

ZūM™ Wireless Universal Dimmer Module, 16A, 100-277V

- > Pair and play wireless integration with Zūm keypads, occupancy sensors, vacancy sensors, and daylight sensors^[1,2]
- > Zūm Mesh peer-to-peer RF communications for easy integration into a complete standalone or networked Zūm wireless lighting control solution^[2]
- > Single-channel universal lighting dimmer
- > Rated 16 Amps at 100-277 Volts AC
- > Supports dimmable LED, incandescent, electronic low-voltage, magnetic low-voltage, neon/cold cathode, and 2-wire fluorescent lighting loads
- > Auto load-type detection
- > Forward and reverse phase dimming modes
- > Zero-cross filter technology for reduced lamp flicker
- > Extreme stability under noisy power line conditions
- > Built-in air gap relay
- > Mounts on a wall panel or above a suspended ceiling
- > Surface mountable NEMA Type 1 enclosure
- > UL® 2043 listed for installation in an environmental air handling space
- > Meets UL 508 standard for industrial control equipment
- > Meets CEC Title 24 energy efficiency standards^[3]
- > Meets ASHRAE® 90.1 energy efficiency standards^[4]
- > ICC® International Energy Conservation Code® compliant^[5]

The ZūM™ Wireless **ZUMMESH-EXP-16A-DIMU** is a single-channel universal dimmer module designed to control a wide range of dimmable lighting load types. Utilizing proprietary zero-cross filter technology, the ZUMMESH-EXP-16A-DIMU compensates for line voltage and frequency fluctuations, providing superior immunity to power line noise and a dramatic reduction in lamp flicker.

Zūm Mesh wireless technology affords easy “pair and play” integration as part of a complete Zūm commercial lighting system. Energy-saving options are available to enable daylighting, occupancy or vacancy sensing, HVAC system integration, and centralized monitoring and management.^[1]

Auto-Detecting Universal Dimming

Under normal operation, the ZUMMESH-EXP-16A-DIMU detects the connected load type and selects the appropriate operating mode automatically. Reverse phase (trailing edge) mode supports incandescent and electronic low-voltage load types, while forward phase (leading edge) mode supports LED, magnetic low-voltage, neon/cold-cathode, and 2-wire fluorescent load types. Center phase mode is also available, combining reverse and forward phase load control to address special cases. The operative mode is indicated by two LEDs located on the front panel.

Energy Efficiency

Occupancy sensor, vacancy sensor, and daylight sensor connectivity drive the potential for significant energy savings. Lights will turn off automatically when the room is vacant and dim gradually according to the amount of natural daylight in the room. This reduces energy usage while maintaining a consistent light level for a comfortable workspace.



Pair and Play Setup

Designed with flexibility and ease-of-use in mind, the ZUMMESH-EXP-16A-DIMU is pre-programmed with “pair and play” functionality. An installer can simply install the dimmer in a room along with Zūm [occupancy](#) or [vacancy sensors](#) and/or a [daylight sensor](#), set up the room with a few quick button taps, and then use the dimmer to control the lights in the room – no programming required! Room setup can also be accomplished using the Zūm app if the room is equipped with a [Zūm Network Bridge](#). The Zūm Network Bridge also enables centralized monitoring and management via a [Zūm Floor Hub](#) and [Zūm Net Wireless Gateway](#).^[1]

Zūm Mesh Wireless Technology

Ultra-reliable Zūm Mesh wireless technology provides steadfast peer-to-peer RF communications within a commercial space without the need for physical control wiring, hubs, or gateways. Employing a 2.4 GHz peer-to-peer mesh network topology, nearly every Zūm Mesh device acts as a “routing node,” relaying wireless commands directly between Zūm Mesh devices to ensure that every command reaches its intended destination without disruption.

Zūm Mesh is smart! Every Zūm Mesh device knows its purpose and just the right messages to communicate to other Zūm Mesh devices within the space. Each Zūm Mesh device that is added to the space effectively increases the range and stability of the peer-to-peer mesh network by providing multiple redundant signal paths. Each Zūm Mesh device auto-negotiates its RF channel to provide robust communication and is protected through AES 128-bit encryption. The wireless range between any two Zūm Mesh devices is typically 50 feet (15 meters).^[2]

Please refer to the [Zūm Lighting Control System Setup Guide](#) (Doc # 7957) for additional information.

Plenum Rated NEMA Enclosure

The ZUMMESH-EXP-16A-DIMU is designed to be mounted to a vertical surface and meets the requirements of UL® 2043 for installation in an environmental air-handling space (plenum) above a suspended ceiling. Conduit knockouts are provided on the bottom and lower sides of the unit. All connections are made via screw terminals behind the front cover.

SPECIFICATIONS

Load Control

Dimmer Channels: 1
Load Rating: 16 Amps
Line/Load Voltage: 100-277 Volts AC, 50/60 Hz
Dimmable Load Types: Incandescent, LED, electronic low-voltage, magnetic low-voltage, neon/cold cathode, 2-wire fluorescent

Wireless Communications

RF Transceiver: Zūm Mesh 2-way RF, 2.4 GHz ISM Channels 15, 20, 25, or 26 (channel auto-selected), IEEE 802.15.4 compliant, AES-128 encryption
Range (Typical): 50 ft (15 m) to nearest peer-to-peer mesh network device(s), subject to site-specific conditions and individual device capabilities^[2]

Note: A maximum of 32 Zūm Mesh wireless devices is permitted per room.

Controls & Indicators

TEST: (1) Pushbutton and (1) green LED, press and release the button to toggle the load output on and off, press and hold to cycle the dimming level up and down, LED indicates the load output is energized, also used for room setup and factory reset

SETUP: (1) Pushbutton and (1) red LED, used for room setup and factory reset

DIM MODE: (1) Pushbutton (behind cover), press to cycle through dimming modes: auto detect (default), reverse phase, forward phase, or center phase

AUTO: (1) Red LED, indicates auto load type detection and phase mode selection is enabled

REV: (1) Red LED, indicates reverse phase mode is enabled (automatically or manually)

FWD: (1) Red LED, indicates forward phase mode is enabled (automatically or manually)

CENTER: (1) Red LED, indicates center phase mode is enabled (automatically or manually)

ZEROCROSS FILTER: (1) Pushbutton (behind cover), press to enable/disable zero-cross detection filter

BASIC: (1) Green LED (behind cover), indicates basic zero-cross detection mode (default)

FILTER: (1) Green LED (behind cover), indicates filtered zero-cross detection mode

RESET: (1) Pushbutton (behind cover), initiates hardware reset

NET: (1) Amber LED, indicates Zūm Mesh network connection status and signal communications

ERROR: (1) Red LED, indicates a variety of error conditions via blinking patterns (refer to the installation guide)

POWER: (1) Green LED (behind cover), indicates line power is applied to either LINE terminal

Connections

Antenna: (1) Connection for supplied antenna

NEUT: (3) Captive screw terminals;
 Neutral connections for feed and load;
 24 to 10 AWG (0.25 to 4.0 mm²) wire size

LINE: (2) Captive screw terminals;
 Line power feed input and pass-through;
 24 to 10 AWG (0.25 to 4.0 mm²) wire size

LOAD: (1) Captive screw terminal;
 Dimmed load output;
 24 to 10 AWG (0.25 to 4.0 mm²) wire size
Ground: (1) 3-terminal grounding block

Environmental

Temperature: 32° to 104° F (0° to 40° C)

Humidity: 10% to 90% RH (non-condensing)

ZUMMESH-EXP-16A-DIMU

Zūm™ Wireless Universal Dimmer

Construction

Enclosure: NEMA Type 1, galvanized steel with gray matte powder coated removable front cover panel, extruded aluminum heat sink on rear, (2) integral mounting flanges, (4) 1/2" or 3/4" conduit knockouts on bottom and lower left & right sides

Mounting: Surface mount, must be oriented upright and mounted to a vertical surface with 6 inches (153 mm) minimum spacing above and below for proper ventilation and heat dissipation

Dimensions

Height: 8-13/16 in (224 mm)

Width: 6-3/8 in (162 mm)

Depth: 3-3/16 in (81 mm)

Weight

3.43 lb (1.56 kg)

Compliance

IC, FCC Part 15 Class A digital device, UL508, UL 2043

MODELS & ACCESSORIES

Available Models

ZUMMESH-EXP-16A-DIMU: Zūm™ Wireless Universal Dimmer

Available Accessories

ZUMMESH-OL-PHOTOCELL-BATT: Zūm™ Wireless Battery-Powered Daylight Sensor, Open-Loop

ZUMMESH-PIR-OCCUPANCY-BATT: Zūm™ Wireless Battery-Powered Occupancy Sensor

ZUMMESH-PIR-VACANCY-BATT: Zūm™ Wireless Battery-Powered Vacancy Sensor

ZUMMESH-KP10ABATT-W-S: Zūm™ Battery-Powered Wireless Keypad, Rocker Switch, White Smooth

ZUMMESH-KP10BBATT-W-S: Zūm™ Battery-Powered Wireless Keypad, 4-Button, White Smooth

ZUMMESH-KP10CBATT-W-S: Zūm™ Battery-Powered Wireless Keypad, 6-Button, White Smooth

ZUMMESH-KP10DBATT-W-S: Zūm™ Battery-Powered Wireless Keypad, 6-Button w/Sensor Control, White Smooth

ZUMMESH-KP10FBATT-W-S ENGRAVED: Zūm™ Battery-Powered Wireless Keypad, 4-Button w/Custom Engraving, White Smooth

ZUMMESH-KP10GBATT-W-S ENGRAVED: Zūm™ Battery-Powered Wireless Keypad, 6-Button w/Custom Engraving, White Smooth

ZUMMESH-KP10A-W-S: Zūm™ Wireless Keypad, Rocker Switch, 100-277V, White Smooth

ZUMMESH-KP10B-W-S: Zūm™ Wireless Keypad, 4-Button, 100-277V, White Smooth

ZUM-FLOOR-HUB: Zūm™ Floor Hub

ZUMNET-GATEWAY: Zūm™ Net Wireless Gateway

ANT-EXT-10: 10 ft Antenna Extender

Notes:

1. Item(s) sold separately. Refer to each product's spec sheet for more information.
2. "Zūm Mesh" refers to the peer-to-peer wireless mesh network within a room composed of dimmers, switches, load controllers, keypads, and sensors. AC-powered Zūm Mesh devices function as routing nodes, which effectively extend the range of the wireless network within the room. Battery-powered devices only function as leaf nodes and do not extend range. Networks composed predominantly of battery-powered devices may require additional AC-powered devices, such as the ZUMMESH-JBOX-PSU, to serve as supplemental routing nodes to fill any gaps in coverage. Refer to the "Installation and Setup of Crestron RF Products, Best Practices" guide (Doc #6689) for additional guidelines.
3. This product is part of a California Energy Commission Title 24 compliant solution. Refer to <http://www.energy.ca.gov/title24/> to learn more about designing a fully compliant solution. Additional resources can be accessed via the Crestron Commercial Lighting Consultants Partner Portal at <http://www.crestron.com/about/partner-info/commercial-lighting-consultants>.
4. This product is part of an ASHRAE 90.1 compliant solution. Refer to <https://www.ashrae.org/> to learn more about designing a fully compliant solution. Additional resources can be accessed via the Crestron Commercial Lighting Consultants Partner Portal at <http://www.crestron.com/about/partner-info/commercial-lighting-consultants>.
5. This product is part of an International Energy Conservation Code compliant solution. Refer to <https://www.iccsafe.org/iecc/> to learn more about designing a fully compliant solution. Additional resources can be accessed via the Crestron Commercial Lighting Consultants Partner Portal at <http://www.crestron.com/about/partner-info/commercial-lighting-consultants>.

This product may be purchased from an authorized Crestron dealer or distributor. To find a dealer or distributor, please contact the Crestron sales representative for your area. A list of sales representatives is available online at <https://www.crestron.com/How-To-Buy/Find-a-Representative> or by calling 855-263-8754.

Additional resources can be accessed via the Crestron Commercial Lighting Consultants Partner Portal at <https://www.crestron.com/Partners/Partnership-Programs/Commercial-Lighting-Consultants>. For assistance with incorporating this product into a design or specification, please contact the Commercial Lighting Consultant Hotline via email at clcdesign@crestron.com or by calling 888-330-1502.

The specific patents that cover this and other Crestron products are listed online at <https://www.crestron.com/legal/patents>.

Certain Crestron products contain open source software. For specific information, visit <https://www.crestron.com/opensource>.

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