupant adjustment to prevent tampering
- Boosts energy savings by reducing maximum lamp output, often resulting in savings of 20%, or more, compared with lights at full output
- Achieves lumen maintenance by holding target light level as lamp output decreases over time

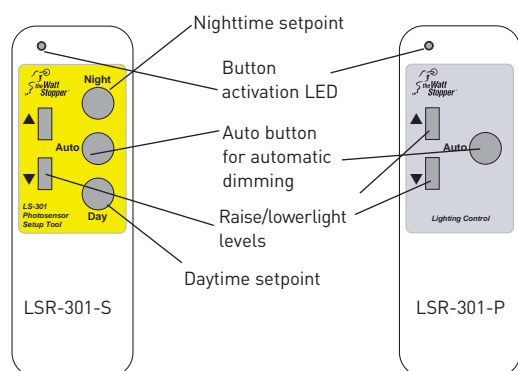


Specifications

- Input voltage: 24VDC from DLM network
- Current consumption: 30 mA
- DLM local network connection: 1 RJ45 port via RJ45 plug and coupler (included)
- Full range dimming: .2 VDC (minimum) to 10 VDC (100% lighting) output voltage
- 0-10VDC signal: grey and violet to ballast
- Controls up to 50 standard dimming ballasts
- Setpoints are adjustable from 20-60 footcandles (210-640 lux)
- Operating conditions: for indoor use only; 32-120°F (0-49°C); less than 90% RH
- UL and cUL listed
- FCC part 15 compliant
- Five year warranty

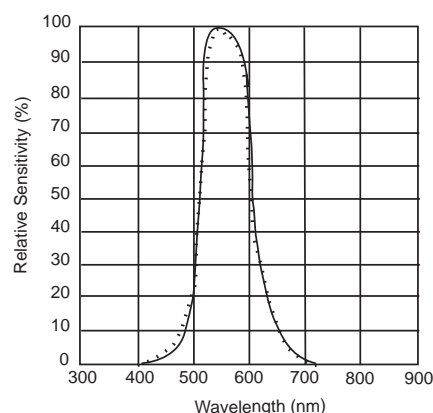
Controls & Response

Remote Controls



Remote handheld (above left) enables easy setup while optional occupant remote (above right) provides adjustability for individual lighting preferences.

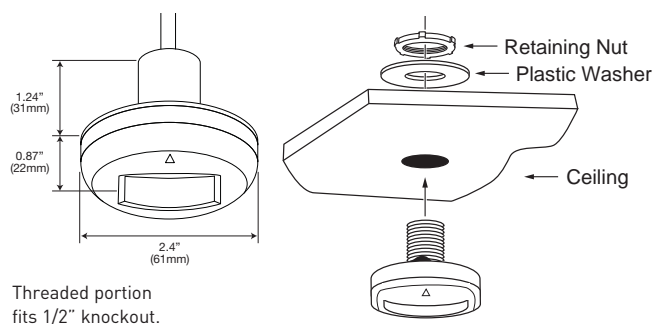
Spectral Response Curve



The spectral response of the LMLS-305 photocell closely matches the sensitivity of the human eye.

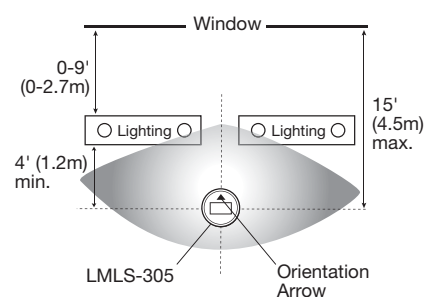
Installation & Placement

Mounting and Installation



Threaded portion fits 1/2" knockout.

Placement

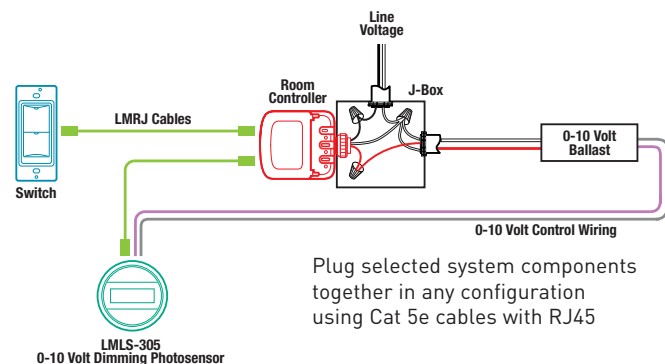


Placement Guidelines

- Mount photocell between 6 and 12 feet (1.8m - 3.7m) from window.
- Do not mount directly above direct/indirect pendant fixtures. Mount at least 4 feet (1.2m) from pendant fixtures.

Connecting

Sample Connection Diagram



Plug selected system components together in any configuration using Cat 5e cables with RJ45

Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMLS-305	0-10 Volt Dimming Photosensor
<input type="checkbox"/> LSR-301-S	Setup Remote Control (2 AAA batteries included)
<input type="checkbox"/> LSR-301-P	Occupant Remote Control (2 AAA batteries included)
<input type="checkbox"/> LMCT-100	Wireless Remote Configuration Tool

Configuration Tools

WattStopper offers the only wireless remote for system configuration and data storage. Installers can use one tool for all their DLM projects.

Designers of large, complex installations can configure DLM right from their personal computers using WattStopper software and a USB key.

Ladder-Free Configuration Options

- Wireless infrared (IR) configuration tool
- PC software and USB interface

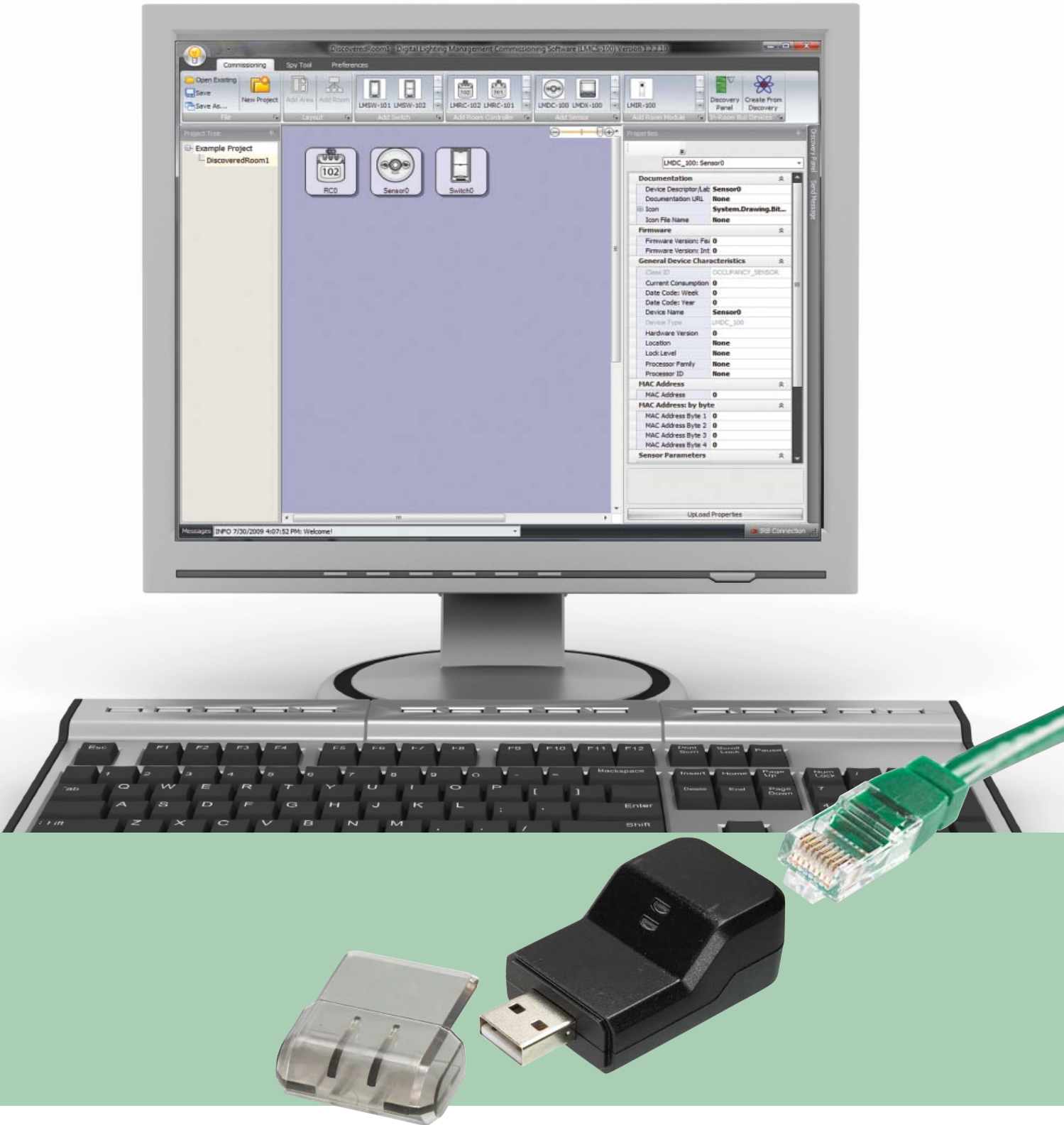
Support for Energy Managers

- Simplified customization for aggressive energy savings
- Software allows real time monitoring of DLM system communications

Time Saving Capabilities

- Copy settings from one room or installation to another
- Use setup and calibration data to prepare LEED documentation





LMCT-100 Digital Wireless Configuration Tool

Wireless advanced configuration capabilities for Digital Lighting Management systems

2-way IR communication for data upload, download and storage

Component of Digital Lighting Management integrated control systems

Easy-to-use navigation pad

Easy-to-read OLED screen

Pushbutton adjustability for single or multiple sensors



PROJECT

LOCATION/TYPE

Product Overview

Description

The LMCT-100 Wireless Digital Configuration Tool is a handheld tool for advanced remote configuration of any Watt Stopper Digital Lighting Management (DLM) system. The tool enables system and device modifications via pushbutton, without ladders or tools, as well as easily duplicating settings between DLM local networks.

Operation

Powered by three AAA batteries, the LMCT-100 features an easy-to-read organic LED (OLED) screen. Its intuitive navigation pad provides a familiar interface for users, who receive system status information via bi-directional communication between system devices and the LMCT-100. With this information, a user can see the current system parameters of a DLM local network and make load parameter or daylighting configuration changes. This requires navigating through simple menu screens and a few button presses. Adjustable occupancy sensor parameters include sensitivity, time delay, trigger and re-trigger modes and more. Load parameter settings (also referred to as Push 'n' Learn) include blink warning, Auto- or Manual-on mode, and re-assigning specific loads to different DLM devices without requiring any new wiring. Daylighting adjustments include initial setup as well as setpoint adjustments.

Configuration and Personalization

The LMCT-100 simplifies the replication of DLM system settings from one DLM local network to another. For instance, occupancy sensor, load and daylighting parameters can be saved in the LMCT from one application and be copied to another DLM local network. For projects where identical settings may be desired across a large number of spaces, this capability provides a streamlined method of configuration. Settings can be copied throughout a building or in different buildings; for instance, if identical occupancy sensor settings are desired throughout a multi-building office park, the LMCT can broadcast the same settings in any DLM local network.

Applications

Designers and installers can use the LMCT-100 to ensure conformity with design intent, such as implementing appropriate occupancy sensor time delays in applications. Users may adjust load configurations as needed; for instance, to change a load configuration in a classroom so that one sensor controls lighting in the front while a different sensor controls lighting in the rear of the room. In spaces where occupants display very minor motion, sensitivity settings may be increased to improve detection. In addition, daylight level setpoints may be adjusted to achieve more energy-efficient operational profiles.

Features

- Remotely reconfigures and reports DLM occupancy sensor parameters: PIR and ultrasonic sensitivity; time delay; walk through mode; trigger mode (for dual technology sensors)
- Remotely reconfigures DLM daylighting controller settings (day and night setpoints, raise and lower levels)
- Push 'n' Learn functionality for system customization
- Remotely reconfigures and reports DLM load configuration settings: blink warning (on/off); binding /unbinding of sensors; profile (read only)
- RoHS compliant

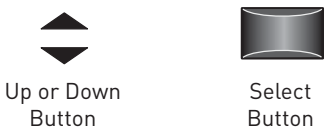
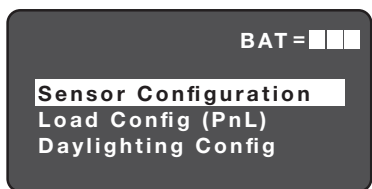
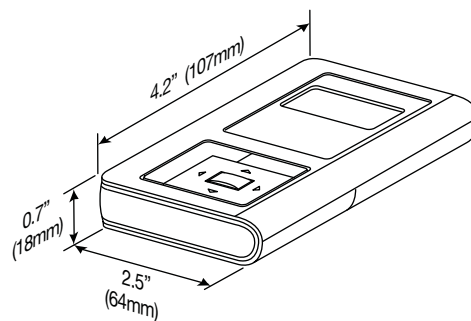
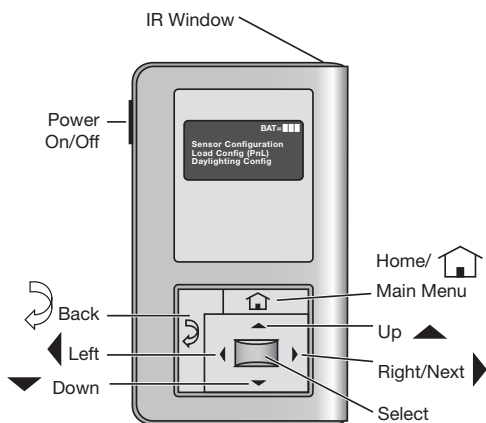


Specifications

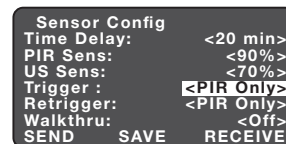
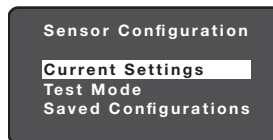
- Three AAA 1.5 volt batteries (included)
- OLED display 1.4"W x .75"H (36mm x 19mm)
- Infrared (IR) transceiver (36kHz frequency)
- Operating temperature: 32-104°F (0-40°C)
- FCC part 15 compliant
- Five year warranty

Configuration Menus

LMCT-100 Handheld Remote with Menu Screens



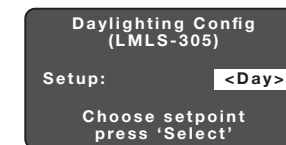
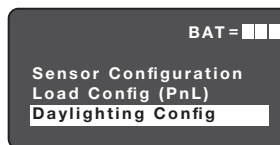
The Home (or Main) menu displays after the power-up process completes. It contains information on the battery status and three menu choices.



The Sensor Configuration function enables users to change sensor parameters, including time delay and sensitivity, save configurations, enter test mode and apply saved configurations.



The Load Configuration function (also referred to as Push n' Learn) enables users to identify load numbers, view and change load parameters and load bindings to sensors.



The Daylighting Configuration function enables users to establish and adjust setpoints for the LMLS-305.

Ordering Information

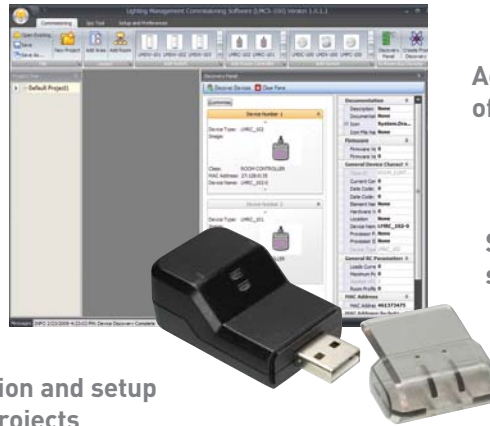
Catalog No.	Description
<input type="checkbox"/> LMCT-100	Digital Wireless Configuration Tool

DLM Computer Interface Tools and Software

PC interface tool and software for configuring DLM systems

Components of Digital Lighting Management integrated control systems

Provides valuable calibration and setup documentation for LEED projects



Active real-time monitoring of DLM system

Setup wizards and realistic system graphics

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMCI-100 Digital Computer to DLM interface connects to a PC's USB port running the LMCS-100 Digital Lighting Management computer software and to a Digital Lighting management (DLM) system through the RJ45 connector. The computer tools allow users to read, store and modify DLM system configurations.

Operation

The user connects the LMCI-100 to a DLM local network by plugging an LMRJ cable connected to that network into the device's RJ45 port. To connect to the LMCS-100 software, the user plugs the LMCI-100's USB connector into the USB port of a PC, then starts up the LMCS-100 software. **LMRJ cables should never be plugged into an Ethernet port on a computer or wall.**

PC-Based Control

LMCS-100 software features intuitive graphics and wizards to identify current DLM system settings, allowing users to easily store or modify settings. With the software, users can also reconfigure DLM devices by changing load assignments or sensor parameters. It also includes a DLM local network protocol monitor that enables users to see any messages being transmitted on a DLM system, a capability useful for troubleshooting.

Applications

Designers of larger and more complex installations can take advantage of these computer interface tools to simplify project design, startup, and documentation. For instance, a designer can use "drag and drop" functionality to design a DLM local network, pre-configure all network parameters, and document the project from the convenience of a laptop. Furthermore, the LMCI-100 and LMCS-100 facilitate preparation of documentation for LEED projects.

Features

LMCI-100:

- RJ45 and USB connectors to interface between DLM network and PC
- For use with LMCS-100 software
- RoHS compliant

LMCS-100:

- Windows based
- Easy-to-use graphical user interface
- Setup wizards
- For use with LMCI-100 Digital Computer to DLM Interface



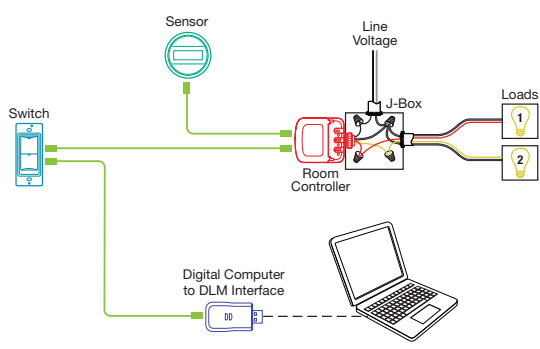
Specifications

- LMCI-100:
- NOT FOR USE WITH ETHERNET CONNECTIONS
 - PC connection: USB connector with removable cover
 - DLM local network connection: 1 RJ45 port
 - LED for signal sent indication
 - Operating temperature: 32 - 95°F (0 - 35°C)
 - FCC part 15 compliant
 - Five year warranty

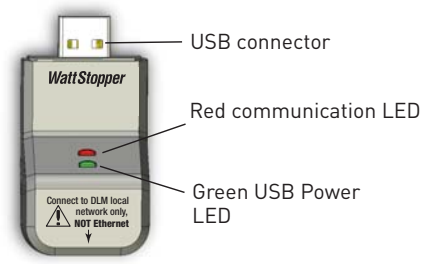
- LMCS-100:
- Automatically searches for more recent versions
 - Requires PC with USB port running Windows 7, Windows XP Pro, or Vista

Connections to DLM System

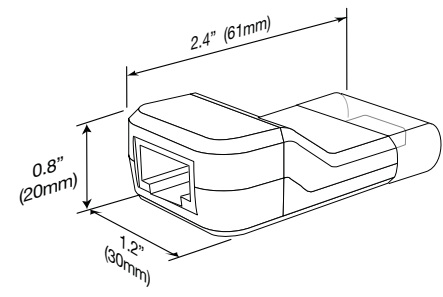
Connecting to a DLM Local Network



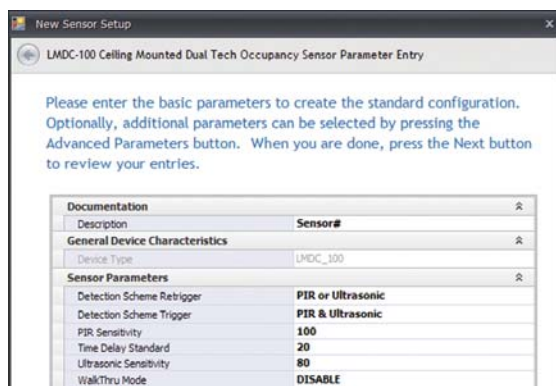
LMCI-100 Indicators



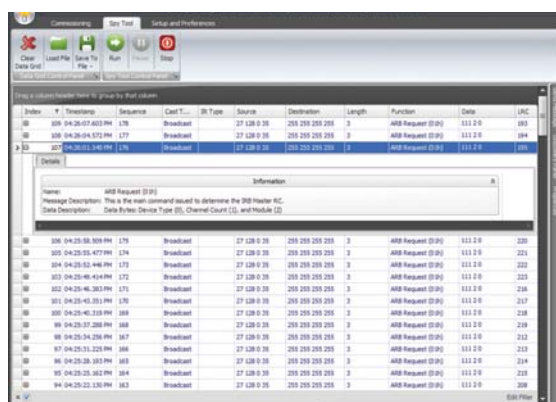
LMCI-100 Dimensions



LMCS Software



An easy-to-use wizard guides users through system setup.



A network protocol monitor maintains real-time review of DLM network activities.

Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMCI-100	Digital Computer to DLM Interface
<input type="checkbox"/> LMCS-100	DLM Computer Software (automatically ships with LMCI-100)

Interfaces and Accessories

Interfaces provide connectivity to building automation systems and other third party systems for additional control options.

WattStopper cables, available in multiple lengths, provide guaranteed terminations and ensure good DLM local network communications. An infrared (IR) receiver expands the DLM local network.

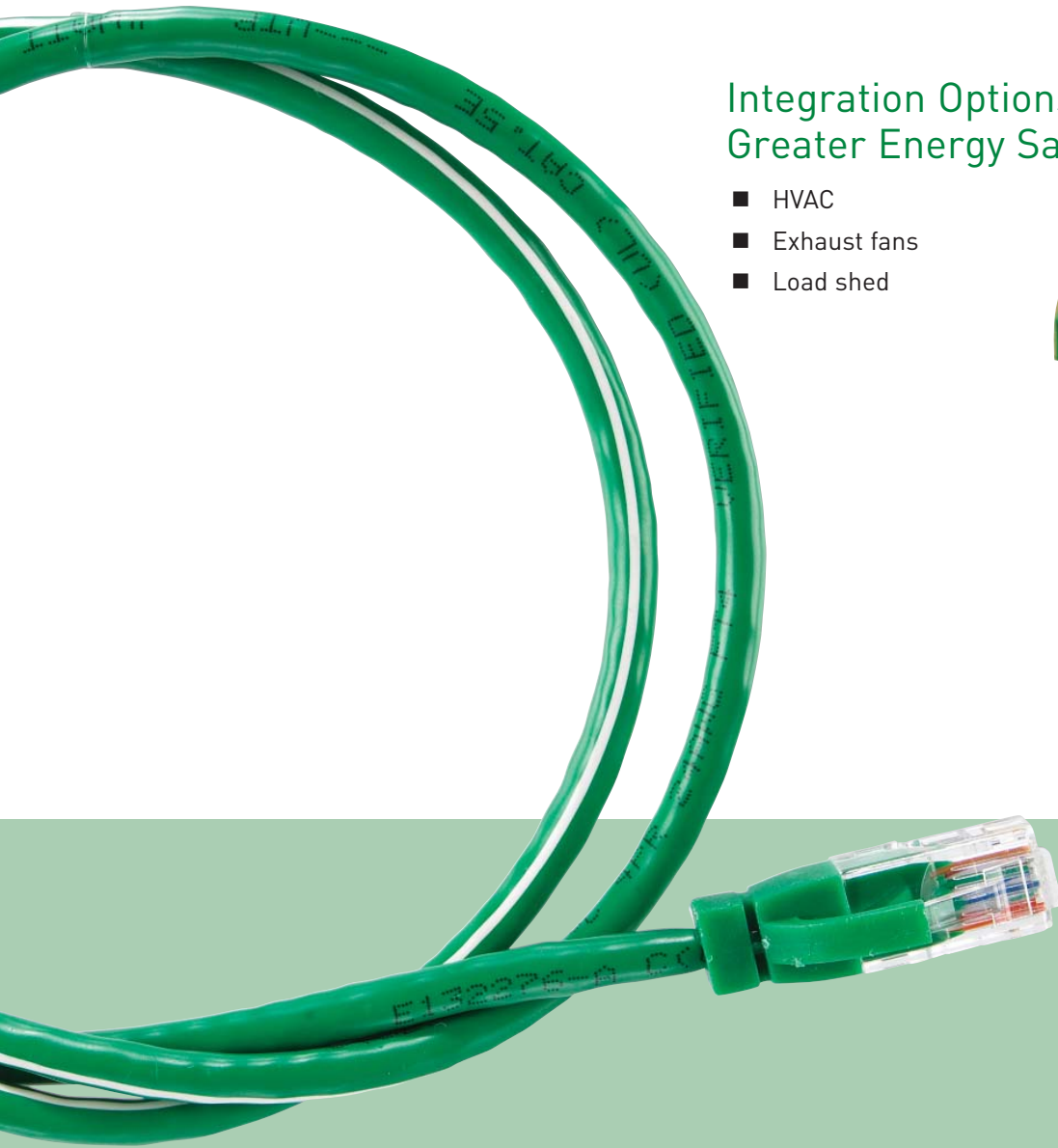
Choice of Interfaces

- Isolated relay output interface
- Input/output interface for multiple inputs

Accessories Enhance DLM Local Networks

- Pre-terminated cables for convenience and reliability
- IR receiver permits control from remote locations





Integration Options for Greater Energy Savings

- HVAC
- Exhaust fans
- Load shed



LMRJ Series Pre-Terminated Cables and Accessories

Pre-terminated cables in lengths up to 100 feet

Unique green color and markings for DLM provide easy identification in plenum

UL and cUL listed and labeled

Components of Digital Lighting Management integrated control systems



Support Plug n' Go and Push n' Learn functionality

Available in plenum and non-plenum rating

PROJECT
LOCATION/TYPE

Product Overview

Description

LMRJ series cables connect Digital Lighting Management (DLM) components without the need for tools or point-to-point discrete wiring. Cables are pre-terminated with industry standard RJ45 connectors compatible with any RJ45 port on DLM components.

LMRJ cables utilize B to B wiring. A to A cables may be used instead, but all cabling on a project must be the same type for successful operation.

Operation and Applications

LMRJ cables can be plugged into any available RJ45 port on a DLM device and connected to any connection on another DLM device. These cables facilitate the creation of a DLM local network of DLM components that automatically configure and function together. While LMRJ series cables are rated Cat 5e, they are not recommended for general data use in other than DLM network applications.

Ordering Information

Catalog No.	Description	Type
<input type="checkbox"/> LMRJ-01	Six-inch Jumper, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-03	3' Cable, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-10	10' Cable, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-15	15' Cable, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-25	25' Cable, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-50	50' Cable, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-100	100' Cable, green with white stripe	Non-plenum rated
<input type="checkbox"/> LMRJ-P03	3' Cable, green with black stripe	Plenum rated
<input type="checkbox"/> LMRJ-P10	10' Cable, green with black stripe	Plenum rated
<input type="checkbox"/> LMRJ-P15	15' Cable, green with black stripe	Plenum rated
<input type="checkbox"/> LMRJ-P25	25' Cable, green with black stripe	Plenum rated
<input type="checkbox"/> LMRJ-P50	50' Cable, green with black stripe	Plenum rated
<input type="checkbox"/> LMRJ-P100	100' Cable, green with black stripe	Plenum rated
<input type="checkbox"/> LMRJ-C8	Coupler (two ports to connect two cables end to end)	Non-plenum rated
<input type="checkbox"/> LMRJ-S8	Splitter (three ports for one input and two output connections)	Non-plenum rated
<input type="checkbox"/> LMRJ-TK	Cable Test Kit	

LMIR-100 Digital IR Ceiling Mount Receiver

Extends the operating range for DLM IR-enabled handheld remotes controls

Component of Digital Lighting Management integrated control systems



Low profile styling fits in fixture or blends seamlessly with any ceiling

Communication LED

PROJECT
LOCATION/TYPE

Product Overview

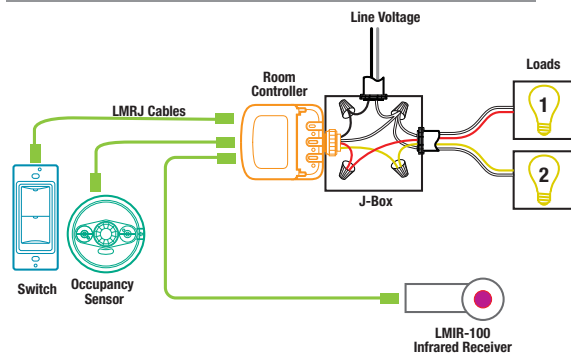
Description

The LMIR-100 Digital IR Ceiling Mount Receiver provides an infrared (IR) interface so that Digital Lighting Management (DLM) IR remote controls can be used where DLM sensors or switches are not easily accessible for wireless communication.

Operation

The LMIR-100 operates on power from the DLM local network. It uses an infrared transceiver to accept commands from DLM IR remote controls and transmits them over the DLM local network. It is recommended for applications where the wall- and ceiling-mounted IR-enabled DLM devices are not within direct line of sight of the occupant using the IR remote control, or are not close enough to the user.

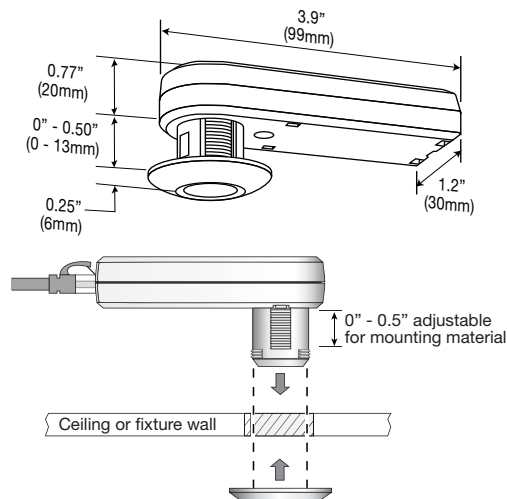
Connecting



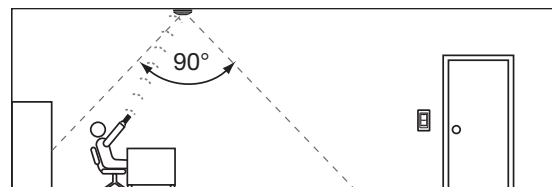
Specifications

- Input voltage: 24VDC from DLM network
- Current consumption: 5mA
- DLM local network connection: 1 RJ45 port
- IR transceiver: 90° window; 32 ft. (10m) range
- Operating conditions: for indoor use only; 32-131°F (0-55°C); 5-95% RH, non-condensing
- UL and cUL listing pending
- FCC part 15 compliant
- Five year warranty

Dimensions and Mounting



IR Receiving/Transmitting Coverage



Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMIR-100	Digital IR Ceiling Mount Receiver

LMRL-100 Isolated Relay Interface

Output interface for integration of third party systems

Component of Digital Lighting Management integrated control systems

Hinged dust cover over two RJ45 ports



Single-pole double throw isolated relay

Fits into standard single gang wallbox; optional DIN rail mounting

Status LED for isolated relay

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMRL-100 Isolated Relay Interface is an optional component for a Digital Lighting Management (DLM) system. It enables seamless integration of third party devices such as HVAC systems or exhaust fans.

Operation

The LMRL-100 device contains a single-pole, double throw isolated relay with normally open (N/O), normally closed (N/C) and common outputs. While the LMRL-100 resides on a DLM local network, it only receives signals from other devices on the network and does not transmit data via the DLM protocol. Furthermore, the device is not assignable to a specific load or room controller. The LMRL-100 activates in response to a signal from any DLM occupancy sensor on the network.

Convenient, Flexible Form Factor

Featuring a small form factor, the Isolated Relay Interface fits within a single-gang wallbox as well as standard junction boxes. The sleek size enables the device to be conveniently located near VAV boxes or other building system devices for maximum installation flexibility. The LMRL-100 can also be DIN rail mounted if desired.

Applications

The LMRL-100 is ideal for integrating third party controls with DLM lighting controls in a variety of applications. Suitable applications include coordinated control of lighting and HVAC based on occupancy detection in lunch rooms, break rooms or classrooms.

Features

- Integrates WattStopper Digital Lighting Management with any analog low voltage device
- Single LED for relay status
- Over-current protection
- Two RJ45 ports with hinged dust cover
- UL 2043 plenum rated
- RoHS compliant

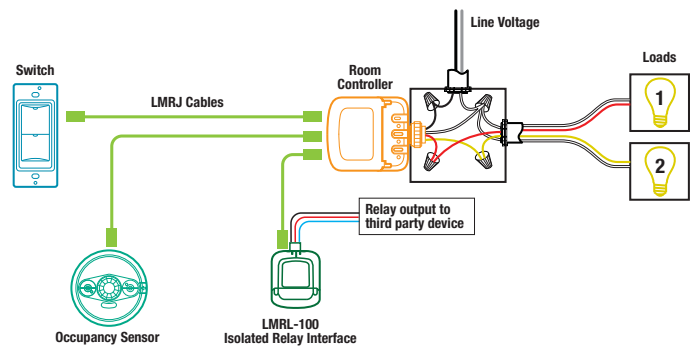


Specifications

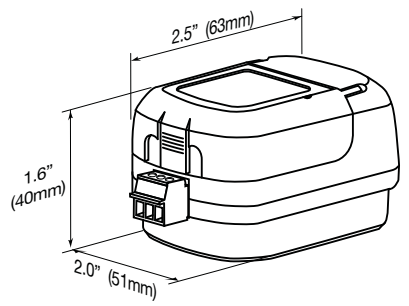
- Operating voltage: 24VDC from DLM network
- Isolated relay ratings:
 - 24VDC/VAC, 1A, SPDT
 - Normally open (N/O), normally closed (N/C) and common outputs
- Current consumption: 7mA
- DLM local network connection: 2 RJ45 ports
- Operating conditions: for indoor use only; 32°-104°F (0-40°C)
- Fits inside 4" x 4" j-box, 1-gang back box or 3" octagonal box; optional DIN rail mounting
- UL and cUL listing pending
- FCC part 15 compliant
- Five year warranty

Wiring and Mounting

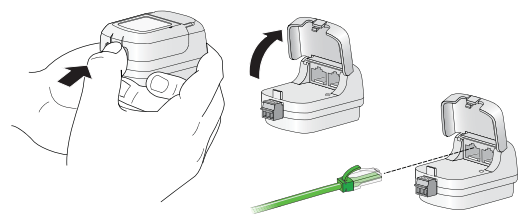
Connections to a DLM Network



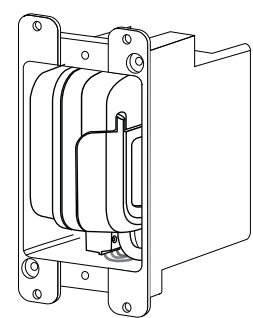
Dimensions



Mounting Options

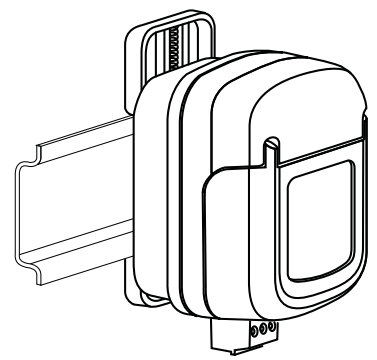
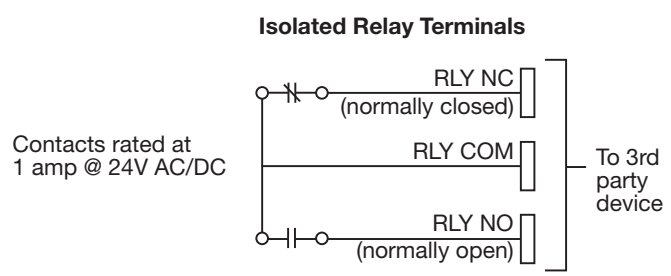


Installing LMRJ cable in Isolated Relay Interface.



Mounting inside single-gang wall box.

Isolated Relay Wiring



Mounting on DIN rail.

Ordering Information

Catalog No.	Description
<input type="checkbox"/> LMRL-100	Isolated Relay Interface

LMIO-101 Digital Input/Output Interface

Input/output interface for integration of third party devices

Component of Digital Lighting Management integrated control systems

Hinged dust cover protecting two RJ45 ports



Isolated relay output and inputs for up to three control devices

Fits into standard single gang wallbox; optional DIN rail mounting

Status LED for each input and output

PROJECT
LOCATION/TYPE

Product Overview

Description

The LMIO-101 Digital Input/Output Interface allows seamless integration with third party devices to provide additional functionality in a Digital Lighting Management (DLM) system.

Operation

The LMIO-101 operates on power from the DLM local network. It contains a 24VDC isolated relay (single-pole, double throw with normally open (N/O), normally closed (N/C), and common outputs) for output to other systems. The isolated relay can respond to any DLM occupancy sensor on the DLM local network. The LMIO-101 also includes a 24VDC output and four input terminals for maintained or momentary switch closure inputs, or third party logic inputs. Input signals may come from a wide variety of devices including building automation systems, time clocks and key switches, for purposes including hold-on/hold-off, load shedding and cleaning. The LMIO-101 has DIP switch-selectable profiles to allow different combinations of input signals to control different loads.

Default and Personalized Operation

In Plug n' Go automatic configuration mode, the isolated relay responds to every occupancy sensor on the DLM local network. Unlike the LMRL-100, the LMIO-101 can be reconfigured to respond only to selected occupancy sensors. Default operation for third party inputs is based on the configuration of the device's DIP switches. To change the occupancy sensor assignment, the user must access Push n' Learn mode, either directly from the LMIO device or via the LMCS software. With Push n' Learn, users may assign any load or sensor in a DLM local network to any input on the LMIO device.

Applications

The LMIO-101 is ideal for applications where integration of third party devices with lighting control is desired. The isolated relay allows coordinated control of lighting and HVAC based on occupancy detection while the multiple inputs permit control of any load on a DLM local network by other equipment, systems and devices. Applications include private and open offices, conference rooms, classrooms, training centers, lunch rooms and break rooms.

Features

- Plug n' Go configuration for quick and easy startup out of the box
- Push n' Learn functionality for personalizing system settings to accommodate application needs
- Self-contained switching power supply and relay system
- Five status LEDs and configuration LED
- Hold-on/hold-off, occupancy sensor, time clock, load shed, cleaning switch and key switch modes available through DIP switch configurations
- Over-current protection
- UL 2043 plenum rated
- RoHS compliant

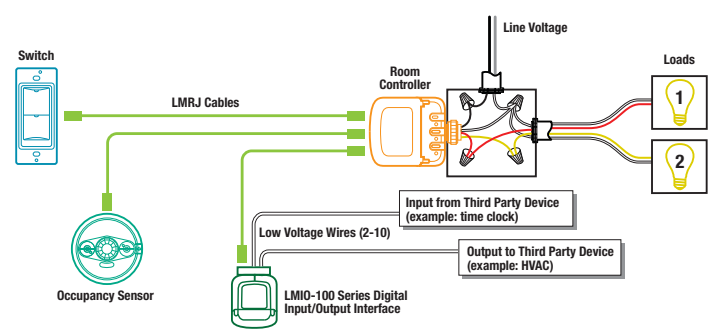


Specifications

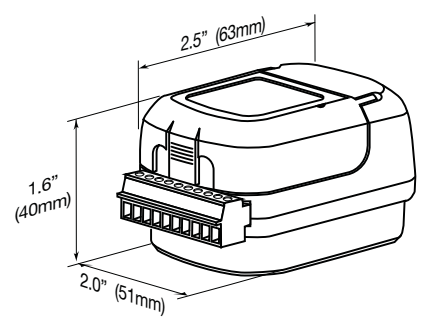
- Input/output voltage: 24VDC from DLM network
- Maximum current consumption: 20mA
- DLN local network connection: 2 RJ45 ports
- Removable terminal block for connections to isolated relay output and third party inputs
- Isolated relay ratings:
 - 24VDC/VAC, 1A, SPDT
 - Normally open (N/O), normally closed (N/C) and common outputs
- Input ratings:
 - Input max. sink/source current: 1- 5 mA
 - Logic input signal voltage High: >18 VDC
 - Logic input signal voltage Low: < 2 VDC
- Operating conditions; for indoor use only; 32-131°F (0-55°C)
- Fits inside 4" x 4" j-box, 1 gang back box or 3" octagonal box; optional DIN rail mounting
- UL and cUL listing pending
- Five year warranty

Wiring & Connection

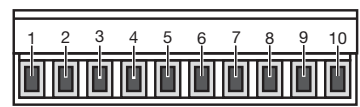
Connection to DLM Network



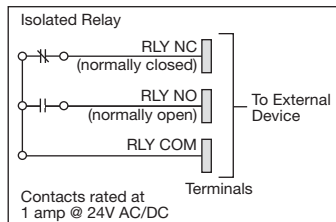
Dimensions



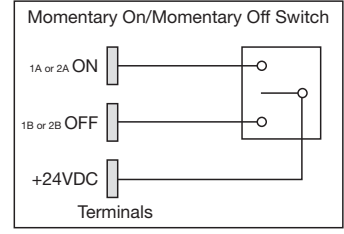
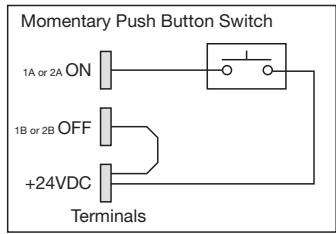
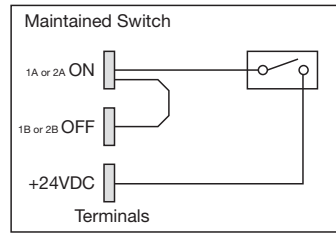
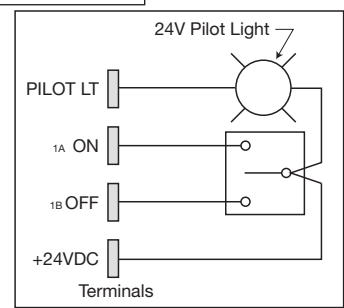
Wiring to 10-Position Terminal Block



Position (L - R)	Description
1	Relay Normally Open (N/O)
2	Relay Common
3	Relay Normally Closed (N/C)
4	COMMON
5	+24 VDC
6	Input 1A
7	Input 1B
8	Input 2A
9	Input 2B
10	Pilot Light



The isolated relay output is on terminals 1, 2 and 3. The relay responds to a signal from any DLM sensor.



Contact closure inputs from up to two low voltage switches are wired to inputs 1A (on) and 1B (off), terminals 6 & 7, and inputs 2A (on) and 2B (off), terminals 8 and 9. The LMIO-101 provides 24VDC to the switches on terminal 5.

Up to 3 logic inputs (e.g. load shed, hold-on/hold-off) from third party devices are wired to terminals 6, 7, 8 and 4 (common). The power for these inputs is provided by the logic device.

Ordering & Information

Catalog No.	Description
LMIO-101	Digital Input/Output Interface

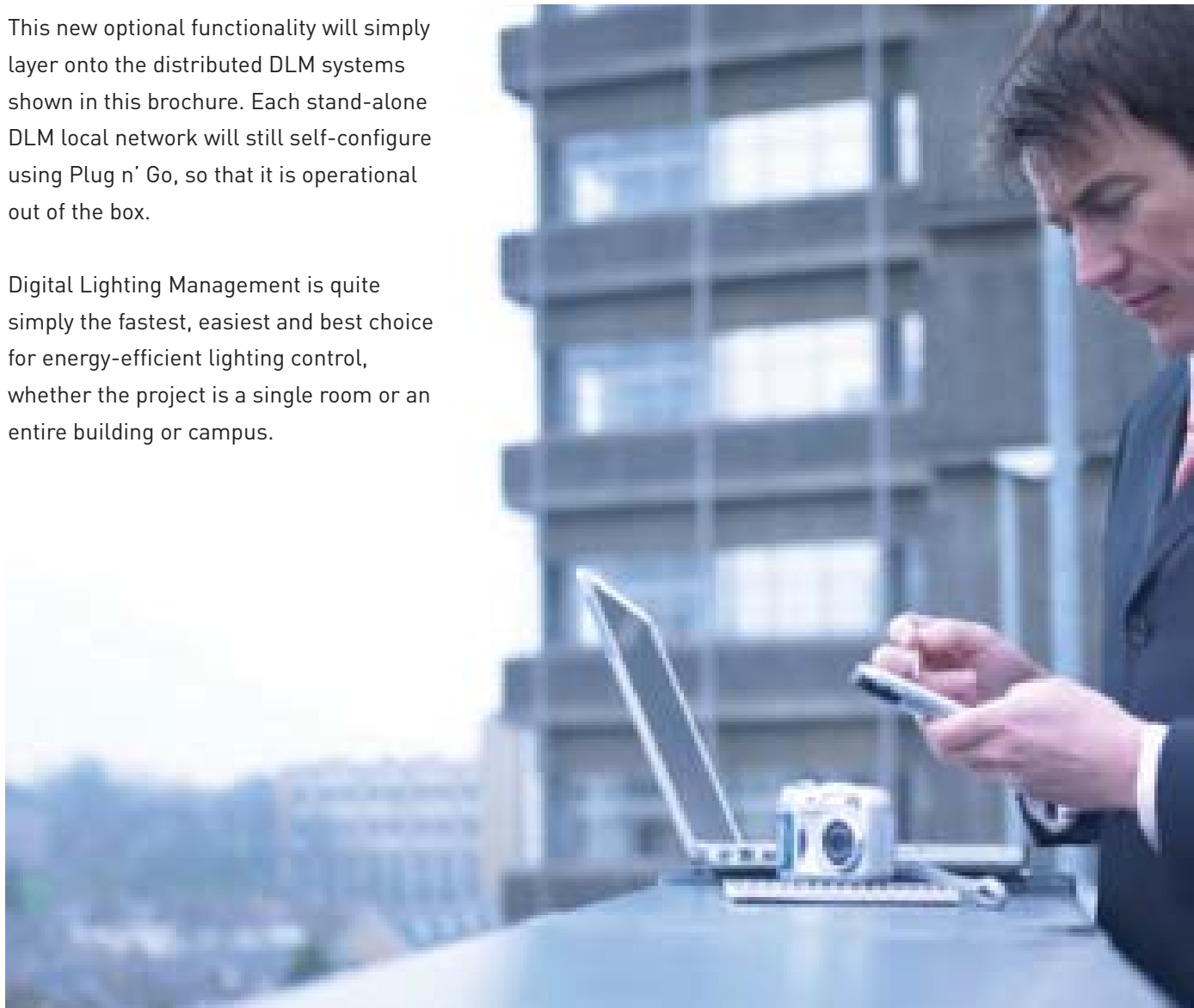
What's Next for Digital Lighting Management

In 2010, the DLM suite of controls introduced in this brochure will be complemented by the release of higher level control and networking solutions. This next release will enable the integration of multiple DLM local networks throughout a building, so that a facility manager can oversee the lighting control system from a PC using a web browser. New features will include:

- Time scheduling, including automatic activation of after-hours parameters
 - Control options for all building lighting including lobbies, corridors, exterior lighting and signage
 - Ability to centrally monitor and change parameters, including sensor time delays and sensitivity settings, on multiple DLM local networks
 - Power monitoring of connected lighting loads including trending and reporting capabilities
- 
- Intelligent building operations such as demand response
 - Seamless integration with building automation systems (BAS)
 - Integration with third party software and services using BACnet communications

This new optional functionality will simply layer onto the distributed DLM systems shown in this brochure. Each stand-alone DLM local network will still self-configure using Plug n' Go, so that it is operational out of the box.

Digital Lighting Management is quite simply the fastest, easiest and best choice for energy-efficient lighting control, whether the project is a single room or an entire building or campus.



WattStopper Resources & Tools



CAD Resource Center

- Over 300 CAD drawings from which to choose
- Wiring diagrams you can place in your own CAD drawings
- Available at www.wattstopper.com



Support & Services

- Layout and design services
- Commission and start-up services
- District managers, trained representatives and experts available to answer all technical questions



Continuing Education

- Courses throughout North America qualify for AIA/CES Health, Safety and Welfare (HSW) credit and NCQLP Lighting Education Units (LEUs)
- In-person and on-line events
- Course selection available at www.wattstopper.com



Product Selection Guide

- Compilation of product ordering information, cut sheets, design and application assistance

WattStopper®

2800 De La Cruz Blvd.
Santa Clara, CA 95050
Tech Support: 800.879.8585

www.wattstopper.com

WS-09-28310 rev. 8/2009