Provolt™ | Bluetooth®

LINE VOLTAGE DIMMING ROOM CONTROLLERS
CALIFORNIA TITLE 20 COMPLIANT

Cat. Nos. OxC20-MDW/VxC20-MDW/ OxC04-IDW/VxC04-IDW
Rating: 8A @ 120 VAC, 50/60 Hz ,1/4 Hp / **Current Consumption:** 60-30 mA
Rating: 5A @ 277 VAC, 50/60 Hz, 1/3 Hp / **Current Consumption:** 60-30 mA
Operating Temperature: 32˚ to 104˚F (0˚ to 40˚C) / **Operating Humidity:** 10 to 90%, non-condensing
Compatible with 0-10V controlled 120-277VAC loads.

LEVITON®

PK-A3135-10-00-2B

WARNINGS AND CAUTIONS:

IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed, including the following:

a) **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**
b) DO NOT use outdoors.
c) DO NOT mount near gas or electric heaters.
d) Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
e) The use of accessory equipment not recommended by manufacturer may cause an unsafe condition.
f) DO NOT use this equipment for other than the intended use.

SAVE THESE INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER AT CIRCUIT BREAKER OR FUSE AND TEST THAT POWER IS OFF BEFORE WIRING!**
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult an electrician.
- Use this device **with copper or copper clad wire only.**
- Room controllers must be mounted on a vibration free surface.
- Do not terminate using data type wire, such as Cat 5/5E.
- Do not mount room controllers closer than 15 feet to each other.
- All units must be mounted at least 6 feet away from air vents, air handlers, and reflective surfaces (windows/mirrors).
- Do not touch the surface of the lens. Clean outer surface with a damp cloth only.

INSTALLATION GUIDE

ENGLISH

DESCRIPTION

The next generation of lighting control technology is here with the new Provolt™ Room Controller with Bluetooth® Technology. This innovative device works using the Leviton Provolt™ app that can be easily downloaded to smartphones or tablets and paired to the Leviton Provolt™ Room Controller using Bluetooth® technology. Provolt™ Room Controller devices give users point-to-point local control to automate lighting, bridging the gap between standard room controllers and whole-building automation systems.

The Leviton Provolt™ app can be easily downloaded to mobile devices and is compatible with Android and iOS smartphones or tablets. The app is easy to use with simple, intuitive on-screen menu options to control a Provolt™ Room Controller.

The **O5C20-MDW** & **O6C20-MDW** Room Controllers are LINE-voltage multi-technology (PIR and Ultrasonic) sensors (Occupancy and Photocell) that automatically control lighting. The room controller is multiple sensors and technology working together to provide room lighting automatically and efficiently. Occupancy sensors turn the lights ON and keep them ON, will turn them OFF when room is vacant and delayed-off timer expires. Photocell detects natural light and dims room lighting up or down as needed for additional energy efficiency and circadian rhythm occupant comfort benefits.

The **V6C20-MDW** LINE-voltage multi-technology Partial Off Room Controller monitors the space for vacancy. The lights can be turned ON manually by pressing the low-voltage/momentary toggle switch or PLVSW 1, 2, or 4 button switch. The sensor turns the lights OFF when vacancy is detected and the delayed-off time has expired. **NOTE**: Multiple PLVSW switches can be used with a single Provolt Room Controller. Multiple 2 and 4 button switches OR multiple 1 button or low voltage momentary or toggle switches.

The combination of ultrasonic (doppler shift) motion detection which gives maximum sensitivity and infrared motion detection which gives higher false triggering immunity yields a sensor with excellent performance.

The **O5C04-IDW** & **O6C04-IDW** Room Controllers are LINE-voltage infrared sensors that automatically control lighting. The room controller is multiple sensors working together to provide room lighting automatically and efficiently. Occupancy sensor turns the lights ON and keeps them ON, will turn them OFF when room is vacant and delayed-off timer expires. Photocell detects natural light and dims room lighting up or down as needed for additional energy efficiency and circadian rhythm occupant comfort benefits.

The **V6C04-IDW** LINE-voltage infrared Partial Off Room Controller monitors the space for vacancy. The lights can be turned ON manually by pressing the low-voltage/momentary toggle switch or PLVSW 1, 2, or 4 button switch. The sensor turns the lights OFF when vacancy is detected and the delayed-off time has expired. **NOTE**: Multiple PLVSW switches can be used with a single Provolt Room Controller. Multiple 2 and 4 button switches OR multiple 1 button or low voltage momentary or toggle switches.

Infrared motion detection gives higher false triggering immunity that yields a sensor with excellent performance.

These sensors continually analyze and adjust to changing conditions and use the latest microprocessor-based technology which permits them to continually adjust and optimize their performance.

TOOLS NEEDED

- Slotted/Phillips Screwdriver
- Small Slotted Screwdriver
- Wire stripper
- Cutters

PARTS INCLUDED LIST

- Room controller (1)
- 4" x 4" Mounting Plate (1)
- #6-32 x 1-1/2" Screw (2)
- Mid-Range Lens [red frame] (1)
- Extended Range Lens [black frame] (1) (assembled)
- High voltage terminal covers (1)
- Angled Light Pipe (1)
- Flat Light Pipe (1) (assembled)
- 360˚ Perforated Mask (1)
- Low Voltage Connector (1)
- Half Mask (1)
- Tubing Barrier (1)

INSTALLING YOUR ROOM CONTROLLER

1 WARNING: TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER at circuit breaker or fuse and TEST that power is off before wiring!

2 PREPARING AND CONNECTING WIRES:

Connect wires per appropriate WIRING DIAGRAM as follows:

- Make sure that the ends of the wires from the electrical box are straight.
- Remove insulation from each wire in electrical box as shown.
- Wire per Specifications:

Strip Gauge 3/4"
Wire

Line, Neutral, Load Wires (Copper)
Wire range: #12-18 AWG, 3.3 - 0.75 mm square
Torque rating: 20 lb-in, 23 kgf-cm.

Control Wires (Manual Switch, Demand Input and 0-10V)
Wire range: #16-26 AWG, 4.0 - 0.12 mm square
Torque rating: 2.5 lb-in, 2.88 kgf-cm.
NOTE: Maximum system low voltage wire length must be limited to 800 ft.

3 INSTALLING YOUR ROOM CONTROLLER:

Insert wires into proper terminals. Use a screwdriver to turn terminal screws clockwise and secure wires. **NOTE:** Wires need to be inserted from the top through the wire holes provided on the room controller and clamped down using the washer to the terminals. Cover terminals with provided high voltage terminals covers.

a) Load wire(s) to Load terminal(s).
b) Neutral wire to Neutral terminal.
c) Line wire(s) to Line terminal(s).
d) Connect the Violet wire to the + 0-10V line and the Gray wire to the common 0-10V line using Class 1 or Class 2 wiring methods as indicated by the load / ballast installation instructions or label markings.
e) Manual Switch and Demand Input to their respective marked terminals.

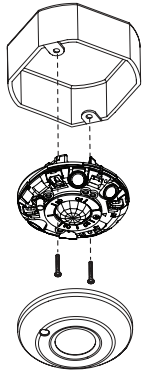
NOTES:

- Both loads of the 2-Zone units **MUST** be fed from the same phase.
- When installing Class 2 wiring use the provided tubing for insulation inside the junction box.

To mount inside 4" octagon 2.125" deep ceiling electrical box ***(Fig. 1).***

- Dress line voltage wires to provide enough clearance in electrical box when device is installed.
- Partially thread two #8-32 screws (not included) into the mounting holes of the electrical box.
- Pull out the two coasters that align with the two screws.
- Align room controller so that it fits between the mounting holes of the electrical box and insert over mounting screws.
- Push in the two coasters that align with the two screws.
- Tighten mounting screws firmly.

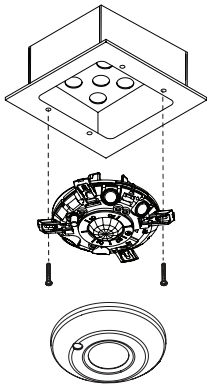
(Fig. 1)



To mount inside 4" square 1.5" deep ceiling electrical box with mud ring ***(Fig. 2).***

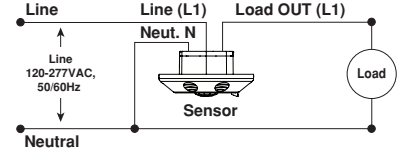
- Ensure that conduit/cable entry clamp is located in corner of electrical box.
- Dress line voltage wires to provide enough clearance in electrical box when device is installed.
- Install a two-gang mud ring (not included) on electrical box.
- Partially thread the two #6-32 screws provided into the mounting holes of the electrical box.
- Pull out the two coasters that align with the two screws.
- Align room controller so that it fits between the mounting holes of the electrical box and insert over mounting screws.
- Push in the two coasters that align with the two screws.
- Tighten mounting screws firmly.

(Fig. 2)

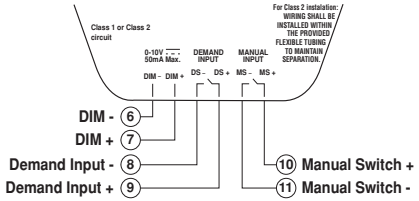


Wiring Diagram 1 (1-Zone units)

Line Voltage

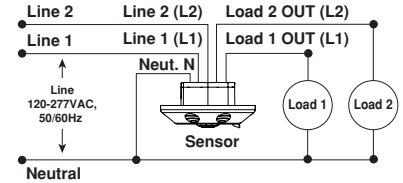


Class 1 or Class 2 circuit

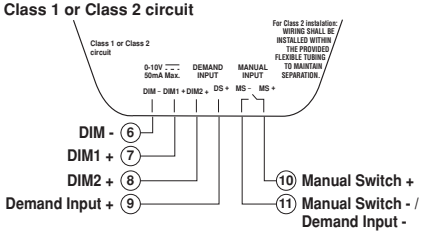


Wiring Diagram 2 (2-Zone units)

Line Voltage (both lines **MUST** be fed from the same phase)



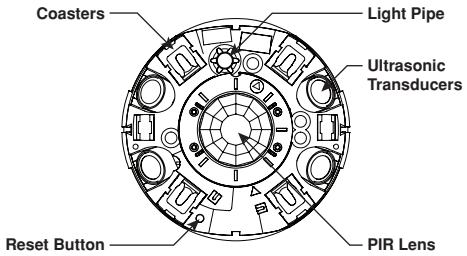
Class 1 or Class 2 circuit



ROOM CONTROLLER OPERATION

Complete explanation of the Room controllers Modes of Operation and Factory Default Settings is available in the Provolt™ app on your mobile device.

- **Delayed-Off time:** The room controller is designed to turn the lights OFF if no motion is detected after a specified time. This length of time is called the delayed-off time and is set using the Provolt™ app on your mobile device.
- **Walk-through Mode:** The walk-through feature is useful when a room is momentarily occupied. The walk-through feature works as follows: When a person enters the room, the lights will turn ON. If the person leaves the room before the default walk-through timeout of 2.5 minutes, the room controller will turn the lights OFF 2.5 minutes later. If the person stays in the room for longer than 2.5 minutes, the room controller will proceed with the standard operation.
- **Sensitivity:** Both PIR and Ultrasonic sensor sensitivities are automatically adjusted according to room and room objects to maximize room controller function for both false on and off's.
- **Reset Device State:** To reset Auto adapting and photocell settings to factory default. To reset the device press the Reset Button for at least 5 second.
- **Test:** This mode is for test purposes only, and sets the room controller timeout to 4 seconds. **NOTE**: Enabling Test Mode with reset Auto Adaptive data.
- **Manual ON/OFF Switch:** Use to override occupancy and manually turn the lights ON or OFF by pressing the low voltage momentary/toggle switch or PLVSW 1, 2, or 4 button switch.
- **Demand Response Interface:** This input is intended for use with BMS (Building Management System), ADR (Automated Demand Response) or any contact closure to force the 0-10V output to reduce the level by 15-50% as configured in the Provolt™ app.



PHOTOCELL OPERATION

Complete explanation of the Photocell operation and calibration is available in the Provolt™ app on your mobile device.

DIMMING

The photocell controls a 0-10 VDC dimmable ballast or LED Driver to achieve maximum Energy savings while maintaining a minimum light level referred to as the "DDL". When no daylight is available, the photocell allows the load to operate at its full bright level. As daylight increases in the room, the photocell dims the load. When the minimum dim level is reached (and if the Dim to Off setting is enabled), the device will switch off the lights when the light level is above the DDL for 30 seconds. The lights will remain off until the light level drops below the DDL for 30 seconds. The lights will then be turned on, with the light source set at its minimum dim level. The photocell will increase the light output until the DDL is reached. As the light levels change, the photocell will reduce or increase the dim level in order to maintain the DDL. There is an adjustable Fade Rate option in the Provolt™ app on your mobile device to make the light level transitions unnoticeable to room occupants.

DUAL ZONE OPTION (X6CXX Models ONLY)

The dual zone option is ideal for installations, such as classrooms, with individually controlled parallel rows of lights. Daylight contribution diminishes as the photocell's distance from the source (windows) increases. Therefore, lights at different distances from a window should not be controlled from the same photocell output. The dual zone models (X6CXX) has a second dimming output that can control an additional zone of lighting. Zone 1's (Load 1) light level can be adjusted using the Provolt™ app on your mobile device. Zone 1 will dim up and down proportionally to Zone 2.

NOTE: When installing X6CXX models make sure to wire lights closer to the window to Load 1 terminal and 0-10V wires to DIM 1 output.

LED INDICATORS

RED
- Blinks ON for 1 second upon PIR detection.
- Solid for 2 minutes then blinks for 3 minutes during manual photocell calibration.
- Solid for more than 2 minutes indicates device failure.
- Alternating Red/Blue indicates the device is in locate mode triggered by the Provolt Bluetooth App.

GREEN
- Blinks ON for 1 second upon US detection.
- Rapid blink while in Forced On Mode.
- Alternating Green/Blue while BLE (Bluetooth® Low Power) app is communicating.
- Solid for 24 hours during photocell auto calibration.

YELLOW
- Rapid blink when in test mode.
- Solid for BLE Communications Error.

BLUE
- Blinks on for 1 second every minute when Photocell Override is active.
- Blinks briefly once every 30 seconds when Demand Response signal is active or BLE app is overriding.
- Solid ON for 2 seconds every 30 seconds when the photocell is holding the lights OFF.
- On solid when photocell auto calibration fails.
- Alternating Red/Blue indicates the device is in locate mode triggered by the Provolt Bluetooth App.

FIELD-OF-VIEW

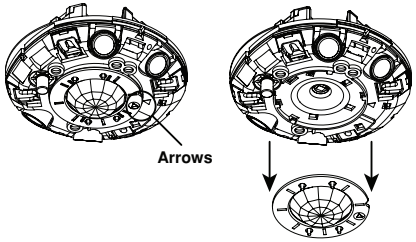
OxC20-MDW/VxC20-MDW - 2000 sq. ft.

OxC04-IDW/VxC04-IDW - 450-1500 sq. ft.

- **Mid range lens (red frame):** mounting height (13-20 ft)
- **Extended range lens (black frame):** mounting height (8-12 ft)

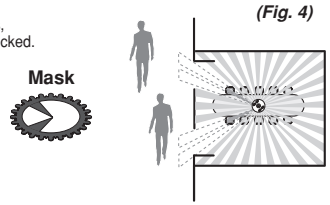
CHANGING PIR LENS

Turn lens and line up arrows, then pull lens from room controller.



MOUNTING LOCATION DIAGRAM

By masking two sections, hallway traffic can be blocked.



(Fig. 4)

SETTINGS

CONTROLLING YOUR ROOM CONTROLLER WITH BLUETOOTH® TECHNOLOGY

Download the Leviton Provolt™ app for your mobile device.

Android: Tap the Google Play Store icon on your phone or go to http://play.google.com on your computer and follow the instructions to obtain the app.

iOS: Tap the App Store icon on your phone or access the app through your iTunes account on your computer.

Once you have downloaded the Provolt™ app, follow the on screen instructions to connect to the Provolt™ device(s).

BLUETOOTH® TECHNOLOGY RANGE

Programming or adjustments made using the Provolt™ app on your mobile device should be made when standing under the device for best communication. Maximum recommended distance is 25 feet.

TROUBLESHOOTING

- **Lights do not turn ON**
  - Circuit breaker or fuse has tripped.
  - Forced Mode is enabled with the Forced State set to OFF. To disable the Forced Mode refer to instructions within the Provolt™ app on your mobile device.
- **Lights stay ON**
  - Constant motion. To Test: Reduce PIR and/or US sensitivity in the Provolt™ app on your mobile device by 25%; remove motion source. If unsatisfactory, move room controller.
  - Forced Mode is enabled with the Forced State set to ON. To disable the Forced Mode refer to instructions within the Provolt™ app on your mobile device.
- **Light turns ON too long**
  - Timer setting too high. To Test: Check configuration settings within the Provolt™ app on your mobile device. Typical setting is 10 minutes.

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FCC COMPLIANCE STATEMENT

Part 15.19, Section 7.15 of RSS-GEN
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Warning (Part 15.21)
Changes or modifications not expressly approved by Leviton could void the user's authority to operate the equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving Antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/tv technician for help.

IC COMPLIANCE STATEMENT

Per RSS-Gen, Section 8.4, this device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CLASS 2 INSTALLATION NOTE

The 0-10 V DC dimmer control circuit can be installed as Class 1 or Class 2. If installed as Class 2, all devices in the circuit must be Class 2 rated and this switch must be wired per instructions below, which are in accordance with NEC Code NFPA 70, paragraph 725.136 (d).

For Class 2 Installation: The 0-10V control wires must be mechanically separated from Class 1, line, neutral and ground power lines. This can be accomplished by performing the following:

1) Installing a mechanical barrier, in the form of silicone tubing or other non-conducting sleeve, over the length of the individual 0-10V (Violet & Gray) control wires contained within the electrical box and to the point where they extend out of the electrical box.[1 3]
2) Use of approved wire connectors shall be used to join the 0-10V control wires to building control wires. [2 3]
3) When CL3, CL3R or CL3P rated control cables (or permitted substitute) are used to connect devices within the building silicone tubing, or other non-conducting sleeve, shall be installed over the cable starting from the switch to the point where they extend out of the electrical box. [1 2 3]

1 Silicone tubing shall be NRTL (UL/CSA/ETL) recognized or equivalent to provide mechanical separation equal to .25" in air.
2 Connectors joining 0-10V control wires shall be approved LISTED connectors.
3 Wire connectors and wire tubing shall be provided by the installation contractor.

FOR CANADA ONLY

For warranty information and/or product returns, residents of Canada should contact Leviton in writing at Leviton Manufacturing of Canada Ltd to the attention of the Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9 or by telephone at 1 800 405-5320.

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option. **For details visit www.leviton.com or call 1-800-824-3005.** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose**, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. **Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation**. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

ARTWORK PRINT SPECIFICATIONS

LEVITON®

PART NUMBER PK-A3135-10-00-2B **REV** _____ **DESCRIPTION** Instruction Sheet

SPECIFICATIONS :

* **Thickness:** 40 Lb
* **Material:** _____
* **Finish:** _____
_____ : _____

* For manuals - designates cover specifications

* **Color(s):** 1 **over** 1
1: Black
2: _____
3: _____
4: _____

[X] Spot
[ ] CMYK

* **Fonts:**
1: Helvetica
2: _____
3: _____
4: _____

Die Line Key: Perforate, Die Cut, Fold Line, Kiss Cut, Cellophane, Glue

MANUAL INTERIORS / BINDERY / FOLD SCHEME :

Body Material: _____
Thickness: _____
Bindery

[ ] Die cut [X] Fold [ ] Saddle Stitch
[ ] Perfect Bind [ ] Drill [ ] Trim

Color(s): ____ **over** ____
1: _____
2: _____
3: _____
4: _____

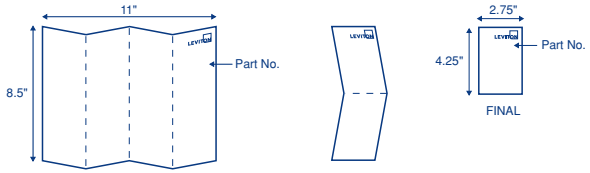
[ ] Spot
[ ] CMYK

Fonts:
1: _____
2: _____
3: _____
4: _____

PROCESS :

[X] Offset [ ] Flexo
[ ] Other _____
Line Screen: _____
Angle: _____
Resolution: _____

DIMENSIONS / FOLD SCHEME / BINDERY DIAGRAM



Die Cut — Fold Line — Punch/Drill Hole

COMMENTS :

_____
_____

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