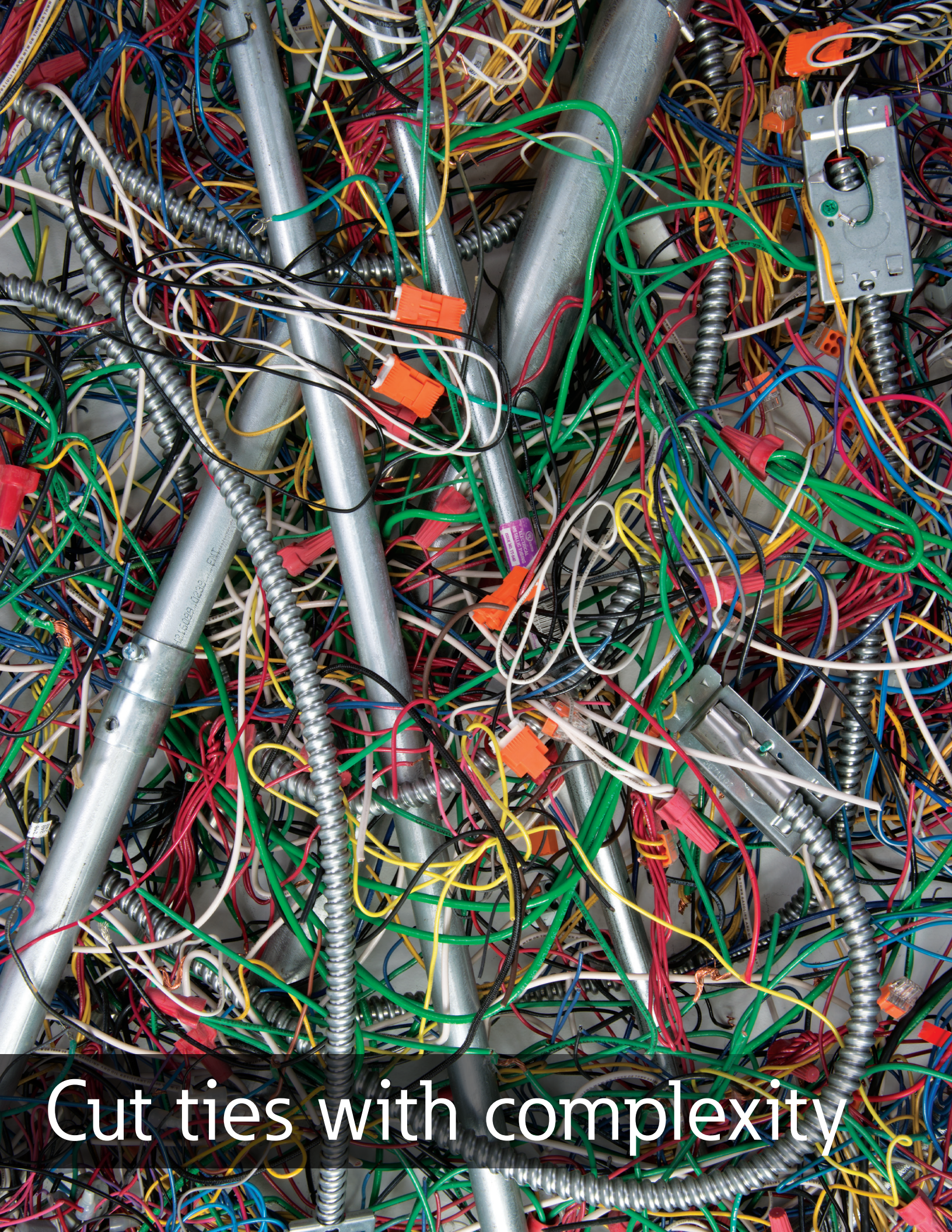
Distributed Low-Voltage Power System

design and application guide

EATON

Powering Business Worldwide



Cut ties with complexity

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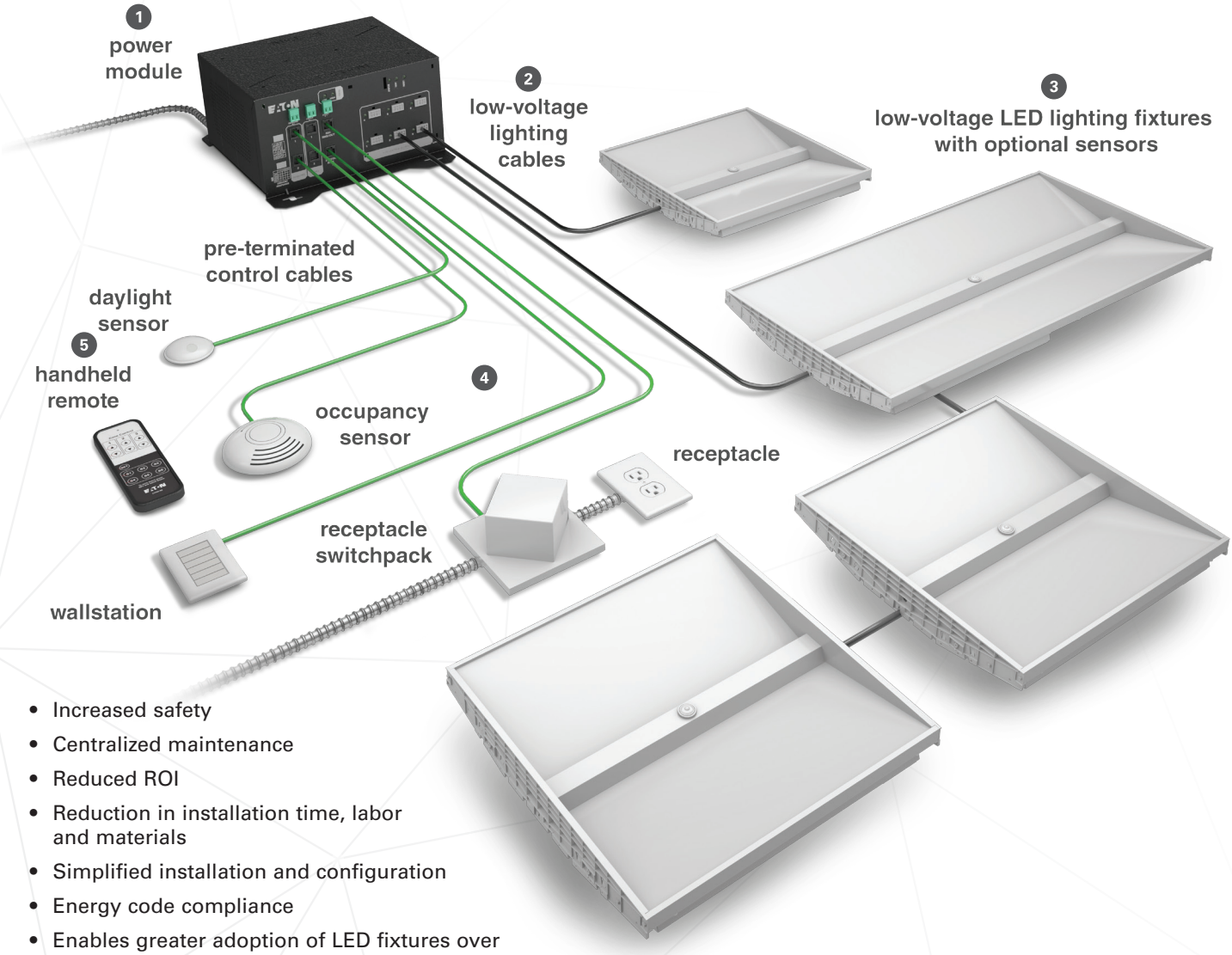
Distributed Low-Voltage Power System

The Distributed Low-Voltage Power System blends the benefits of both AC and DC power distribution to reduce the total installed cost of a lighting project by up to 20% while providing a completely flexible and electrically efficient solution.



- Increased safety
- Centralized maintenance
- Reduced ROI
- Reduction in installation time, labor and materials
- Simplified installation and configuration
- Energy code compliance
- Enables greater adoption of LED fixtures over fluorescent technology

The DLVP System can be specified and ordered based on project needs

LOW-VOLTAGE POWER MODULE
300W & 600W MODELS

1

- Centralized power conversion and system brain
- Integrated wiring compartment
- 120-277VAC 50/60Hz Input
- AC - DC (Class 2) conversion (up to 100W/low-voltage circuit)
- Passively cooled and plenum rated
- Integrates centralized UL924 emergency power (remote relay)

LOW-VOLTAGE LIGHTING CABLES

2

- Standards-based Belden cable with Tyco connectors
- Black for silent ceiling applications
- Provides power and communications in the same cable
- Pre-terminated, plenum rated, standard lengths
- Intuitive polarized locking connectors

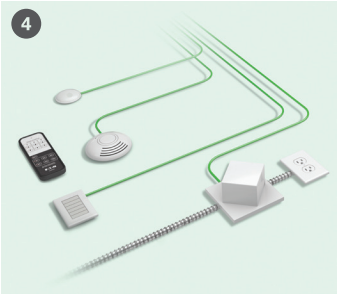
LOW-VOLTAGE LED FIXTURES

3

- Supports fixtures up to 75W
- Highly efficient and allows for daisy-chain wiring
- Integrated sensors and emergency battery packs available
- Multiple load types may exist on same low-voltage circuit
- Addressable fixtures ready for zone assignment

CONTROL DEVICES

4



- Occupancy sensors (occupancy and vacancy modes)
- Daylight / IR sensors
- Receptacle controls
- Wall station controllers
- Pre-terminated control cable connections
- NeoSwitch wall sensors

HANDHELD REMOTES

5

- Programming / configuration
- Personal control

Features & benefits

Contractor Benefits

- Simplified wiring with pre-terminated cables
- Up to 40% faster installation*
- Up to 20% lower installed system cost*
- Eliminates wiring errors
- Safer installation with low-voltage power
- Eliminates unnecessary line-voltage materials
- Easily configured by the installer
- Simplified energy-code compliance

Office, Education and Healthcare applications

- Configuration flexibility
- Reduced ROI, better value
- Energy code compliance
- Centralized maintenance
- Greater safety
- 1% dimming, dim to OFF

*versus room-based line voltage systems

System components

Low-Voltage Power Module

300W and 600W low-voltage power modules provide independent low-voltage circuits for on/off and dimming control by zone as well as coordinates all the actions from wallstations, daylight sensor and occupancy sensor.

Wallstation

Zone or scene wallstations provide an intuitive user interface for manual override with pre-engraved buttons describing their respective functionality.

Occupancy Sensor

Any Greengate low-voltage occupancy sensors can be used with the low-voltage power module; so select one to meet application requirements.

Daylight Sensor

Dimmable daylighting requirements have increased with the latest version of ASHRAE 90.1. The low-voltage power module daylight sensor allows up to three dimming zones to be controlled from a single open loop sensor.

Plug Load Control

Saving additional energy by shutting off vacated space plug loads is now part of ASHRAE 90.1, and is easily achieved with the Receptacle Switchpack paired with a low-voltage power module and occupancy sensing.

DISTRIBUTED LOW-VOLTAGE POWER SYSTEM COMPONENTS			
	300W Low-Voltage Power Module *Low-voltage power and control for areas up to 1,000 sq. ft.*		LVPM-03-100-03
	600W Low-Voltage Power Module *Low-voltage power and control for areas up to 2,000 sq. ft.*		LVPM-06-100-03
Manual Dimmer	**Scene Wallstations** *Programmable manual control*		RC-3TLB-P1-* RC-6TSB-P2-* RC-6TSB-P3-* RC-6TSB-P4-*
Manually Switched ON/OFF	**Zone Wallstations** *Pre-configured manual control*		RC-*

DISTRIBUTED LOW-VOLTAGE POWER SYSTEM COMPONENTS

Occupancy Sensor

Occupancy Sensor

Multiple coverage options from ceiling, wall / corner, or wall / switch mounted configurations

OAC-*
OAWC-*
ONW-*

Input/Output Device

Provides connection to any Greengate low-voltage occupancy sensor and BMS / egress system

OCC-RJ45

Daylighting Control

Daylight Sensor

Open loop sensor measuring natural light infiltration

DSRC-FMOIR

Receptacle Control

Receptacle Switchpack

20-amp on/off control of connected outlets

SPRC-R-20-120

Remote Signal Control

Pre-terminated Control Cable

Cables, couplings and splitters for the simplified connection to sensors and control devices

GGRJ45-*
GGRC-COUPLING
GGRC-SPLITTER

Manual Dimmer

Programming Remote / Personal Remote

Simplified connection to sensors and control devices

LVHH-01
LVHH-02

Remote Signal Control

Low-Voltage Lighting Cable

Pre-terminated power and control connections for light fixtures

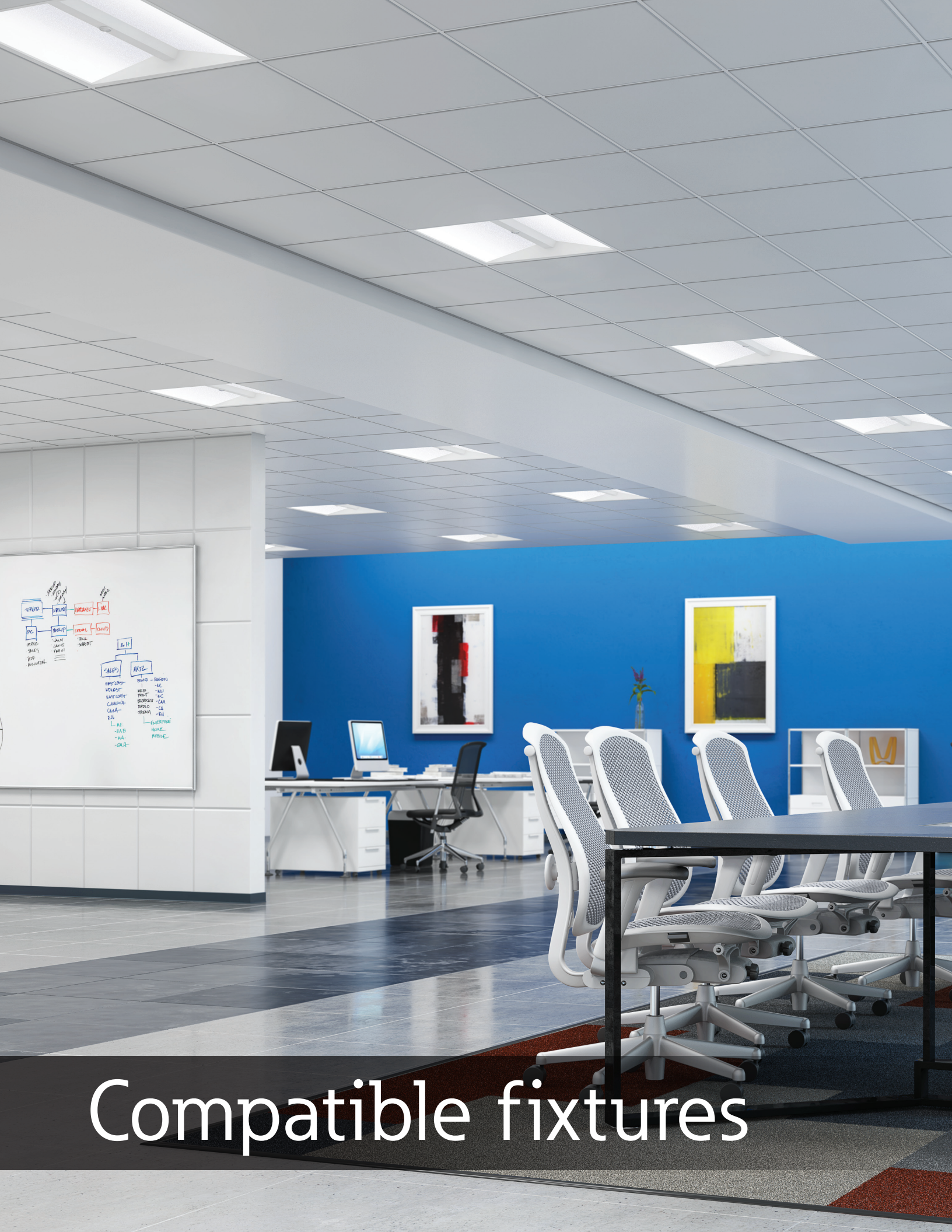
LVC-8P
LVC-15P
LVC-30P
LVC-WP
LVC-COUPLER

Demand Response

Open ADR Dry Contact Device

Virtual End Node provides signal to lighting control system

EBOX-2B-DC



Compatible fixtures

DISTRIBUTED LOW-VOLTAGE POWER SYSTEM FIXTURES

Corelite Bridge

1x4, 2x2 and 2x4 fixtures available

- *Available with or without integrated sensors*
- *7W and 14W emergency battery packs available*

14BRG-*
22BRG-*
24BRG-*

Metalux Encounter

1x2, 1x4, 2x2 and 2x4 fixtures available

- *Available with or without integrated sensors*
- *7W and 14W emergency battery packs available*

12EN-*
14EN-*
22EN-*
24EN-*

Metalux ArcLine

1x4, 2x2 and 2x4 fixtures available

- *Available with or without integrated sensors*
- *7W and 14W emergency battery packs available*

14ALNG-*
22ALNG-*
24ALNG-*

Metalux Cruze
Metalux Cruze SE

1x4, 2x2 and 2x4 fixtures available

- *Available with or without integrated sensors*
- *7W and 14W emergency battery packs available*

14CZ-*
22CZ-*
24CZ-*

Metalux SkyRidge

1x2, 1x4, 2x2 and 2x4 fixtures available

- *Available with or without integrated sensors*
- *7W and 14W emergency battery packs available*

12SR-*
14SR-*
22SR-*
24SR-*

Metalux FRLED

2x2 and 2x4 fixtures available

- *Integrated sensors currently unavailable for this model*
- *7W and 14W emergency battery packs available*

22FR-*
24FR-*

Metalux GRLED

1x4, 2x2 and 2x4 fixtures available

- *Integrated sensors currently unavailable for this model*
- *7W and 14W emergency battery packs available*

14GR-*
22GR-*
24GR-*

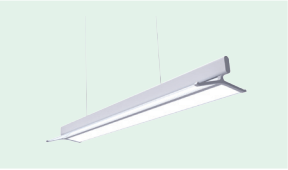
DISTRIBUTED LOW-VOLTAGE POWER SYSTEM FIXTURES

Neo-Ray Covera™ with WaveStream™ technology

WaveStream LED

- *The curved WaveStream™ optic bends light for an elegant look with premium light distribution*
- *Uses Eaton's LuxWire™ for nearly invisible power through the suspension cables*

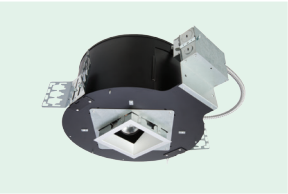
S930DIP-*



Neo-Ray Converge™ with WaveStream™ technology

- *Curved WaveStream™ optics bend light for an elegant look with premium light distribution*
- *Uses Eaton's LuxWire™ for nearly invisible power through the suspension cables*

S920DIP-*
S921DIP-*

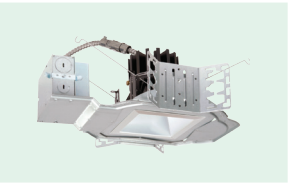


Portfolio LDSQA4A and LDSQA6A

LED square adjustable accent/slope

- *Requires Portfolio accessory kit*

LDSQA4A*
LDSQA6A*

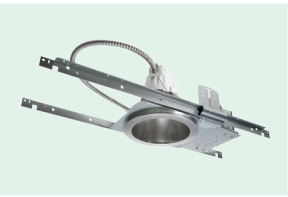


Portfolio LD4B, LDSQ4B, LD6B, and LDSQ6B

Round and square recessed downlight

- *Requires Portfolio accessory kit*

LD4B*
LDSQ4B*
LD6B*
LDSQ6B*



Halo Commercial PD6

6" LED downlighting

- *Available with or without integrated sensors*
- *Emergency options available*

PD6*
PD6RX*
PD6R*
PD56R*

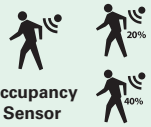
Halo Commercial PR8

8" LED downlighting with seleCCTable™

- *Available with or without integrated sensors*
- *7W and 14W emergency battery packs available (not available with PR8S)*

PR8*
PR8R*
PR8S*

Built-in energy saving lighting control strategies

STRATEGY	DESCRIPTION	ESTIMATED SAVINGS
 Manual Dimmer	Manual/personal dimming control – is one of five alternative methods to meet the multi-level lighting control requirements.	**10-20%**
 Occupancy Sensor	Occupancy/vacancy sensing – provides Manual On/Automatic Off or Automatic On/Automatic Off and Partial Off capabilities.	**20-60%**
 Daylighting Control	Daylight dimming – provides three daylight dimming zone that automatically adjust the lighting based on daylight available in the space, or fixture integrated sensors for completely granular daylighting control.	**20-45%**
 Receptacle Control	Plug load control – automatically turns On receptacles upon occupancy regardless of light status. Ensures receptacles are turned Off when the space is vacant.	**15-50% Controlled loads**
 Tuning Control	High-end/Task Tuning – lowers the maximum light level for automatic energy savings.	**10-30%**
 Demand Response	Demand Response – automatically reduces light level based on signal from OpenADR device or BMS closure.	**10-40%**
 Remote Signal Control	Remote Signal Control – Automatically sends a signal to the HVAC system based on occupancy.	**20%**

Out-of-the-box control strategies

Nonresidential indoor applications

SPACE LEVEL (AREA CONTROL)

REFERENCE

- Must be accessible to occupants to operate the lighting

Manually Switched ON/OFF

T24-2013
130.1(a)

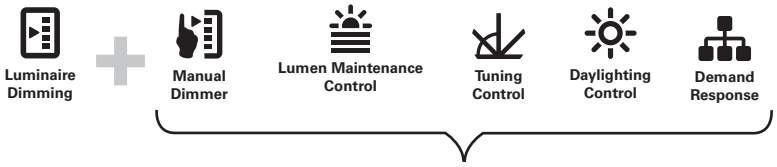
ASHRAE 90.1-2013
9.4.1.1.a

IECC 2015
C405.2.2.3

MULTI-LEVEL LIGHTING

REFERENCE

- Luminaire must provide uniform dimming
- Capable of reducing power by at lease one of five control functions
- When a dimming luminaire is present, a manual dimmer is recommended. Other functional options available



(Choose at least one)

T24-2013
130.1(b)

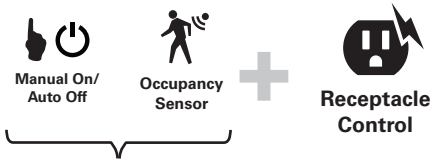
ASHRAE 90.1-2013
9.4.1.1.d

IECC 2015
C405.2.2.2

SHUTOFF CONTROL

REFERENCE

- Luminaires turned off when vacant
- 120V receptacles only, one within 6 feet of uncontrolled
- Each 5,000 sq. ft. to have shutoff controls



(Choose one)

T24-2013
130.1(c), 130.5(d)

ASHRAE 90.1-2013
9.4.1.1.h, 9.4.1.1.i, 8.4.2

IECC 2015
C405.2.1

AUTOMATIC DAYLIGHTING CONTROL

REFERENCE

- Eliminate energy waste when natural light present

  Exceptions when daylighting control not required:
- No skylights
- Glazing <24 sq. ft.
- Daylit zone is less than 120W

T24-2013
130.1(d)

ASHRAE 90.1-2013
9.4.1.1.e, 9.4.1.1.f,

IECC 2015
C405.2.3

Meeting energy codes with DLVP

The Distributed Low-Voltage Power System was designed to meet the energy codes requirements of virtually any space. This application illustrates how conference rooms can use daylight dimming in conjunction with natural light entering the space, while providing Scene Control/Automatic Off and receptacle control to achieve energy savings up to 65% and achieve higher quality lighting. Providing optional control of individual lighting zones and HVAC output will allow for even greater energy savings.

Example Space Assumptions

Space
100 sq. ft. or larger

Electrical Load
Greater than 0.5 watts per sq. ft. planned

Daylighting
Contains glazing larger than 24 sq. ft. total requiring daylighting for both primary and secondary sidelit zones

Others
The general lighting is not intended for continuous use (24/7, 365). Egress lighting is not part of the general lighting use

Building
When larger than 10,000 sq. ft., Demand Response is required (capable of lowering lighting power by 15%)

Suggested code requirements by space type

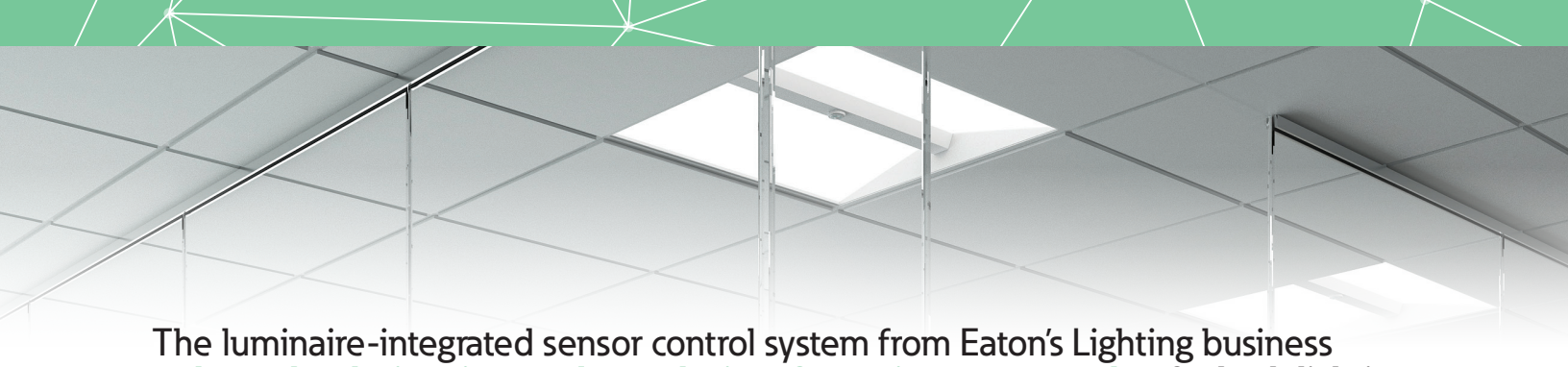
Eaton suggests applying the following energy saving sequences for each of the defined spaces below. Please consult local building code for specific space requirements.

	SPACE TYPE							
Minimum Control Type	Classroom lecture hall training room	Conference meeting multipurpose room	Private office <=250sq. ft.	Private office >=250sq. ft.	Corridor	Restroom	Stairwell	Storage room
Local switch	●	●	●	●	●	●	●	●
Scheduling	◉	◉	◉	◉	◉	◉	◉	◉
Occ Sensor Automatic ON				●	●	●	●	
Automatic Partial OFF	●	●	●					●
Automatic OFF					●		●	
Multilevel Lighting	◉	◉	◉	◉	◉	◉	◉	◉
Multilevel Daylighting	●	●	●	●				
Receptacle Control	●	●	●	●	●	●	●	●
Power Measurement	○	○	○	○	○	○	○	○
Demand Response	○	○	○	○	○	○	○	○
Functional Testing	●	●	●	●	●	●	●	●

● Suggested requirement for this space.

◉ Choose one of these requirements for this space.

○ These requirements are optional for this space based on local code.



The luminaire-integrated sensor control system from Eaton's Lighting business reduces the design time and complexity of meeting energy codes for both lighting and controls. The sensor system was designed to guarantee occupancy and daylight harvesting coverage from within the footprint of the luminaire, so the lighting design is the control design. And, the system achieves the lowest installed cost in small spaces compared to traditional control products.

No New Wires

An in-place fixture retrofit is all that's needed to meet most energy codes in commercial spaces. The sensor system is factory wired to the luminaire, switching on or off based on occupancy, and dimming the light when enough daylight is available.

Lighting Controls Without Commissioning

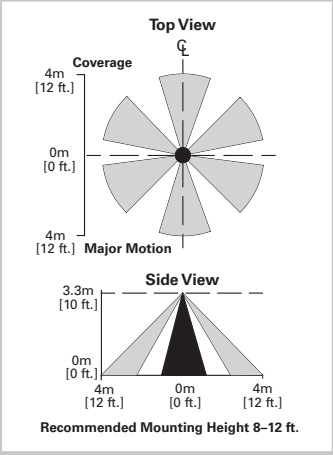
The luminaire-integrated sensor system offers out-of-the-box operation using thoughtful default settings.

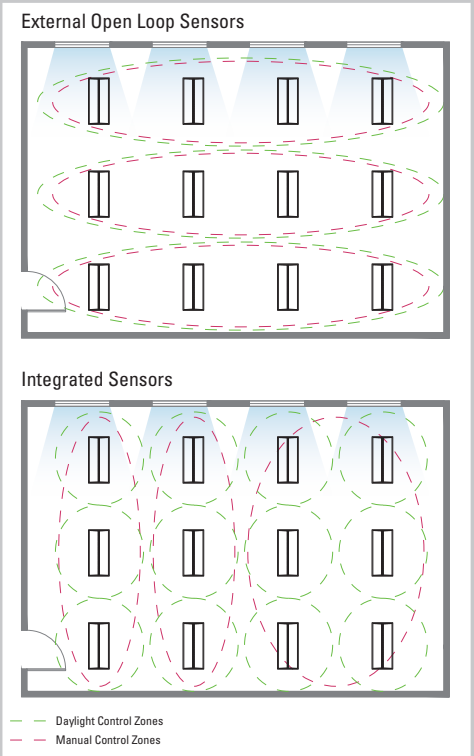
Flexibility and Individual Control

When the application demands more, the sensor system has the option to make changes using a remote control. The remote allows changes from the default settings for occupancy, target light level, preset lighting levels, and more.

Low Installed Cost

With a single product to mount, and a single electrical connection to make, a luminaire with an integrated sensor system saves money on the total installed cost when occupancy and daylighting harvesting controls are needed.





Worry-free Controls Planning

Ensure seamless coverage and performance with a sensor system built into every luminaire. The multi-technology sensor's occupancy and light sensing coverage overlaps the area each fixture illuminates.

Daylight Dimming Independence

External open loop daylight sensors use the manual control zones for daylighting control. By using integragted sensors for daylighting, manual control zones are completely independent of daylighting control sets.

Sensor Remote Control

The optional remote can be used to change settings and to provide local control for one or more fixtures in the same area, allowing users to adjust light levels, even temporarily override automatic controls. Choose one per project, or one per space.

Best practices / FAQs

What lengths are DLVP low-voltage cables available?

DLVP low-voltage cables are available, pre-terminated, in 8,15, and 30 foot lengths.

Can I make my own cables or pull my own wire?

Yes, there is an available low-voltage terminated pigtail that allows for the connection to unterminated standard cable. For proper system performance, specific cables must be used. Consult Eaton Lighting Systems for approved cable manufacturers and part numbers.

What is the maximum low-voltage cable distance with the DLVP System?

Similar to most low-voltage systems, the maximum cable distance from the low-voltage power module to the last device on a low-voltage circuit (regardless of the number of devices on that low-voltage circuit) cannot exceed 100-m (328-ft).

How does low-voltage cable length affect efficiency?

As is typical of electricity, the longer the cable length, the greater the losses and the lower the electrical efficiency. Shorter cable runs are more electrically efficient than longer runs.

Low-Voltage Cable Power Loss	
LVC-8P	0.2W
LVC-15P	0.4W
LVC-30P	0.8W

Where should Low-Voltage Power Modules be installed?

Low-voltage power modules are passively cooled and plenum rated for installation in dry interior locations above ceilings, in open ceiling areas, or in electrical closets. Low-voltage power modules are intended to be distributed throughout a space and are not designed for rack mounting as in the case with many systems employing a centralized architecture.

How is emergency lighting accomplished with the DLVP System?

Emergency lighting with the DLVP System is possible through two approaches. At the fixture level, when ordering DLVP compatible LED fixtures, choose one of two low-voltage emergency battery pack (EBP) options. At the building level, pair a low-voltage power module with a Remote Relay Unit (RRU) connected to an emergency low-voltage circuit.

How many light fixtures can a DLVP System support?

Because the DLVP System is based on available Class 2 power low-voltage circuits and offers daisy chain wiring, the number of fixtures depends on the power consumption per fixture chosen. Based on available LED fixtures today below is a reference based on a single low-voltage power module.

How are DLVP Systems commissioned?

The DLVP System was designed so that configuration basically means assigning light fixtures to available zones. The contractor may configure the system through manual switches or through an IR interface as the installation is being completed. Additionally, the DLVP System may be reconfigured at any time without rewiring the system.

300W (3 Low-Voltage Circuit) Low-Voltage Power Module	
Fixture Type	**Typical QTY per PM**
2 x 2 Troffer	12
2 x 4 Troffer	6

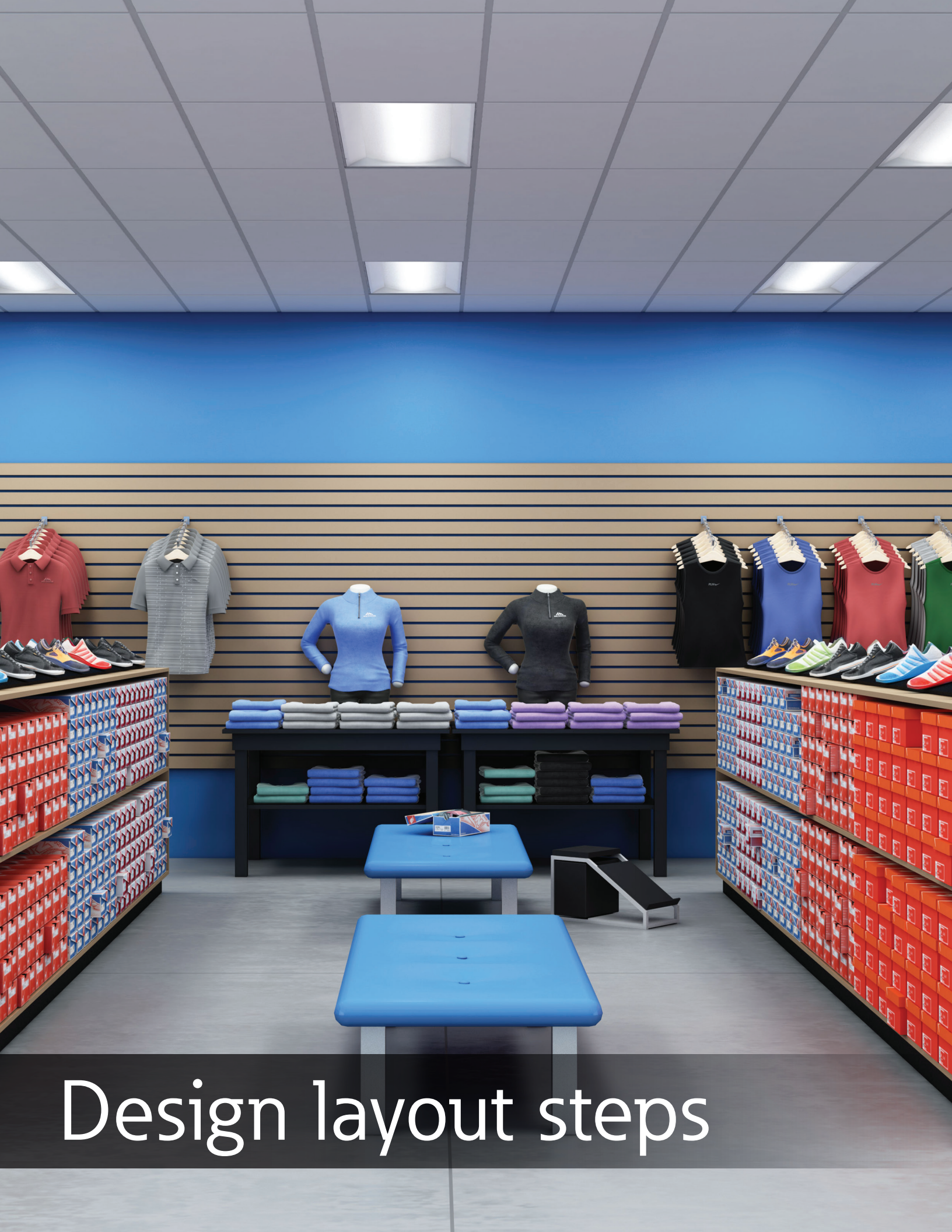
Are DLVP LED fixtures addressable?

Yes, DLVP light fixtures are addressable which allows them to be assigned to one of three available system control zones during installation or any time thereafter. When integrated sensors are used, these control zones are separate from daylighting zones.

600W (6 Low-Voltage Circuit) Low-Voltage Power Module	
Fixture Type	**Typical QTY per PM**
2 x 2 Troffer	24
2 x 4 Troffer	12

Is DLVP compatible with incandescent, fluorescent, etc. technologies?

The DLVP System is ideal for digital low-voltage devices like LED light fixtures. If controlling other technologies, the DLVP System does integrate with the Room Controller to harmoniously control those other technologies which utilize line voltage power (see page 26 for Room Controller integration details).



Design layout steps

Basic steps to design a DLVP System

1. SELECT AND LAYOUT FIXTURES

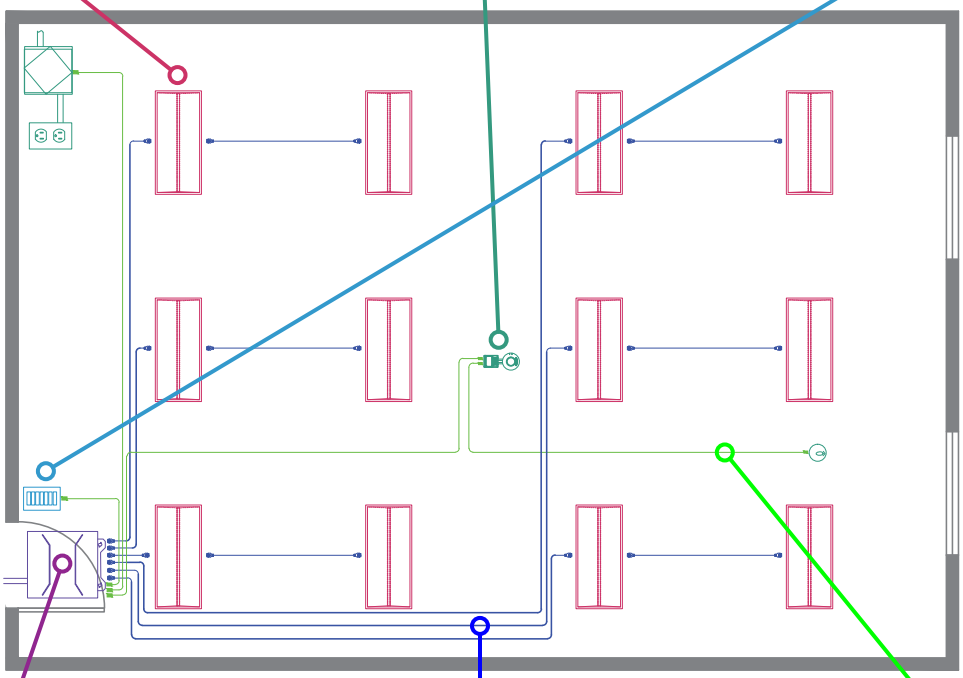
Some models available with integrated sensors

2. CHOOSE AND LAYOUT EXTERNAL SENSORS & CONTROLS

Occupancy / vacancy, daylight and receptacle control

3. SELECT AND LAYOUT MANUAL CONTROLS

Programmable Scene Stations or pre-configured Zone Stations



4. SELECT AND LAYOUT LOW-VOLTAGE POWER MODULES

Available in 300W and 600W models

5. SELECT AND LAYOUT FIXTURE CONNECTIONS

Pre-terminated lengths (8, 15, and 30 feet), couplings, and wiring whips

6. SELECT AND LAYOUT CONTROLS CONNECTIONS

Pre-terminated control cables available from 6 inches to 100 feet

1. SELECT AND LAYOUT FIXTURES

- Select DLVP enabled fixtures based on the lighting requirements and aesthetics of the space.
- Determine if integrated sensors are preferred for the application.
- DLVP value is maximized when fixtures are chosen with power levels that efficiently utilize the low-voltage power module's low-voltage circuits.
- Daisy-chained loads up to 90W are optimally efficient whereas homerun low-voltage circuits (25W per low-voltage circuit, for example) are less efficient.

2. CHOOSE AND LAYOUT EXTERNAL SENSORS & CONTROLS

- Use receptacle switchpack for plug-load control (if applicable)
- Skip to step 3 if fixture integrated sensors are used in step 1.
- DLVP was designed to allow EITHER use of standalone external or fixture integrated sensors for occupancy detection and daylight control. It is not recommended to use both integrated and stand-alone sensors in a space.
- If external sensors are used, they should be laid out per typical Greengate guidelines for occupancy coverage and stand-alone sensors in a space.
- For assistance selecting or laying out sensors, contact: SensorLayouts@Eaton.com

3. SELECT AND LAYOUT MANUAL CONTROLS

- For manual control, choose ether Pre-configured Zone Stations or Programmable Scene Stations.
- Scene Stations may be preferred for their ability to be reprogrammed with LVHH-02 Personal Remotes.
- Zone Stations should be used when the control intent of the space is certain and not subject to change (note - zone stations are typically used to toggle on/off and are not field programmable).
- Up to twelve (12) manual control wall stations may be daisy-chain connected to a single low-voltage power module.

4. SELECT AND LAYOUT LOW-VOLTAGE POWER MODULES

- Without regard for control zones, group addressable fixtures and low-voltage lighting cables up to 90W total power consumed (see spec sheets or ControlSpec for fixture and cable power consumption). This is most effectively done with the ControlSpec layout and calculation tool. For access to ControlSpec, contact an Eaton sales agent.
- Determine the quantity of low-voltage power modules required by area by grouping the low-voltage circuits into blocks of three or six (for 300W or 600W low-voltage power modules, respectively). For example, nine (9) power low-voltage circuits could be accomplished with one (1) 600W and one (1) 300W low-voltage power module.
- Low-voltage power modules should then be located strategically in the space to minimize the line voltage material and the low-voltage cable runs while providing an easily accessible mounting location for serviceability. Low-voltage power modules are typically located above doorways, entry ways or at columns in open areas.

5. SELECT AND LAYOUT FIXTURE CONNECTIONS

- DLVP low-voltage lighting cables are available in pre-terminated 8, 15, and 30-foot increments for quick connection in typical spacing.
- 8-foot cables are available for typical downlight-to-downlight spacing (generally 4-6 feet on center).
- 15-foot cables are available for typical ambient-to-ambient spacing (generally 8-10 feet on center).
- The 8, 15, and 30-foot cable may be used from the low-voltage power module to the first fixture on any particular low-voltage circuit.
- It is important to use the correctly sized cable to maximize efficiency, minimize cost, and account for any obstructions in the ceiling space.
- Couplings (LVC-COUPLER) are available to extend cable lengths.
- Wiring pigtails (LVC-WP) are available to enable using unterminated Belden cable.

6. SELECT AND LAYOUT CONTROLS CONNECTIONS

- The connection between external devices and low-voltage power modules should utilize pre-terminated control cables. Low-voltage power modules have specific ports for connection to receptacle switchpacks, occupancy and daylight sensors, and wall stations for simplified energy code compliant operation.
- GGRJ45 pre-terminated cables are available in plenum rated lengths from 6 inches up to 100 feet. Couplings and splitters are also available.

Applications

Application: Private Office

Luminaire Controls

UL924
UL924 (Energy Back-up Circuit)

Luminaire Dimming

Functional Controls

Manually Switched ON/OFF

Manual Dimmer

Daylighting Control

Tuning Control

Demand Response

Occupancy Sensor

20%

40%

Receptacle Control

Space Assumptions

Space
Less than 250 sq. ft.

Electrical Load
Greater than 0.5 watts per sq. ft. planned

Daylighting
Contains glazing larger than 24 square feet total requiring daylighting for both primary and secondary sidelit zones

Building
When larger than 10,000 square feet, Demand Response is required (capable of lowering lighting power by 15%)

Solutions

Distributed Low-Voltage Power Components

Low-Voltage Power Module
Wallstation
Daylight Sensor
Occupancy Sensor
Input/ Output Device
Receptacle Switchpack
Pre-Terminated Control Cable
Low-Voltage Lighting Cable

Available Fixtures

Metalux Encounter*
Metalux SkyRidge*
Metalux Cruze* / Cruze SE*
Metalux ArcLine*
Metalux GRLED
Metalux FRLED
Corelite Bridge*
Neo-Ray Converge*
Neo-Ray Covera*
Halo Commercial PD6
Halo Commercial PR8
Portfolio

**Available with integrated sensor*

Sequence of Operations

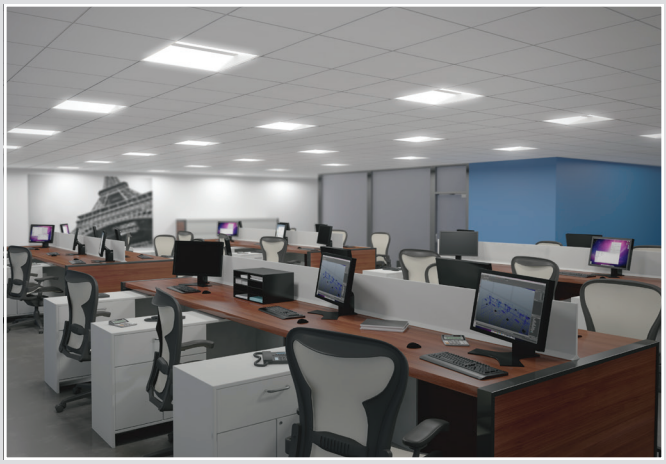
Occupied

Lights Manual ON or Automatic ON – 50%
Receptacle ON
HVAC occupancy closed
Automatic daylight dimming
Occupant uses wallstations to control lighting
Demand Response dims lighting based on settings

Unoccupied

Lights turn Off after sensor delay time
Receptacle turns off after sensor delay time + 30 sec
HVAC occupancy opens

Application: Open Office



Luminaire Controls

UL924
UL924 (Energy Back-up Circuit)

Luminaire Dimming

Functional Controls

Manually Switched ON/OFF

Manual Dimmer

Daylighting Control

Tuning Control

Demand Response

Occupancy Sensor

20%

40%

Receptacle Control

Space Assumptions

Space
250 sq. ft. or larger

Electrical Load
Greater than 0.5 watts per sq. ft. planned

Daylighting
Contains glazing larger than 24 square feet total requiring daylighting for both primary and secondary sidelit zones

Building
When larger than 10,000 square feet, Demand Response is required (capable of lowering lighting power by 15%)

Solutions

Distributed Low-Voltage Power Components

Low-Voltage Power Module
Wallstation
Daylight Sensor
Occupancy Sensor
Input/ Output Device
Receptacle Switchpack
Pre-Terminated Control Cable
Low-Voltage Lighting Cable

Available Fixtures

Metalux Encounter*
Metalux SkyRidge*
Metalux Cruze* / Cruze SE*
Metalux ArcLine*
Metalux GRLED
Metalux FRLED
Corelite Bridge*
Neo-Ray Converge*
Neo-Ray Covera*
Halo Commercial PD6
Halo Commercial PR8
Portfolio

**Available with integrated sensor*

Sequence of Operations

Occupied

Lights Manual ON or Automatic ON – 50%
Receptacle ON
HVAC occupancy closed
Automatic daylight dimming
Occupant uses wallstations to control lighting
Demand Response dims lighting based on settings

Unoccupied

Lights turn Off after sensor delay time
Receptacle turns off after delay time + 30 sec
HVAC occupancy opens

Application: Conference Room

Luminaire Controls

UL924

UL924
(Energy Back-up Circuit)

Luminaire Dimming

Functional Controls

Manually Switched ON/OFF

Manual Dimmer

Daylighting Control

Tuning Control

Demand Response

Occupancy Sensor

20%

40%

Receptacle Control

Space Assumptions

Space
100 sq. ft. or larger

Electrical Load
Greater than 0.5 watts per sq. ft. planned

Daylighting
Contains glazing larger than 24 square feet total requiring daylighting for both primary and secondary sidelit zones

Others
The general lighting is not intended for continuous use (24/7) Egress lighting is not part of the general lighting use

Building
When larger than 10,000 square feet, Demand Response is required (capable of lowering lighting power by 15%)

Solutions

Distributed Low-Voltage Power Components

Low-Voltage Power Module
Wallstation
Daylight Sensor
Occupancy Sensor
Input/ Output Device
Receptacle Switchpack
Pre-Terminated Control Cable
Low-Voltage Lighting Cable

Available Fixtures

Metalux Encounter*
Metalux SkyRidge*
Metalux Cruze* / Cruze SE*
Metalux ArcLine*
Metalux GRLED
Metalux FRLED
Corelite Bridge*
Neo-Ray Converge*
Neo-Ray Covera*
Halo Commercial PD6
Halo Commercial PR8
Portfolio

**Available with integrated sensor*

Sequence of Operations

Occupied

Lights Manual ON or Automatic ON – 50%
Receptacle ON
HVAC occupancy closed
Automatic daylight dimming
Occupant uses wallstations to control lighting
Demand Response dims lighting based on settings
Programmable Scene Wallstations

Unoccupied

Lights turn Off after sensor delay time
Receptacle turns off after sensor delay time + 30 sec
HVAC occupancy opens

Application: Corridor, hall or stairwell

Luminaire Controls

UL924
UL924 (Energy Back-up Circuit)

Luminaire Dimming

Functional Controls

Manual Dimmer

Tuning Control

Demand Response

Occupancy Sensor

Space Assumptions

Space
Accessible areas

Electrical Load
Greater than 0.5 watts per sq. ft. planned

Daylighting
Contains glazing larger than 24 square feet total requiring daylighting for both primary and secondary sidelit zones

Building
When larger than 10,000 square feet, Demand Response is required (capable of lowering lighting power by 15%)

Solutions

Distributed Low-Voltage Power Components

Low-Voltage Power Module
Wallstation
Daylight Sensor
Occupancy Sensor
Input/ Output Device
Receptacle Switchpack
Pre-Terminated Control Cable
Low-Voltage Lighting Cable

Available Fixtures

Metalux Encounter*
Metalux SkyRidge*
Metalux Cruze* / Cruze SE*
Metalux ArcLine*
Metalux GRLED
Metalux FRLED
Corelite Bridge*
Neo-Ray Converge*
Neo-Ray Covera*
Halo Commercial PD6
Halo Commercial PR8
Portfolio

**Available with integrated sensor*

Sequence of Operations

Occupied

Lights Automatic ON
Occupant uses wallstations to control lighting
Demand Response dims lighting based on settings
Programmable Scene Wallstations

Unoccupied

Lights turn Off after or dim sensor delay time
Timeclock turns lights off

Application: **Classroom**

Luminaire Controls

UL924
UL924 (Energy Back-up Circuit)

Luminaire Dimming

Functional Controls

Manually Switched ON/OFF

Manual Dimmer

Daylighting Control

Tuning Control

Demand Response

Occupancy Sensor

Receptacle Control

Space Assumptions

Space
Less than 2000 sq. ft.

Electrical Load
Greater than 0.7 watts per sq. ft. planned

Daylighting
Contains glazing larger than 24 square feet total requiring daylighting for both primary and secondary sidelit zones

Building
When larger than 10,000 square feet, Demand Response is required (capable of lowering lighting power by 15%)

Solutions

Distributed Low-Voltage Power Components

Low-Voltage Power Module
Wallstation
Daylight Sensor
Occupancy Sensor
Input/ Output Device
Receptacle Switchpack
Pre-Terminated Control Cable
Low-Voltage Lighting Cable

Available Fixtures

Metalux Encounter*
Metalux SkyRidge*
Metalux Cruze* / Cruze SE*
Metalux ArcLine*
Metalux GRLED
Metalux FRLED
Corelite Bridge*
Neo-Ray Converge*
Neo-Ray Covera*
Halo Commercial PD6
Halo Commercial PR8
Portfolio

**Available with integrated sensor*

Sequence of Operations

Occupied

Lights Manual ON or Automatic ON
Receptacle ON
HVAC occupancy closed
Thee automatic daylight dimming zones
Occupant uses wallstations to control lighting
Demand Response dims lighting based on settings
Programmable Scene Wallstations

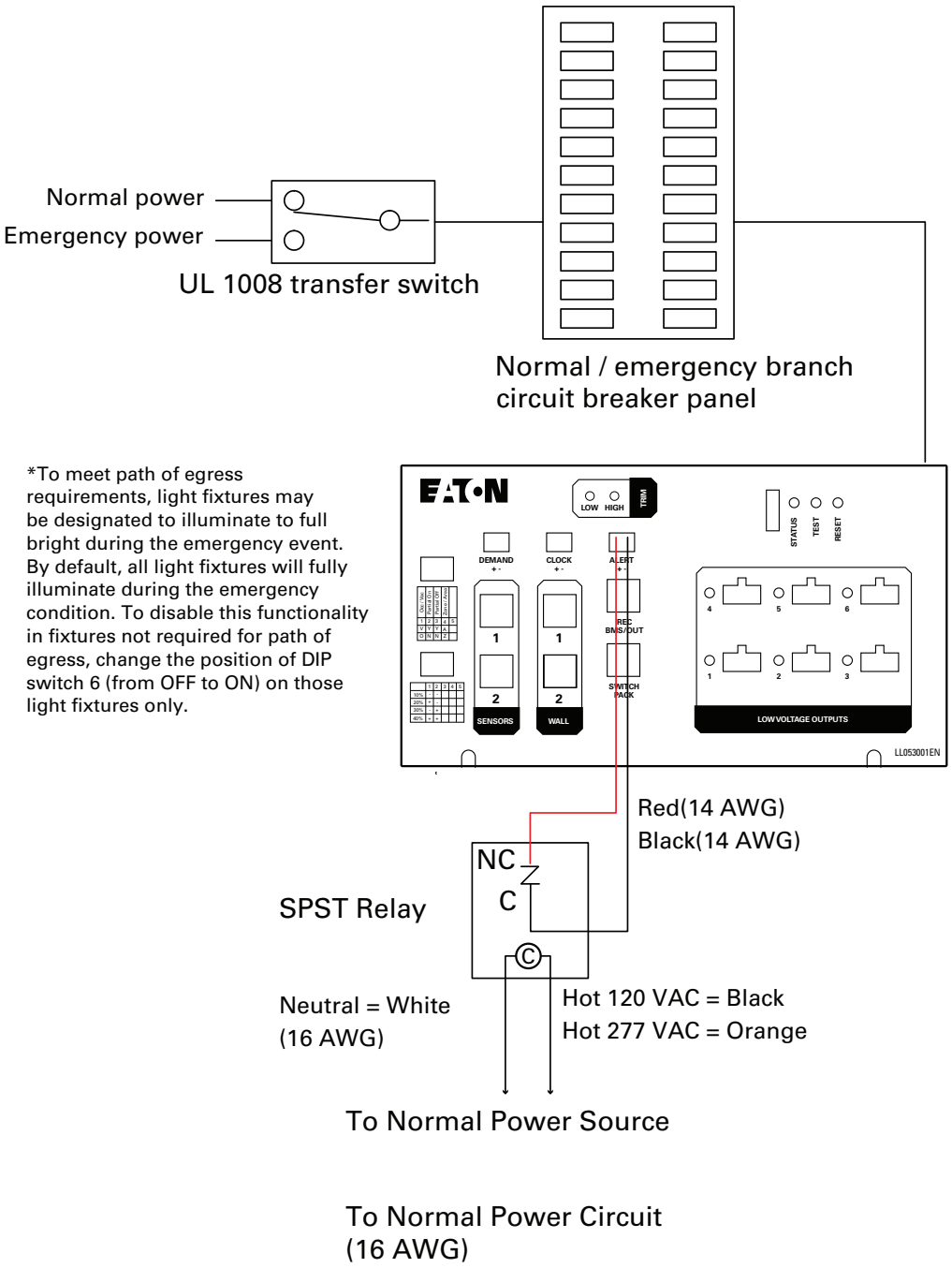
Unoccupied

Lights turn Off after sensor delay time
Receptacle turns off after sensor delay time + 30 sec
HVAC occupancy opens

Typical applications wiring diagrams

DLVP Emergency with Remote Relay Unit (RRU)

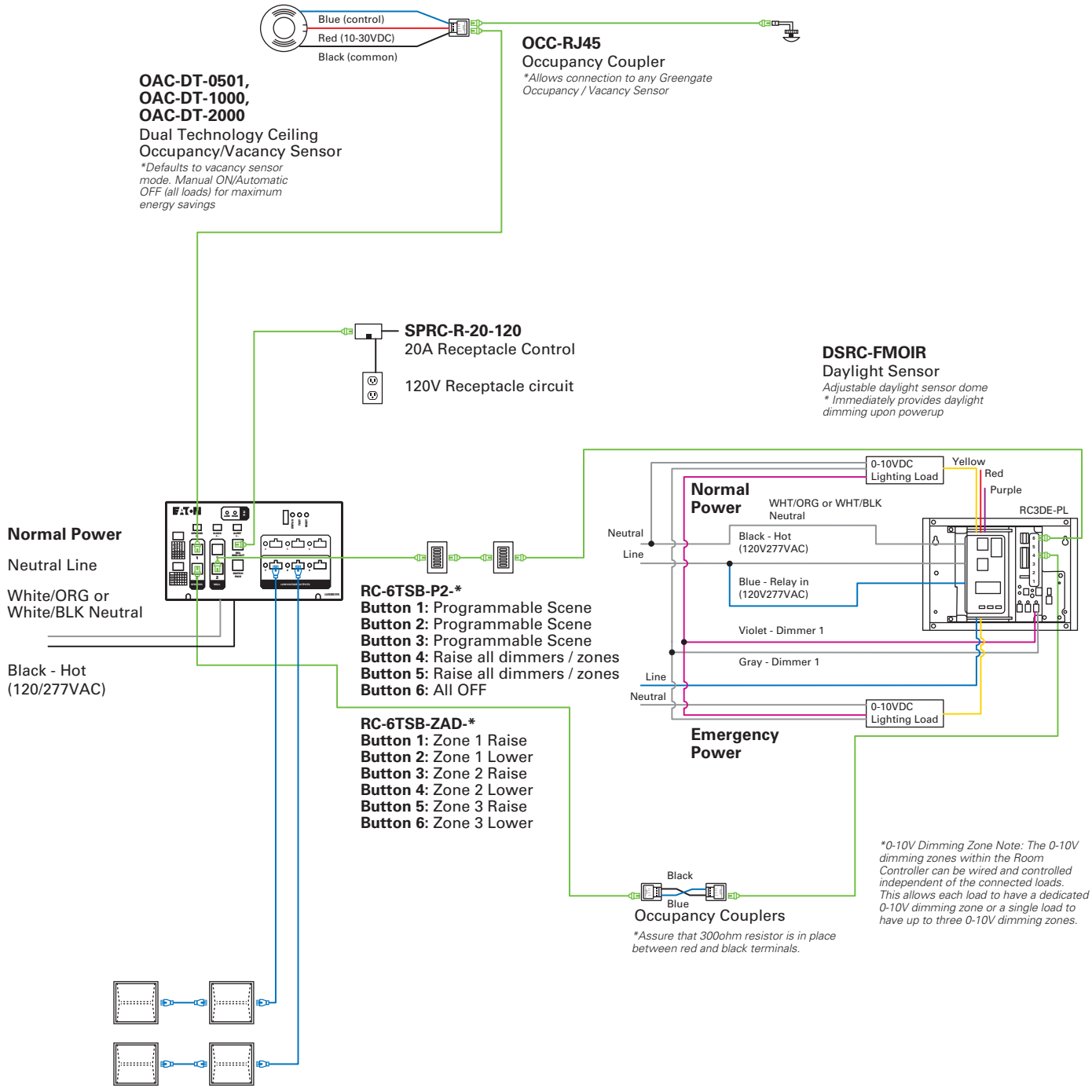
DLVP integration with centralized UL924 power sources



Disclaimer:

The information contained in this document is provided for general purposes only. Conditions in the field may vary from the assumptions on which the diagrams and information contained herein were based and we make no warranties or representations about the accuracy, completeness or suitability of the information herein for any specific site. The installation of the lighting, wiring, control, and other products contained in this document should only be performed by a qualified professional.

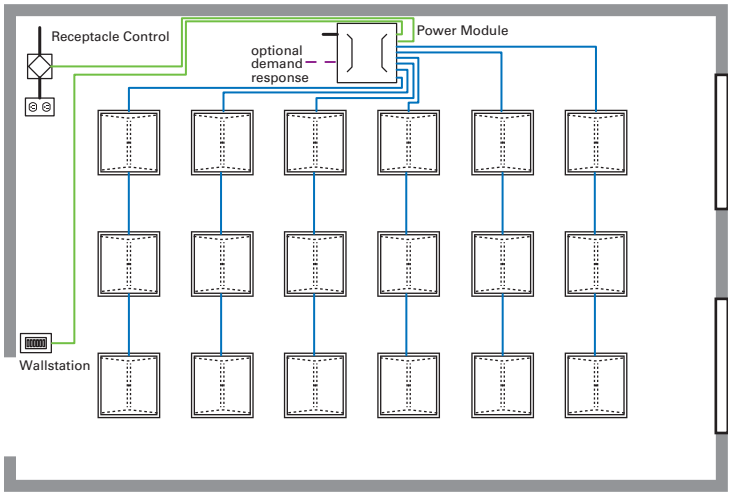
DLVP Low-Voltage Power Modules with Room Controller



Connect up to 90W per low-voltage circuit

Classroom, 2x2 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-06-100-03	600W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
18	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

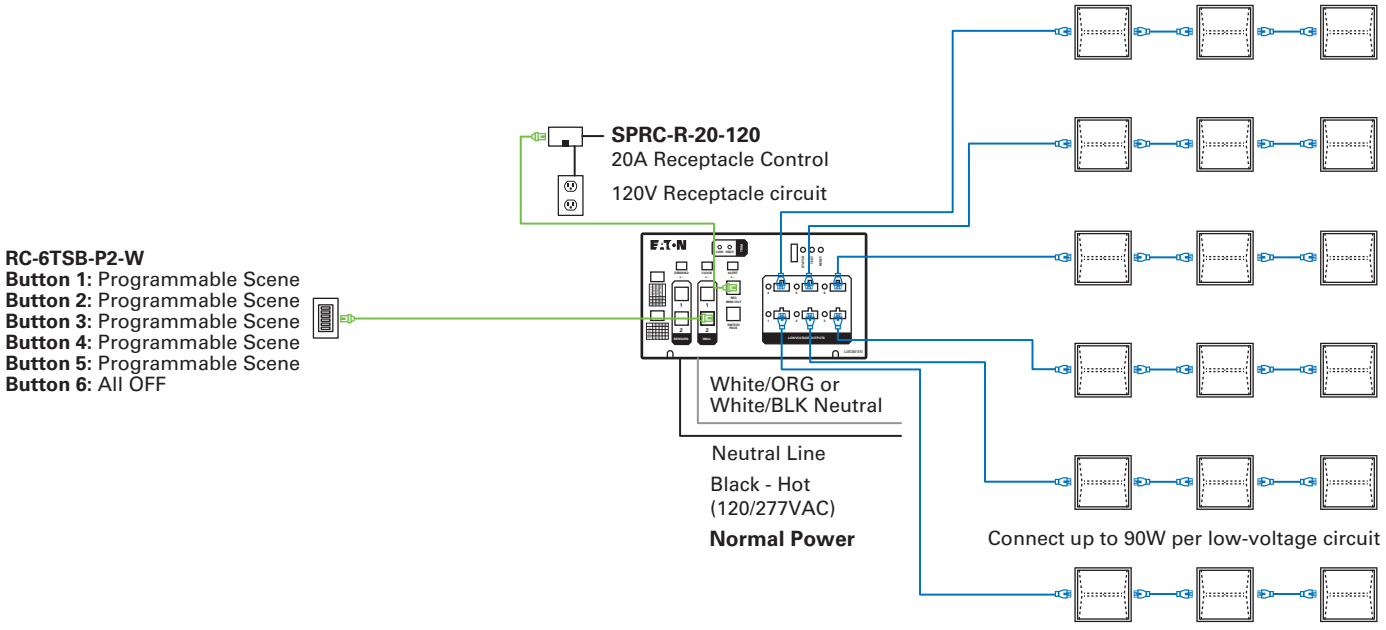
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1-SV (23 watts)

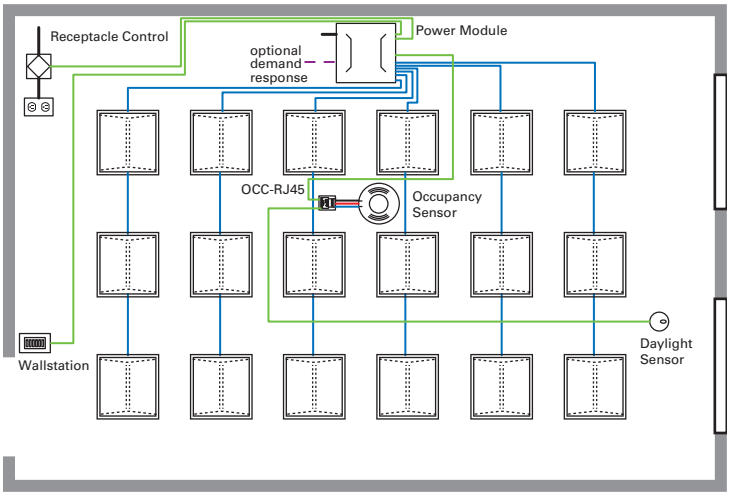
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Classroom, 2x2 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-06-100-03	600W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	OACT-DT-2000	2000 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	GGRJ45-106-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
18	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load vacancy

Daylighting
Continuous dimming to off
Out of the box 3 daylight zone support
Not required in spaces without windows or that are less than 120W

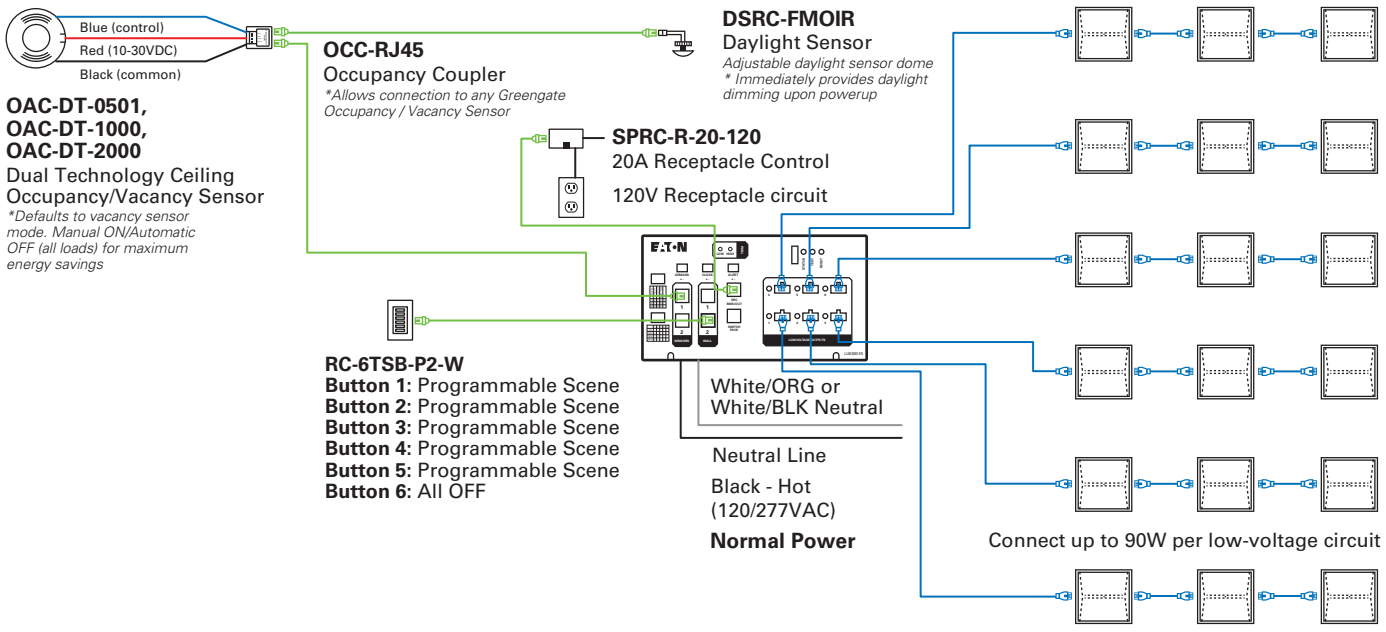
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

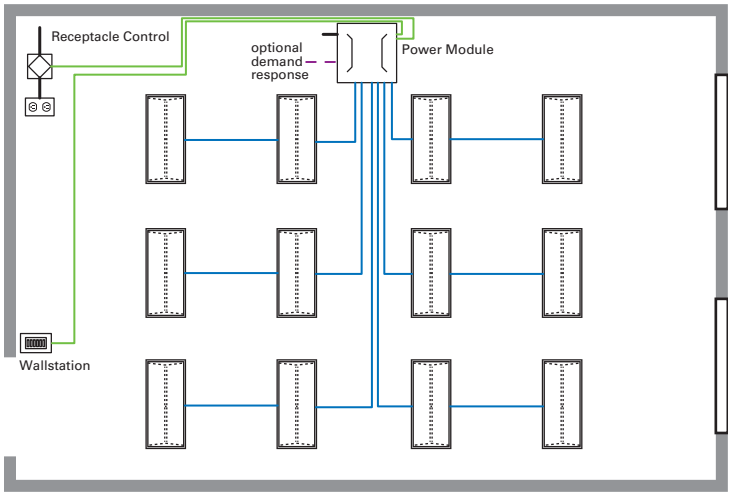
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Classroom, 2x4 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-06-100-03	600W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
10	LVC-15P	low-voltage lighting cable, 15 feet
2	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

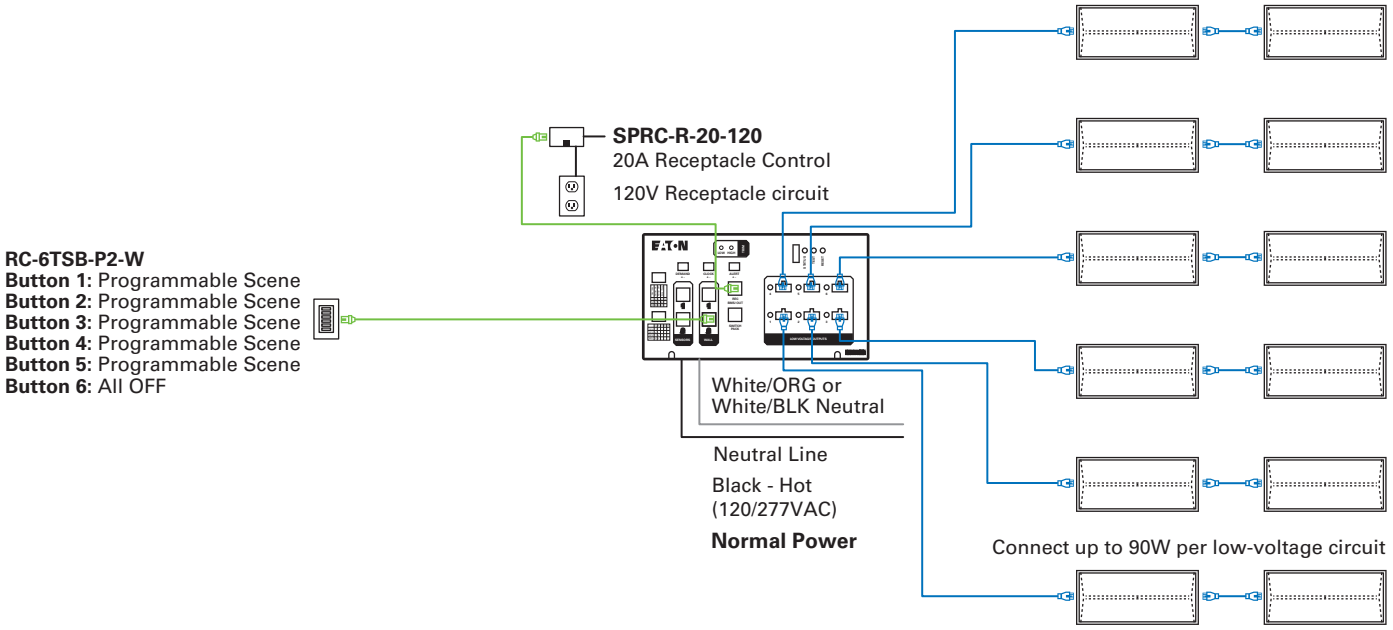
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-SLVPD1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

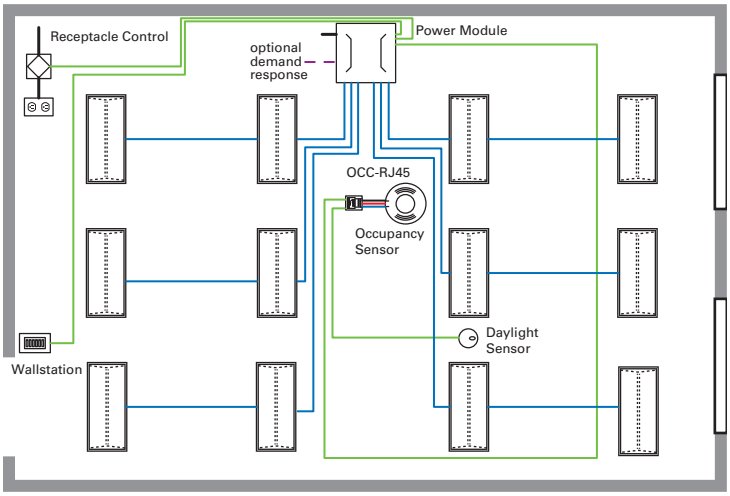
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Classroom, 2x4 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-06-100-03	600W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	OACT-DT-2000	2000 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
10	LVC-15P	low-voltage lighting cable, 15 feet
2	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load vacancy

Daylighting
Continuous dimming to off
Out of the box 3 daylight zone support
Not required in spaces without windows or that are less than 120W

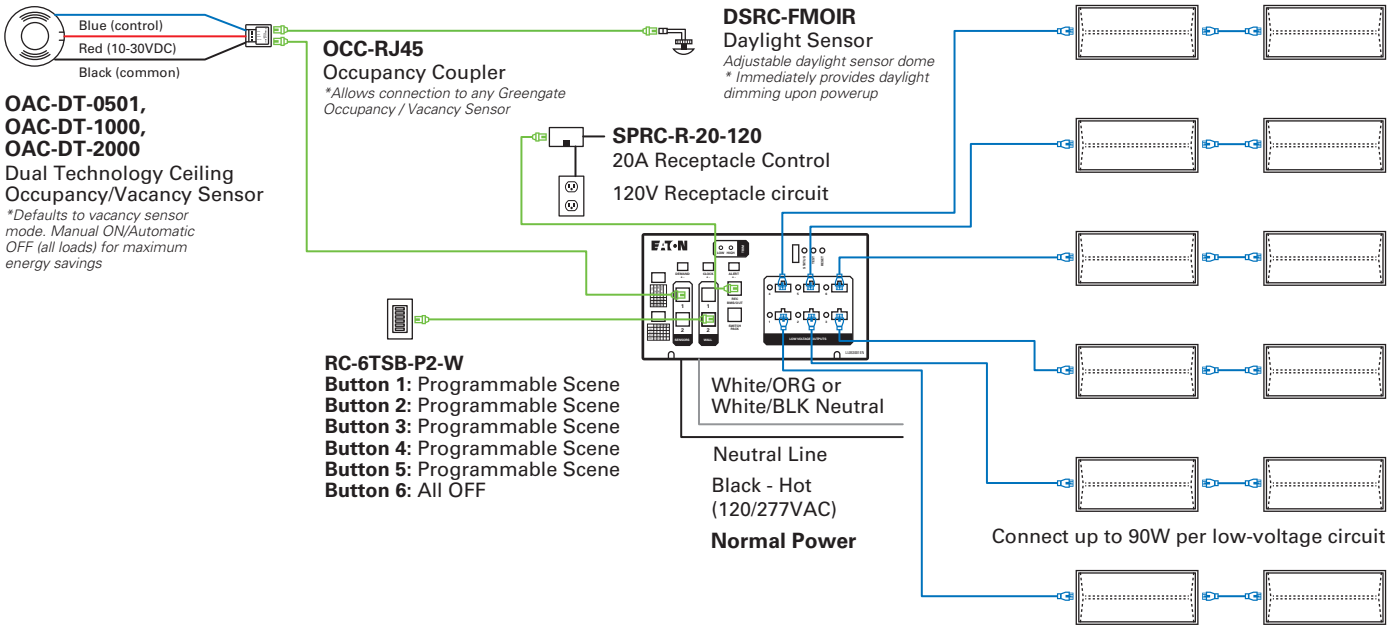
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

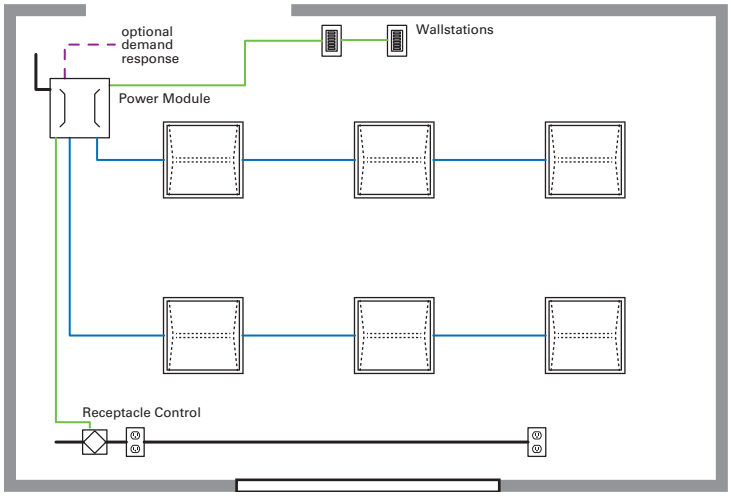
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Conference room, 2x2 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	RC-6TSB-ZAD-W	6 button raise/lower (white)
1	OACT-DT-0501	500 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	SPRC-20-120	20AMP receptacle control
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	GGRJ45-006-G	pre-terminated control cable, 6 inches
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
6	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

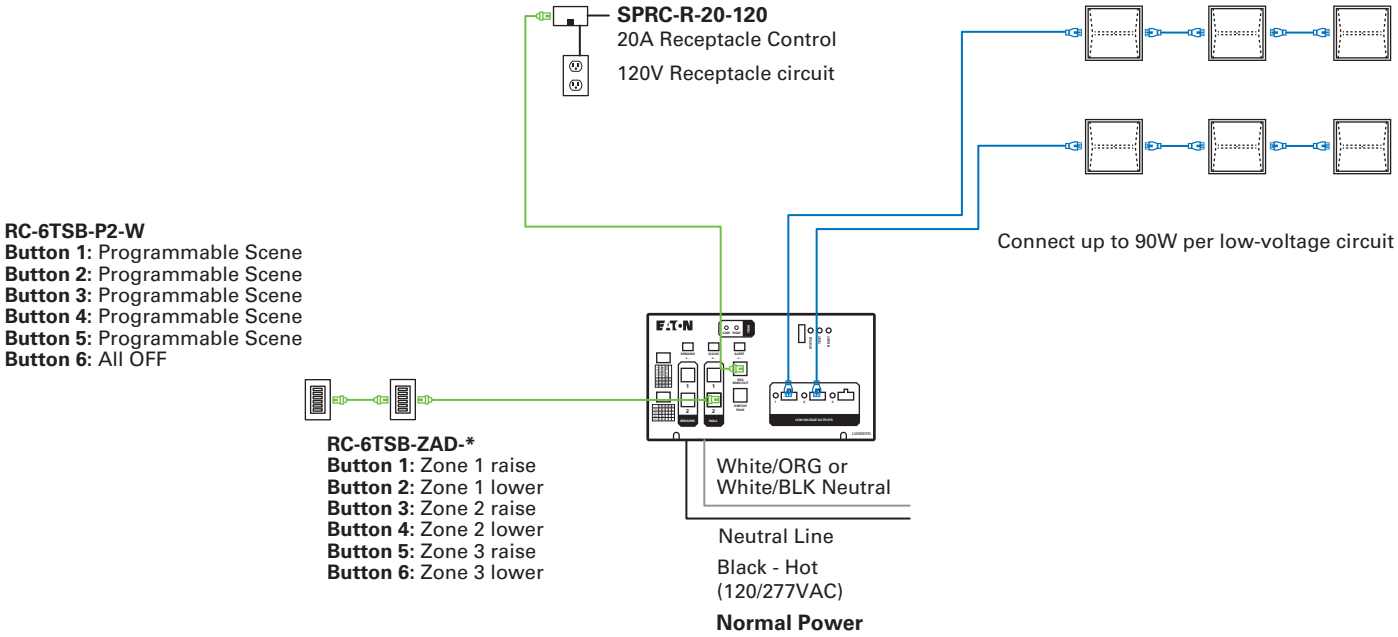
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

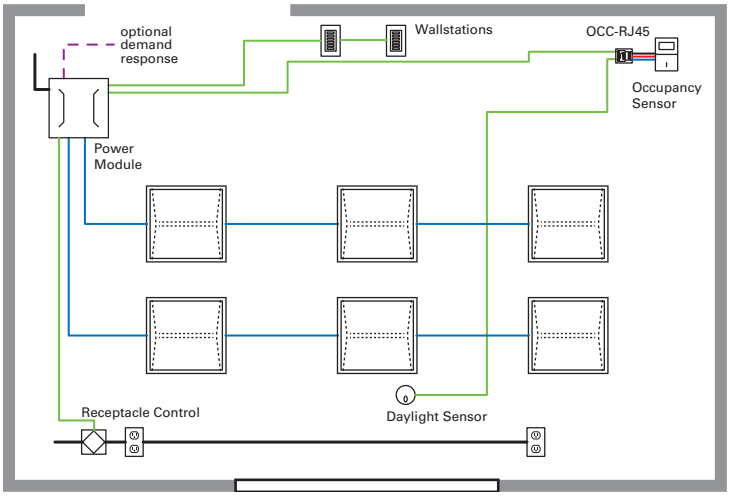
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Conference room, 2x2 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	RC-6TSB-ZAD-W	6 button raise/lower (white)
1	OAWC-P-120W	500 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	SPRC-20-120	20AMP receptacle control
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	GGRJ45-006-G	pre-terminated control cable, 6 inches
3	GGRJ45-10P-G	pre-terminated control cable, 10 feet
3	GGRJ45-25P-G	pre-terminated control cable, 25 feet
6	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load vacancy

Daylighting
Continuous dimming to off
Out of the box 3 daylight zone support
Not required in spaces without windows or that are less than 120W

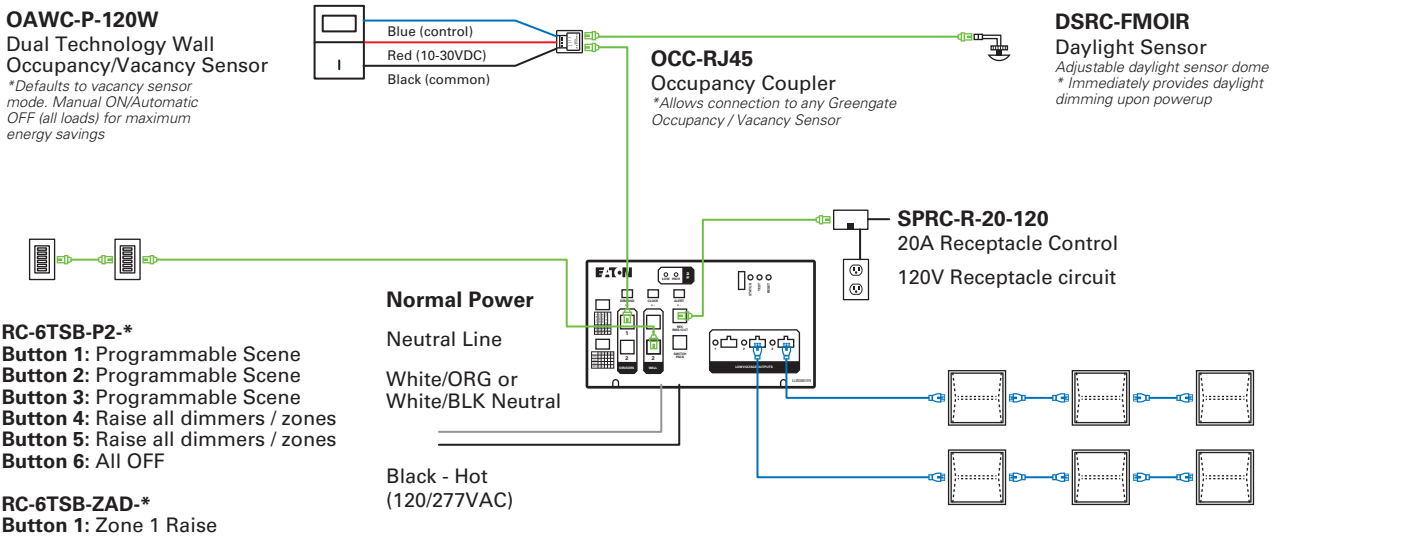
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail

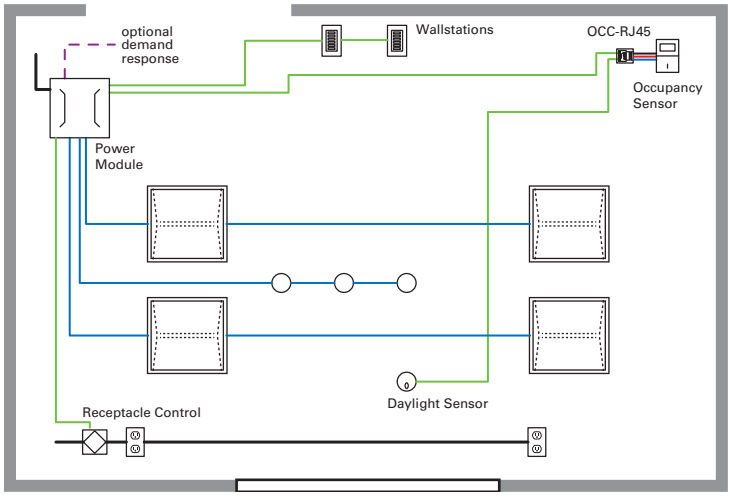


Connect up to 90W per low-voltage circuit

*Immediately provides daylight dimming upon powerup

Conference room, 2x2 fixtures and downlights

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-06-100-03	600W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	RC-6TSB-ZAD-W	6 button raise/lower (white)
1	OAWC-P-120W	500 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	SPRC-20-120	20AMP receptacle control
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	GGRJ45-006-G	pre-terminated control cable, 6 inches
2	GGRJ45-10P-G	pre-terminated control cable, 10 feet
3	GGRJ45-25P-G	pre-terminated control cable, 25 feet
2	LVC-8P	low-voltage lighting cable, 8 feet
4	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy

Daylighting
Continuous dimming to off
Out of the box 3 daylight zone support
Not required in spaces without windows or that are less than 120W

Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)
Portfolio: LD6B15DLV EU6B102080XX 6LBM1H (16 watts)
Halo Commercial: PD615DLVB PDM6B8XX 61VH (14 watts

XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail

OAWC-P-120W
Dual Technology Wall Occupancy/Vacancy Sensor
**Defaults to vacancy sensor mode. Manual ON/Automatic OFF (all loads) for maximum energy savings*

Blue (control)
Red (10-30VDC)
Black (common)

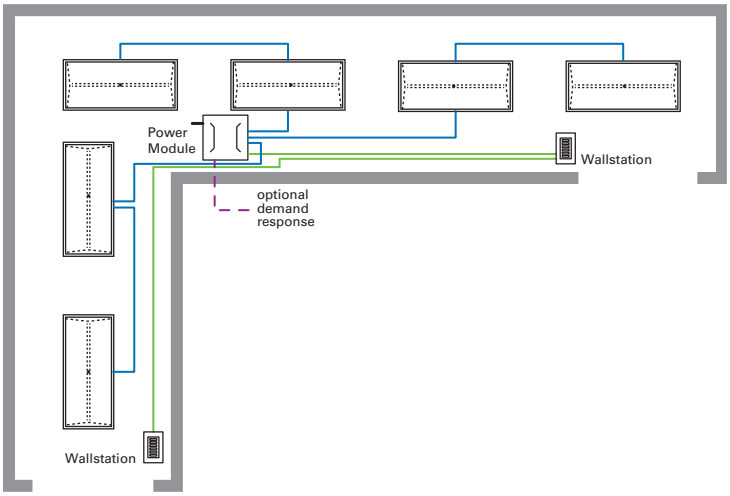
DSRC-FMOIR
Daylight Sensor
Adjustable daylight sensor dome
** Immediately provides daylight dimming upon powerup*

SPRC-R-20-120
20A Receptacle Control
120V Receptacle circuit

Normal Power
Neutral Line
White/ORG or White/BLK Neutral
Black - Hot (120/277VAC)

Corridor/Hall, 2x4 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
2	RC-3TSB-Z1D-W	3 button zone raise/lower (white)
1	LVHH-02	DLVP personal remote
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
1	LVC-8P	low-voltage lighting cable, 8 feet
5	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional partial on/partial off
Optional auto on to scene
Automatic off of lighting on vacancy
Automatic partial off of lighting on vacancy

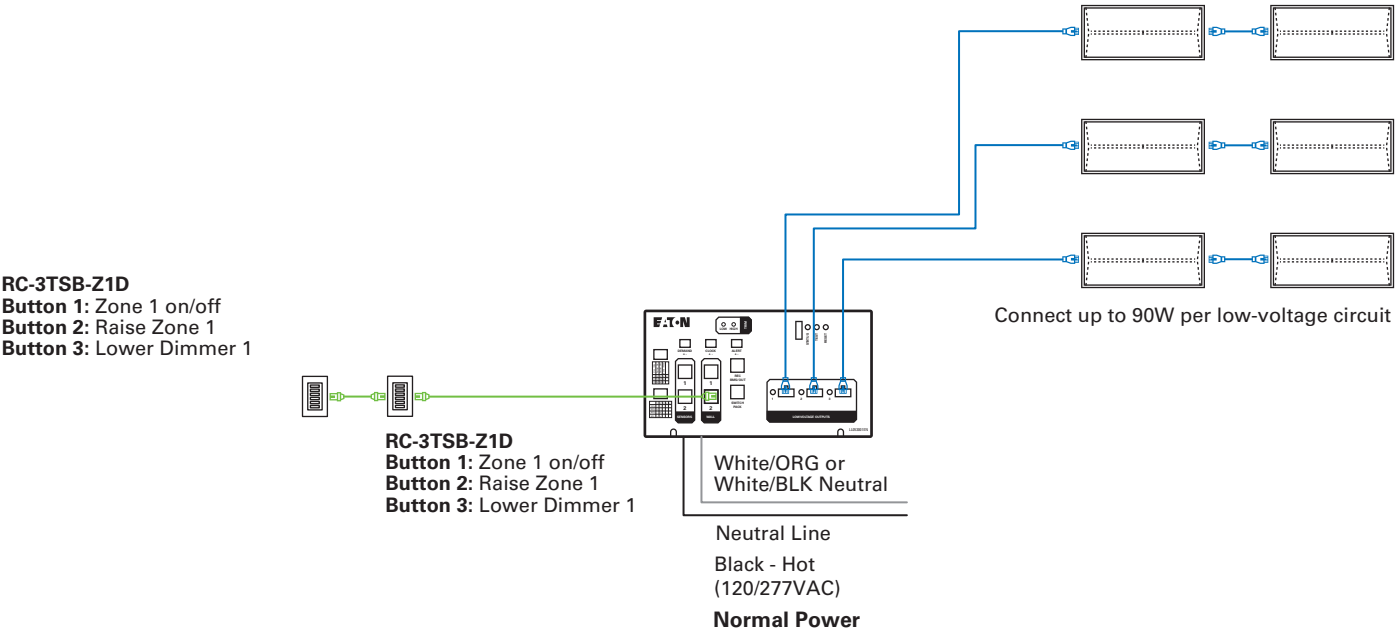
Manual Controls
On/off/raise lower
Single or multiple zones

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-SLVPD1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

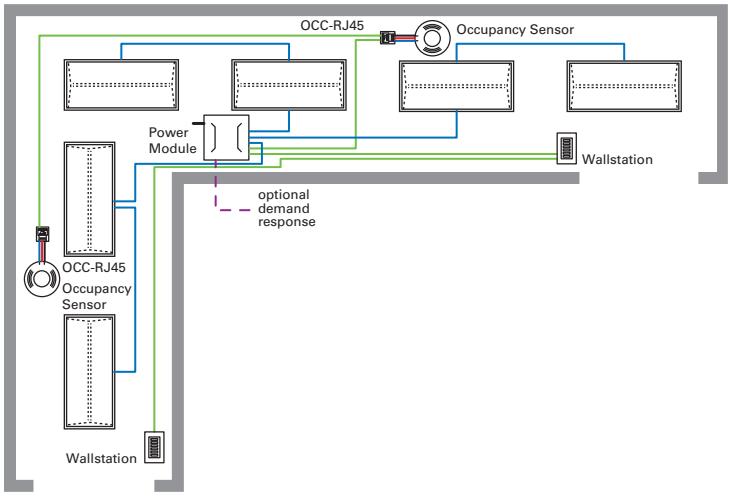
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Corridor/Hall, 2x4 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
2	RC-3TSB-Z1D-W	3 button zone raise/lower (white)
2	OACT-DT-2000	2000 sqft. dual tech sensor
2	OCC-RJ45	input/output device
1	LVHH-02	DLVP personal remote
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
6	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional partial on/partial off
Automatic off of lighting on vacancy
Automatic partial off of lighting on vacancy

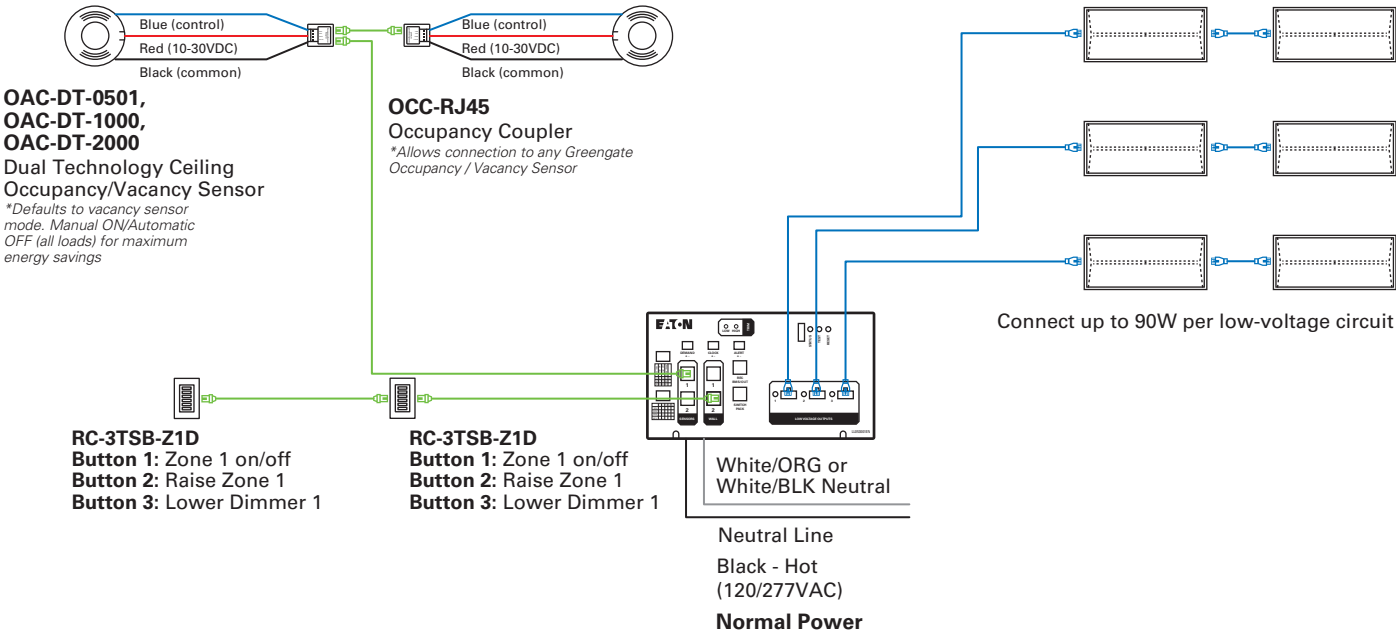
Manual Controls
On/off/raise lower
Single or multiple zones

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor
Switchpack power supply may be needed to power more than two occupancy sensors

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

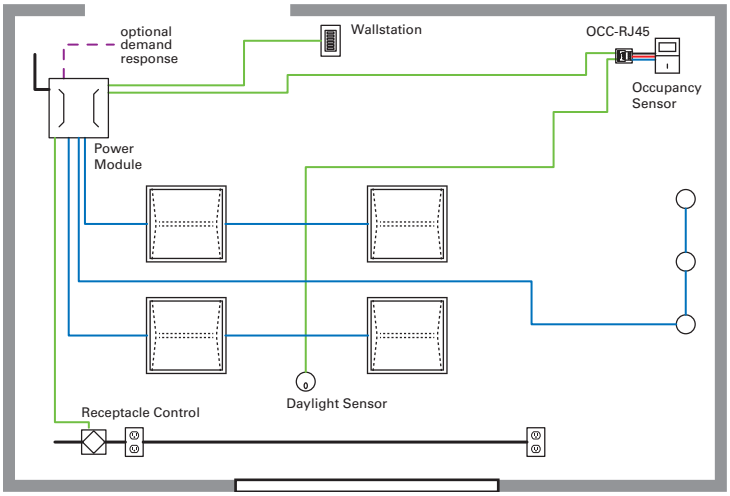
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Executive office, 2x2 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
1	RC3DE-PL	room controller
1	RC-6TSB-P4-W	6 button scene station (white)
1	OAWC-P-120W	500 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	SPRC-20-120	20AMP receptacle control
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	HHPRG-RC	handheld daylight programming remote
1	GGRJ45-006-G	pre-terminated control cable, 6 inches
2	GGRJ45-10P-G	pre-terminated control cable, 10 feet
3	GGRJ45-25P-G	pre-terminated control cable, 25 feet
2	LVC-8P	low-voltage lighting cable, 8 feet
5	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Automatic off of lighting on vacancy
Automatic partial off of lighting on vacancy

Daylighting
Continuous dimming to off
Out of the box 3 daylight zone support
Not required in spaces without windows or that are less than 120W

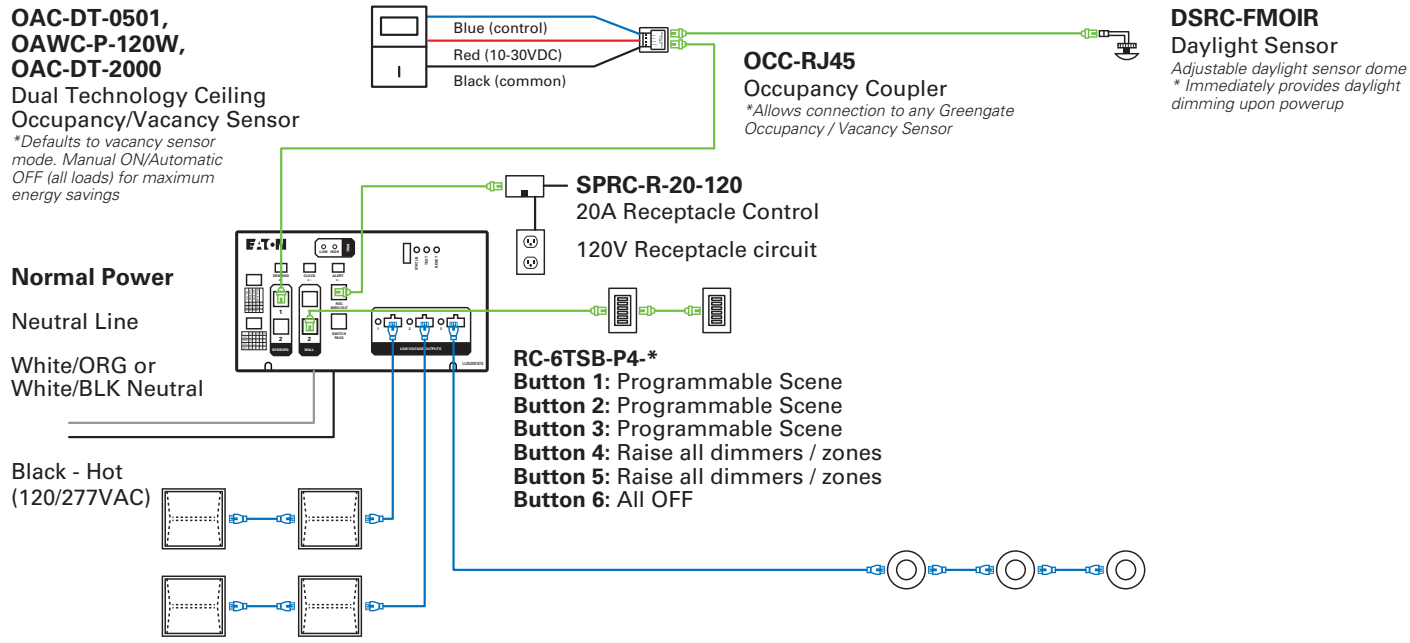
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)
Portfolio: LD6B15DLV EU6B102080XX 6LBM1H (16 watts)
Halo Commercial: PD615DLVB PDM6B8XX 61VH (14 watts

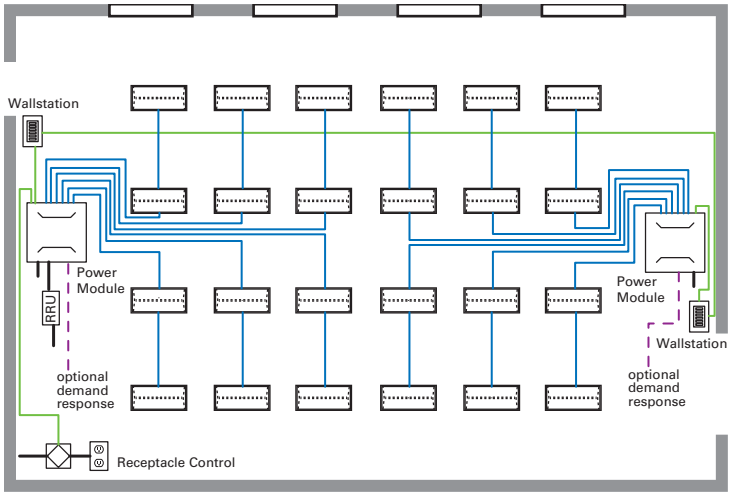
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Open office, 2x4 fixtures with integrated sensors and emergency

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
2	LVPM-06-100-03	600W low-voltage power module
2	RC-6TSB-P4-W	6 button zone raise/lower (white)
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	RRU-XXX	Remote Relay Unit 120v or 277v
2	GGRJ45-10P-G	pre-terminated control cable, 10 feet
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
4	LVC-8P	low-voltage lighting cable, 8 feet
13	LVC-15P	low-voltage lighting cable, 15 feet
7	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

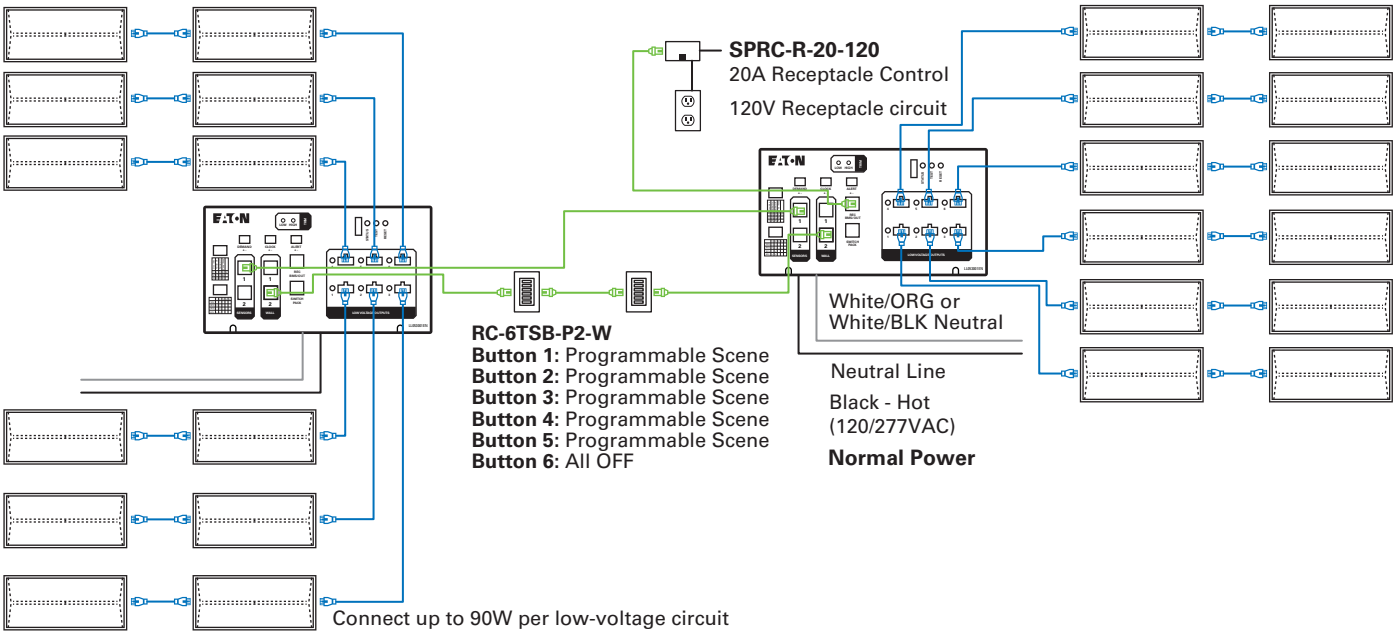
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

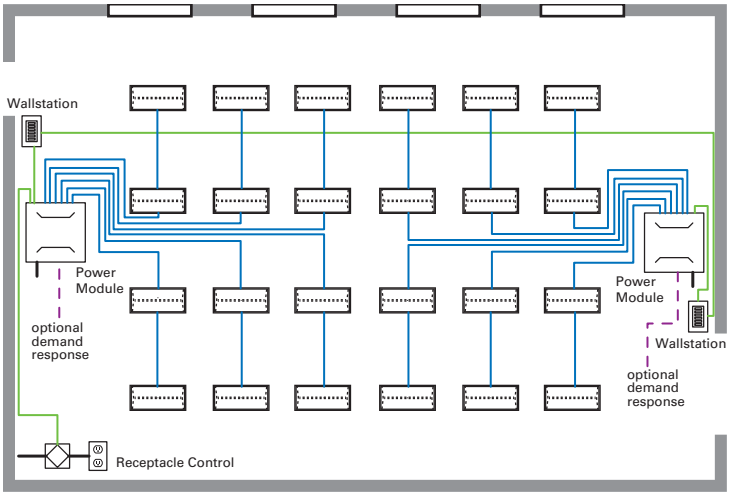
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Open office, 2x4 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
2	LVPM-06-100-03	600W low-voltage power module
2	RC-6TSB-P2-W	6 button scene station (white)
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
2	GGRJ45-10P-G	pre-terminated control cable, 10 feet
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-100P-G	pre-terminated control cable, 100 feet
4	LVC-8P	low-voltage lighting cable, 8 feet
16	LVC-15P	low-voltage lighting cable, 15 feet
4	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic partial off of lighting on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

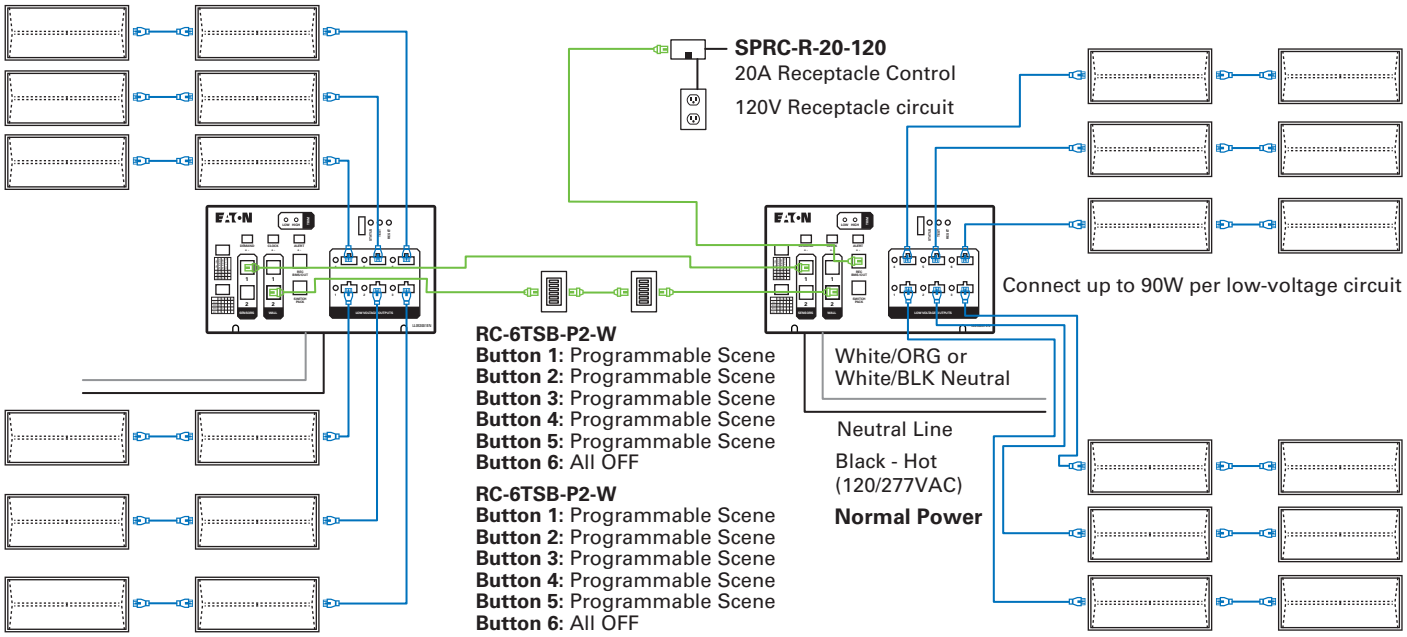
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-SLVPD1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

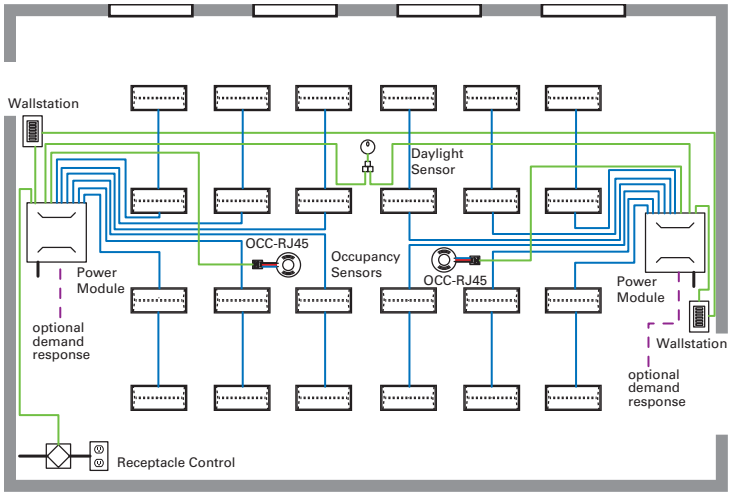
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Open office, 2x4 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
2	LVPM-06-100-03	600W low-voltage power module
2	RC-6TSB-P2-W	6 button scene station (white)
2	OACT-DT-2000	2000 sqft. dual tech sensor
2	OCC-RJ45	input/output device
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	GGRC-SPLITTER	RJ45 cable splitter
2	GGRJ45-10P-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
2	GGRJ45-50P-G	pre-terminated control cable, 50 feet
1	GGRJ45-100P-G	pre-terminated control cable, 100 feet
4	LVC-8P	low-voltage lighting cable, 8 feet
16	LVC-15P	low-voltage lighting cable, 15 feet
4	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

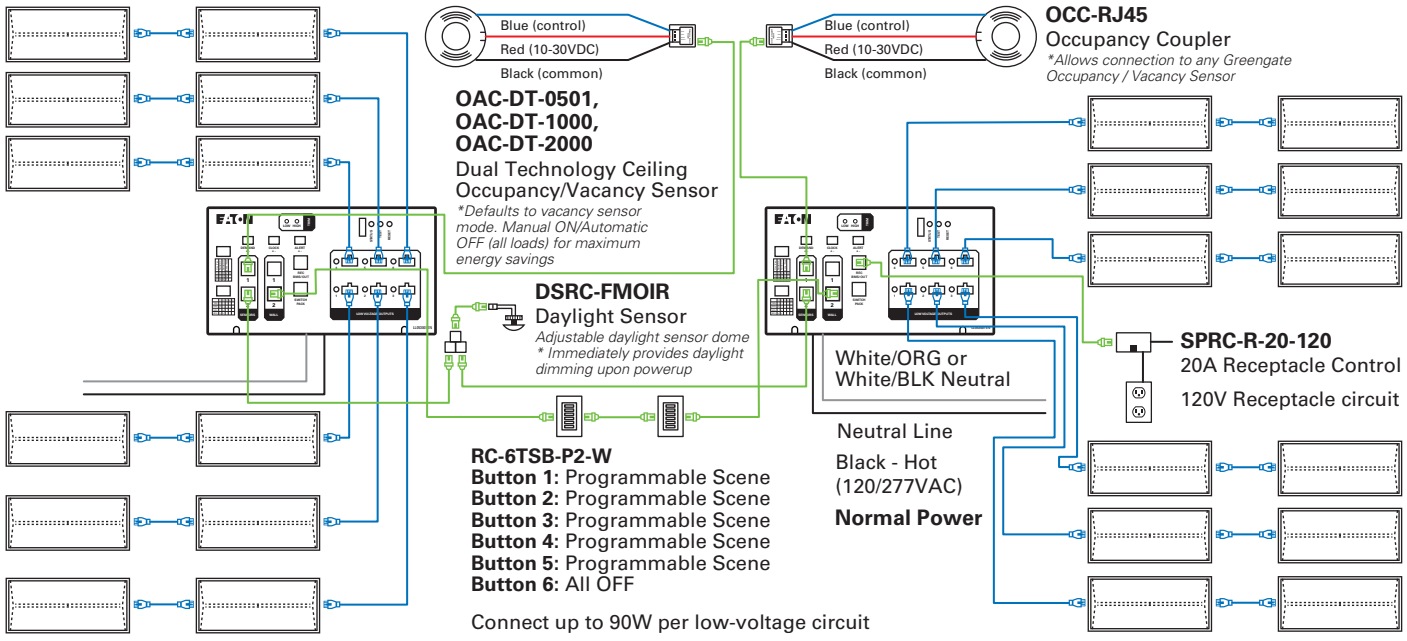
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

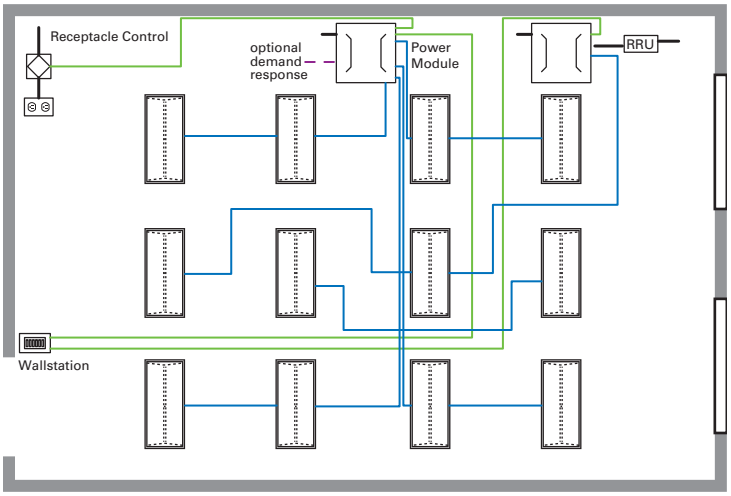
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Open office, 2x4 fixtures with integrated sensors and emergency

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-06-100-03	600W low-voltage power module
1	LVPM-03-100-03	300W low-voltage power module
1	RC-6TSB-P2-W	6 button scene station (white)
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	RRU-XXX	Remote Relay Unit 120v or 277v
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
1	GGRJ45-50P-G	pre-terminated control cable, 50 feet
2	LVC-8P	low-voltage lighting cable, 8 feet
8	LVC-15P	low-voltage lighting cable, 15 feet
2	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

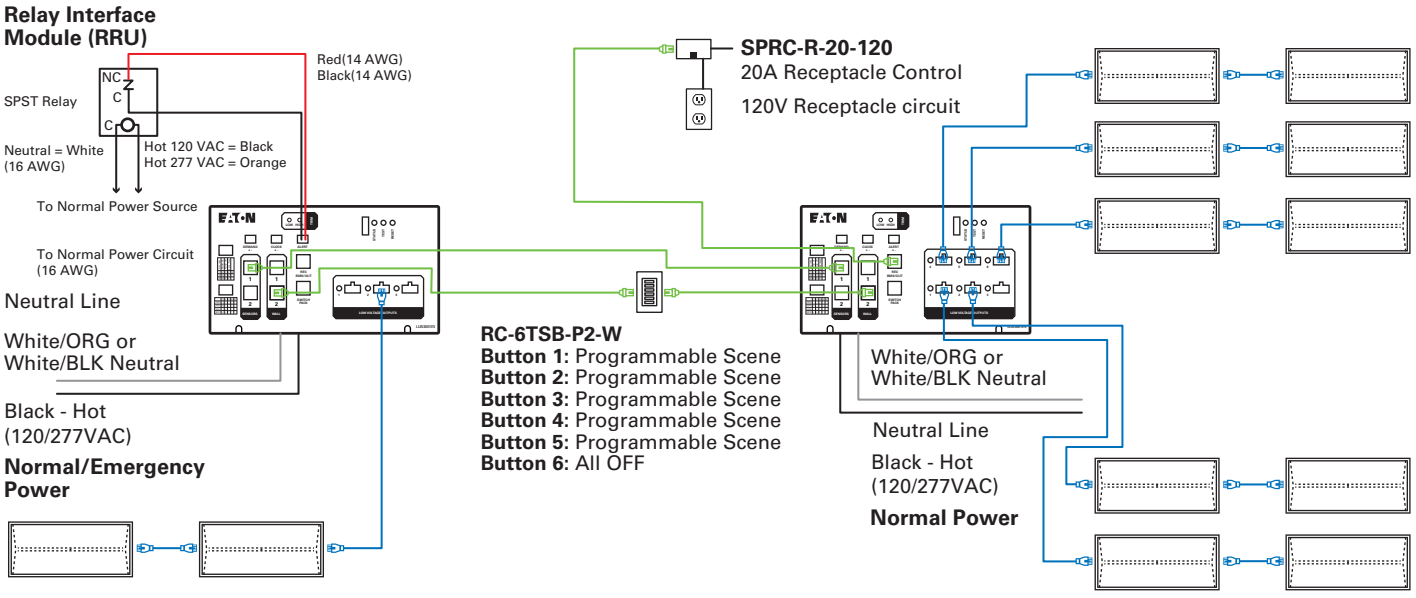
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-SLVPD1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

XX= color temperature
35 - 3500K
40 - 4000K

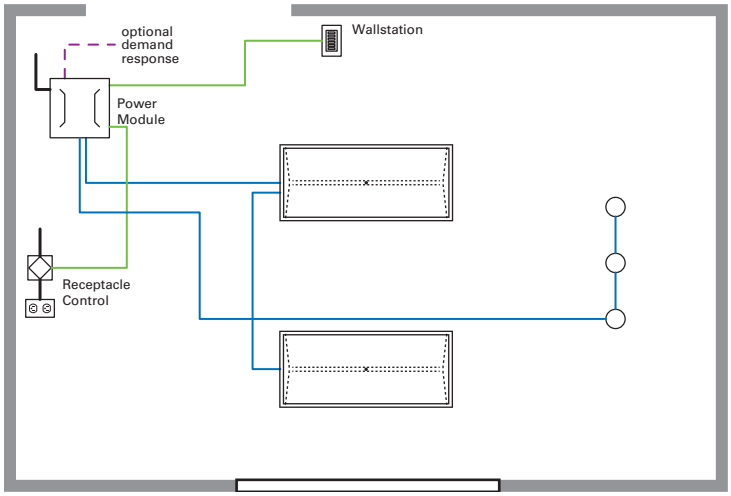
Typical wiring detail



Connect up to 90W per low-voltage circuit

Private office, 2x4 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
1	RC-5TSB-P2-W	5 button scene station (white)
1	LVHH-02	DLVP personal remote
1	SPRC-20-120	20AMP receptacle control
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
1	GGRJ45-25P-G	pre-terminated control cable, 25 feet
2	LVC-8P	low-voltage lighting cable, 8 feet
3	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

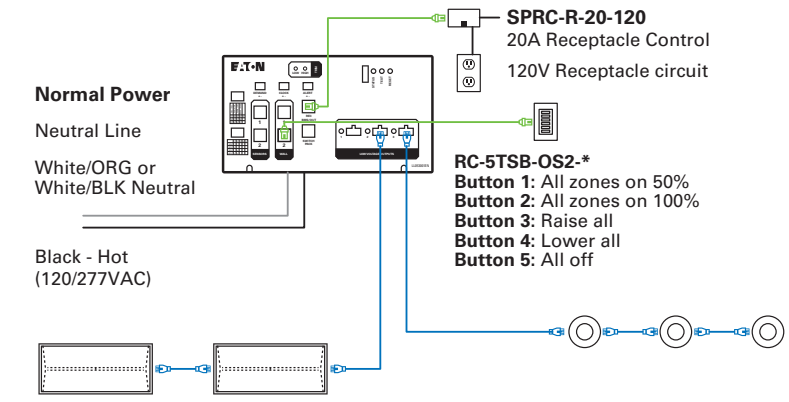
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (39 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (40 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (42 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (38 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (38 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (39 watts)
Portfolio: LD6B15DLV EU6B102080XX 6LBM1H (16 watts)
Halo Commercial: PD615DLVB PDM6B8XX 61VH (14 watts)

XX= color temperature
35 - 3500K
40 - 4000K

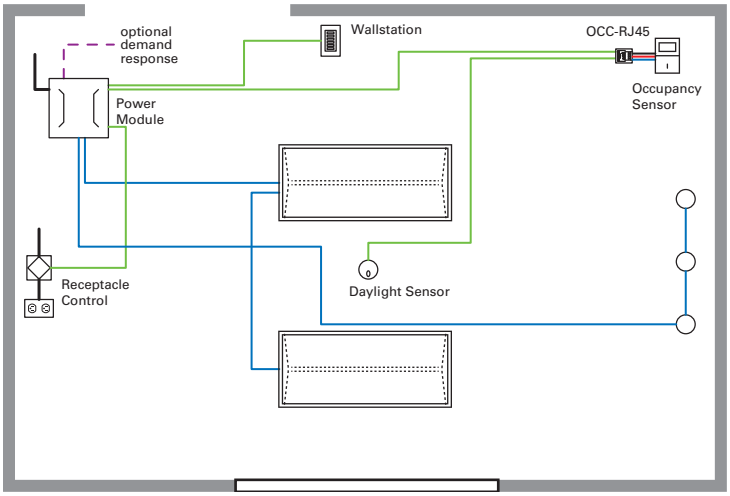
Typical wiring detail



Connect up to 90W per low-voltage circuit

Private office, 2x4 fixtures

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Receptacle Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
1	RC-5TSB-OS2-W	5 button scene station (white)
1	OACT-DT-0501	500 sqft. dual tech sensor
1	OCC-RJ45	input/output device
1	SPRC-20-120	20AMP receptacle control
1	DSRC-FMOIR	3 zone daylight sensor/ir receiver
1	LVHH-02	DLVP personal remote
1	GGRJ45-006-G	pre-terminated control cable, 6 inches
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
2	LVC-8P	low-voltage lighting cable, 8 feet
3	LVC-15P	low-voltage lighting cable, 15 feet

Sequence of operations

Lighting
Up to 3 dimmable zones

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Out of the box plug load turns on with occupancy
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

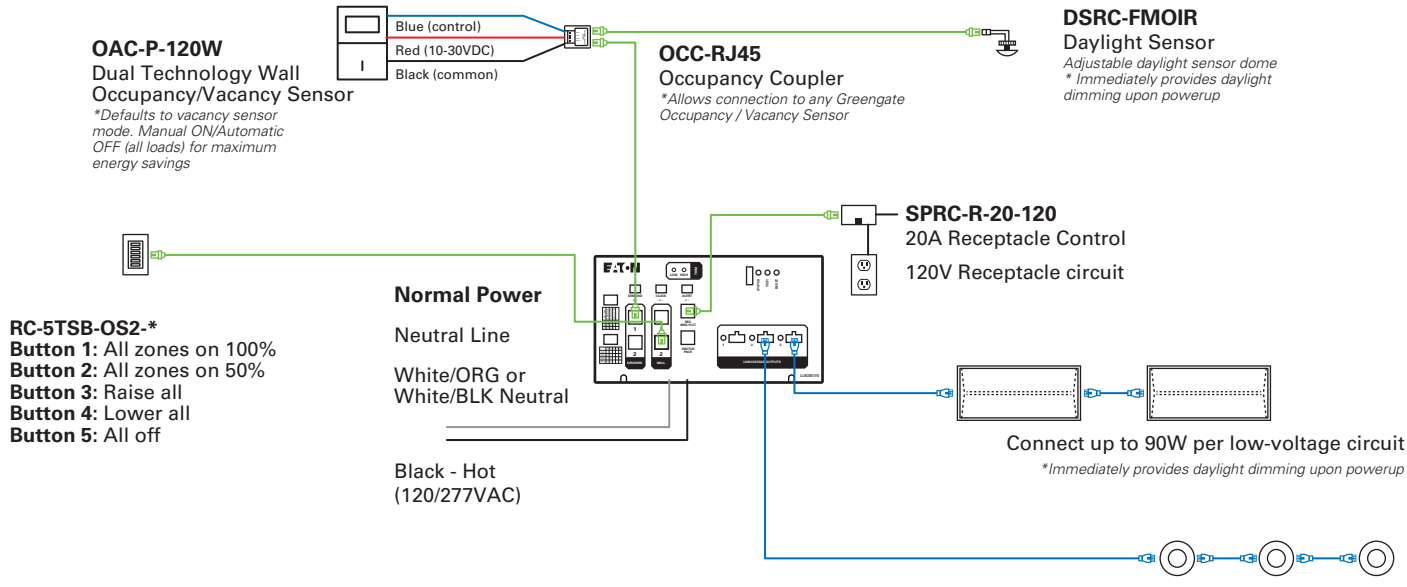
Manual Controls
Programmable scenes
Individual dimming zone raise/lower
All off

Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit
Substitute any Greengate low-voltage occupancy sensor

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-U (39 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-U (40 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-U (42 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-U (38 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-U (38 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (39 watts)
Portfolio: LD6B15DLV EU6B102080XX 6LBM1H (16 watts)
Halo Commercial: PD615DLVB PDM6B8XX 61VH (14 watts)

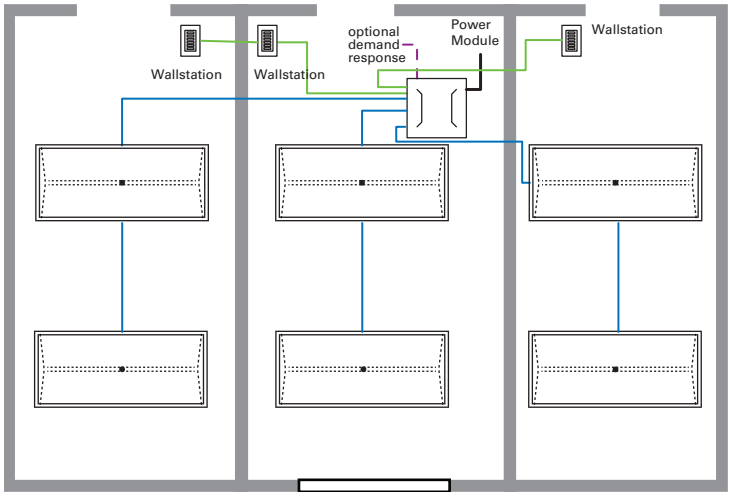
XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail



Private offices, 2x4 fixtures with integrated sensors

Manually Switched ON/OFF | Manual Dimmer | Occupancy Sensor | Daylighting Control | Demand Response | UL924 (Energy Back-up Circuit)



Bill of Materials

Qty	Catalog #	Description
1	LVPM-03-100-03	300W low-voltage power module
1	RC-3TLB-Z1D	3 button raise/lower toggle
1	RC-3TLB-Z2D	3 button raise/lower toggle
1	RC-3TLB-Z3D	3 button raise/lower toggle
1	GGRJ45-10P-G	pre-terminated control cable, 10 feet
2	GGRJ45-25P-G	pre-terminated control cable, 25 feet
5	LVC-15P	low-voltage lighting cable, 15 feet
1	LVC-30P	low-voltage lighting cable, 30 feet

Sequence of operations

Lighting
Up to 3 dimmable zones/spaces

Occupancy
Out of the box vacancy mode
Optional auto on to 50%
Optional auto on to scene
Automatic off of lighting and plug load on vacancy

Daylighting
Continuous dimming to off
Individual fixture daylight dimming
Not required in spaces without windows or that are less than 120W

Manual Controls
Individual dimming zone raise/lower
All off

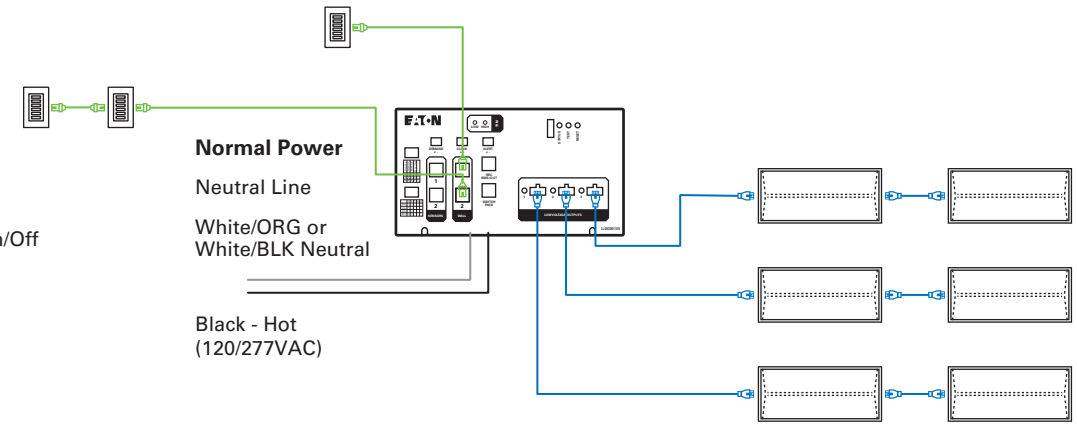
Additional Features
Automatic demand response available with open ADR compliant device
UL924 emergency control capabilities with remote relay unit

Available Fixture Models
Metalux Encounter: 22EN-LD2-25-48V-L8XX-LV1-SLVPD1-U (22 watts)
Metalux SkyRidge: 22SR-LD2-29-C-48V-L8XX-LV1-SLVPD1-U (23 watts)
Metalux ArcLine: 22ALNG-LD4-25-48V-L8XX-LV1-SLVPD1-U (21 watts)
Metalux Cruze: 22CZ-LD5-24-48V-L8XX-LV1-SLVPD1-U (20 watts)
Metalux FRLED: 24FR-LD4-40-48V-L8XX-LV1-SLVPD1-U (35 watts)
Metalux GRLED: 22GR-LD4-24-F1-48V-L8XX-LV1-SLVPD1-U (20 watts)
Corelite Bridge: BRG-WS-2LXX-LD2-48V-22-LV1 (23 watts)

XX= color temperature
35 - 3500K
40 - 4000K

Typical wiring detail

RC-3TLB-Z1D-*
RC-3TLB-Z2D-*
RC-3TLB-Z3D-*
Button 1: Toggle On/Off
Button 2: Raise
Button 3: Lower



Connect up to 90W per low-voltage circuit

**Immediately provides daylight dimming upon powerup*

Distributed Low-Voltage Power System

Distributed Low-Voltage Power System

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