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

The ZUMMESH-EXP-16A-DIMU is a universal dimmer that provides a single-channel of universal dimming control to a Zūm space. The ZUMMESH-EXP-16A-DIMU uses reverse phase (trailing edge) dimming or forward phase (leading edge) dimming to control a wide variety of load types. Auto Dimming mode detects the connected load type and selects the appropriate dimming mode.

Proprietary zerocross filter technology allows the ZUMMESH-EXP-16A-DIMU to compensate for line voltage and frequency fluctuations and provides superior immunity to power-line noise and a dramatic reduction in lamp flicker.

Check the Box

| Item	Qty
ZUMMESH-EXP-16A-DIMU	1
Antenna, 2.4 GHz, 1/4 Wave, Reverse Polarity, Female (P/N 2001016)	1

Installation

NOTE:
- This product must be installed and used in accordance with the appropriate electrical codes and regulations.
- This product must be installed by a licensed electrician.
- Use copper wire rated 75 °C or better.
- This product meets the requirements of UL®2043 for installation in an environmental air-handling (plenum) space.

Install the ZUMMESH-EXP-16A-DIMU:

1. Install the ZUMMESH-EXP-16A-DIMU on any vertical surface using four screws. The screws must be appropriate for the mounting surface.

   CAUTION: To prevent heat damage to drywall, secure a 1/2 in. (13 mm) thick piece of plywood to the wall and then secure the ZUMMESH-EXP-16A-DIMU to the plywood.

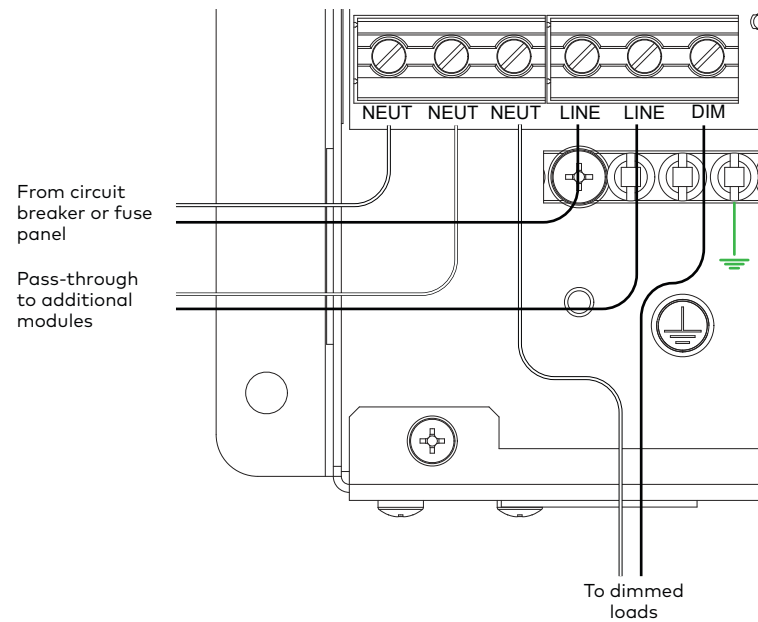2. Attach the antenna to the side of the ZUMMESH-EXP-16A-DIMU.

Antenna
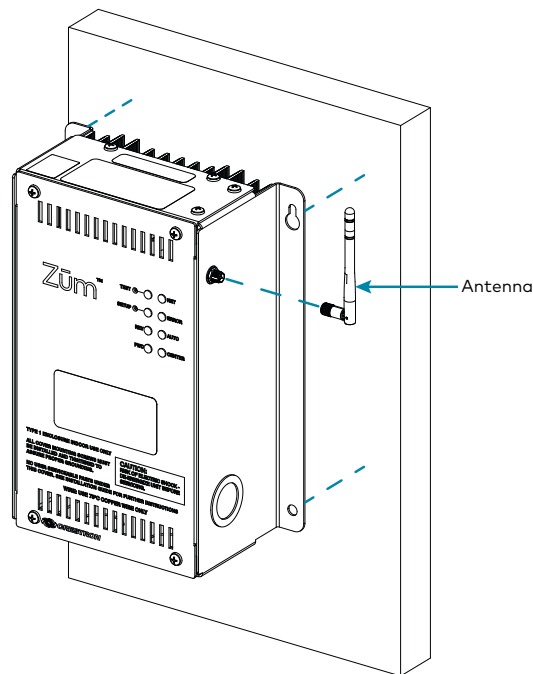
Wiring

WARNING: RISK OF SERIOUS PERSONAL INJURY. To avoid fire, shock, or death, turn off the power at the circuit breaker(s) or fuse and test that power is off before installing and wiring! Installing with power on can result in serious personal injury and damage to the device.

1. Use a #2 Phillips screwdriver to remove the cover screws and then remove the cover.

Remove the cover screws
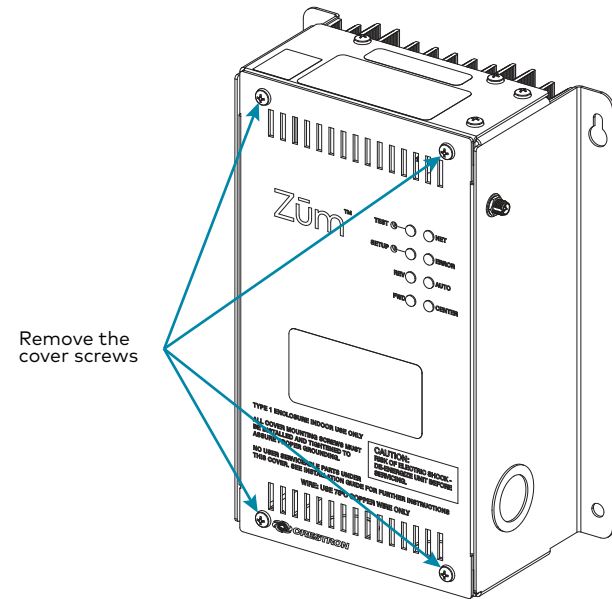
2. Wire the device as shown below. Additional LINE, NEUT, and GND connections are supplied for power pass-through. When making connections, consider the following:
   - Wires should be 24 to 10 AWG.
   - Strip wires to 5/16 in. (8 mm).
   - Tighten screw terminals to 4.5 in.-lbs (0.5 Nm).

NEUT NEUT NEUT LINE LINE DIM

From circuit breaker or fuse panel

Pass-through to additional modules

To dimmed loads

Set the Dimming Mode

The ZUMMESH-EXP-16A-DIMU uses Auto Dimming mode to determine the attached load type and applies Forward Phase (leading edge) or Reverse Phase (trailing edge) Dimming mode.

WARNINGS:
- Auto Dimming mode should not be disabled unless suggested by a Crestron technical support representative. Incorrectly setting these switches to force the wrong mode can cause damage to the dimmer and lighting fixture.
- Only use Center Dimming mode if instructed by a Crestron technical support representative.

If necessary, set the ZUMMESH-EXP-16A-DIMU to operate in Forward Phase, Reverse Phase, or Center Phase Dimming mode.

1. Remove the cover as shown in the "Wiring" section.
2. Press the **DIM MODE** button until the desired dimming mode is indicated by the REV, AUTO, FWD, or CENTER LED.

DIM MODE   REV AUTO
             FWD CENTER
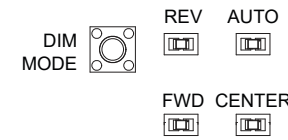
Test the Wiring

To verify system wiring, the loads can be tested before setting up the Zūm space. Press the **TEST** button to toggle the connected loads on and off. Press and hold the **TEST** button to cycle dim the connected loads.

LEDs

The LEDs on the ZUMMESH-EXP-16A-DIMU operate as follows:
- TEST: Lights when the **TEST** button is pressed. Lights when the connected loads are on.
- SETUP: Lights when the **SETUP** button is pressed.
- NET: Lights to indicate that it is joined to a Zūm space. Flashes when the ZUMMESH-EXP-16A-DIMU receives a message.
- ERROR: Flashes to indicate an error in the line or load. Refer to the "Error States" section.
- AUTO: Lights to indicate that the dimmer is in Auto Dimming mode. When operating in Auto Dimming mode, the REV or FWD LED lights to indicate the dimming mode in use.
- REV: Lights to indicate that the dimmer is in Reverse Phase Dimming mode.
- FWD: Lights to indicate that the dimmer is in Forward Phase Dimming mode.
- CENTER: Lights to indicate that the dimmer is in Center Phase Dimming mode.
- FILTER: Lights to indicate that the zerocross filter is applying filtering to sync the AC line power.
- BASIC: Lights to indicate that the zerocross filter is performing basic filtering.

How to Set Up a Zūm Space and Add Zūm Devices

Once all devices are physically installed in a boardroom or conference space, a new Zūm space can be created and devices added.

NOTES:
- Only set up one Zūm space at a time.
- For simplified setup of a Zūm space, use the Zūm app on a mobile device.

Step 1
Create a New Zūm Space

Creating a Zūm space defines the area where the devices are located. A Zūm space is created with a keypad, dimmer or switch, a J-box device, or an AV Bridge.

NOTE:
- Creating a Zūm space can only be performed by one device in the space.
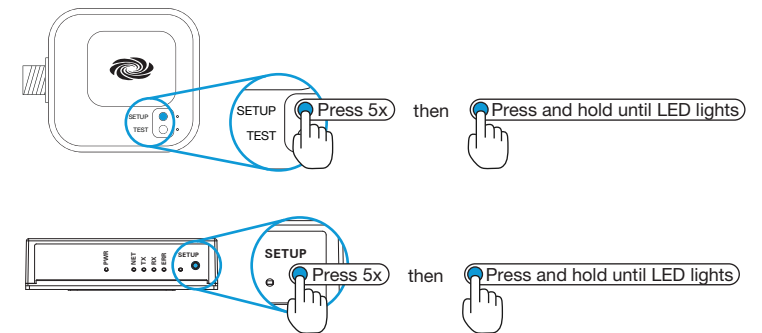- A Zūm space cannot be created from a battery-powered keypad.

To create a new Zūm space using a keypad, dimmer, or switch:

1. Press the bottom button 5 times.
2. Press and hold the bottom button until the LED on the device lights (up to 10 seconds). After approximately 3 seconds, the device LED begins slowly flashing. This indicates that the Zūm space is now created and in Joining mode, allowing you to add devices.

Press 5x then Press and hold until LED lights
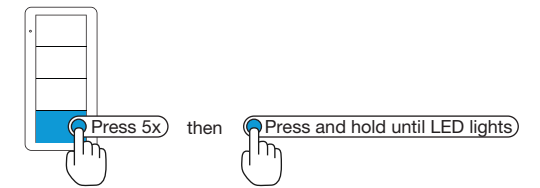
To create a new Zūm space using a J-box device or an AV Bridge:

1. Press the **SETUP** button 5 times.
2. Press and hold the **SETUP** button until the LED on the device lights (up to 10 seconds). After approximately 3 seconds, the device LED begins slowly flashing. This indicates that the Zūm space is now created and in Joining mode, allowing you to add devices.

SETUP Press 5x then Press and hold until LED lights
TEST

SETUP Press 5x then Press and hold until LED lights

NOTE: The device that is used to create the Zūm space is automatically added to the space and does not need to be added in Step 2.

Step 2
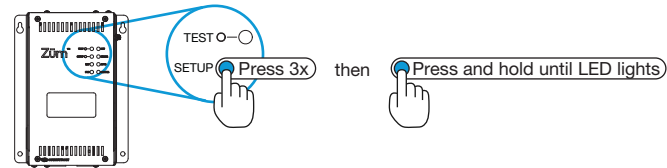### Add the ZUMMESH-EXP-16A-DIMU to the Zūm Space

After a new Zūm space is created, add the ZUMMESH-EXP-16A-DIMU while the space is in Joining mode.

NOTE:
- A Zūm mesh device can belong to only one space.
- Joining mode ends automatically after 4 minutes.

To add the ZUMMESH-EXP-16A-DIMU:

1. Press the **SETUP** button 3 times.
2. Press and hold the **SETUP** button until the LED on the ZUMMESH-EXP-16A-DIMU lights (up to 10 seconds). The LED on the ZUMMESH-EXP-16A-DIMU will start to flash slowly to indicate that it has joined the space.

Step 3
Complete Zūm Space Setup

To finish creating a Zūm space, press any button on a device that is part of the Zūm space to exit Joining mode.

Add the ZUMMESH-EXP-16A-DIMU to an Existing Zūm Space

Add the ZUMMESH-EXP-16A-DIMU to an existing Zūm space by placing the Zūm space in Joining mode.

Add the ZUMMESH-EXP-16A-DIMU using a keypad, dimmer, or switch:

1. Enter Joining mode.
   a. Press and hold both the top and bottom buttons until the LED lights (about 5 seconds).
   b. Press the top button once.
   c. Press the bottom button once. The LEDs on all devices in the space (except battery powered devices) flash slowly to indicate that the devices are part of the space and that the space is in Joining mode.
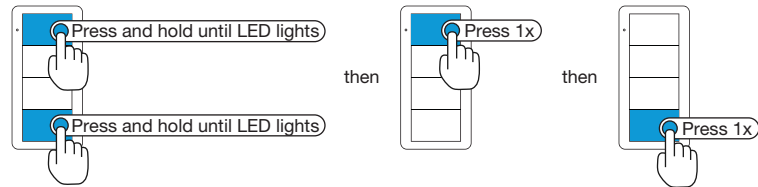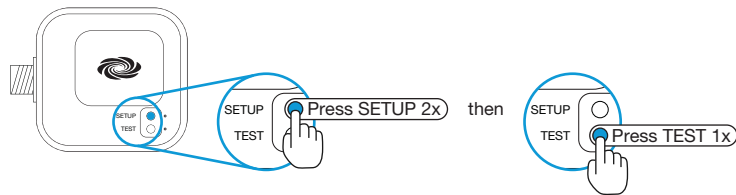

2. Add the ZUMMESH-EXP-16A-DIMU.
   a. Press the **SETUP** button 3 times.
   b. Press and hold the **SETUP** button until the LED on the ZUMMESH-EXP-16A-DIMU lights (up to 10 seconds). The LED on the ZUMMESH-EXP-16A-DIMU will start to flash slowly to indicate that it has joined the space.
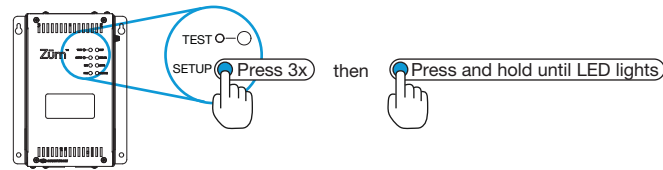
3. Press any button on a device that is part of the Zūm space to exit Joining mode.

Add the ZUMMESH-EXP-16A-DIMU using a J-box device:

1. Enter Joining mode.
   a. Press the **SETUP** button 2 times.
   b. Press the **TEST** button once. The LEDs on all devices in the space (except battery powered devices) flash slowly to indicate that the devices are part of the space and that the space is in Joining mode.

2. Add the ZUMMESH-EXP-16A-DIMU.
   a. Press the **SETUP** button 3 times.
   b. Press and hold the **SETUP** button until the LED on the ZUMMESH-EXP-16A-DIMU lights (up to 10 seconds). The LED on the ZUMMESH-EXP-16A-DIMU will start to flash slowly to indicate that it has joined the space.
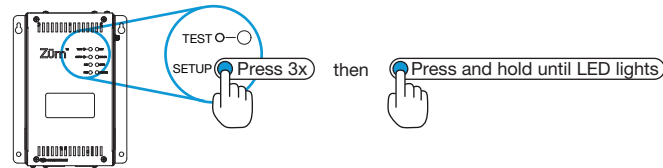
Factory Reset

A factory reset should be performed when the ZUMMESH-EXP-16A-DIMU is removed from the network or to remove the configuration settings from the device. The ZUMMESH-EXP-16A-DIMU must also be factory reset if it is being moved to a different system.

NOTE: New-in-box devices do not need to be factory reset before joining a system.

To factory reset the ZUMMESH-EXP-16A-DIMU, press and hold the **SETUP** and **TEST** buttons until the SETUP LED lights (about 10 seconds), and then release both buttons. The TEST LED and the connected load output turn on to indicate that the factory reset procedure is complete.
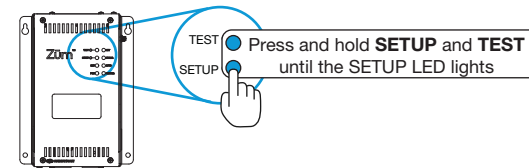
Technical Specifications

Refer to the ZUMMESH-EXP-16A-DIMU product page at www.crestron.com for a complete list of product specifications.

Specification	Details
Load Control	
Dimmer Channels	1
Load Ratings	16 A
Line Voltage	100-277 VAC, 50/60 Hz
Dimmable Load Types	Incandescent, LED, electronic low-voltage, magnetic low-voltage, neon/cold cathode, 2-wire fluorescent
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
Zūm Mesh Range	50 ft (15 m) to nearest peer-to-peer mesh network device(s), subject to site-specific conditions and individual device capabilities*
Dimensions	
Height	8-13/16 in. (224 mm)
Width	6-3/8 in. (163 mm)
Depth	3-1/16 in. (78 mm)
Environmental	
Temperature	32º to 104 ºF (0º to 40 ºC)
Humidity	10% to 90% RH (non-condensing)
Weight	3.43 lb (1.56 kg)

* "Zūm Mesh" refers to the wireless mesh network within each 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 a Zūm Mesh wireless network. Battery-powered devices only function as leaf nodes and do not extend range. A Zūm Mesh network composed predominantly of battery-powered devices may require additional AC-powered devices, such as the ZUMMESH-JBOX-PSU (sold separately), to serve as supplemental routing nodes to fill any gaps in coverage. For additional information, refer to the "Installation and Setup of Crestron RF Products" (Doc. 6689) at www.crestron.com/manuals.

Error States

The following table provides corrective action error states that are indicated by the ERROR LED. If further assistance is required, please contact a Crestron customer service representative.

LED Flash Pattern	Issue	Action
1-1	The slave processor is in bootloader.	Power cycle the unit.
1-2	The slave processor is unresponsive.	Power cycle the unit.
1-3	The slave processor firmware update failed.	Power cycle the unit.
2-1	There is an over-current error.	Check the output for a short circuit or overload. Verify that the device is not dimming in Forward Phase Dimming mode with incandescent or electronic drivers connected.
2-2	A FET is shorted.	Contact Crestron customer service.
2-3	An over-temperature error exists.	Check the output for overload. Ensure that the device is receiving adequate air for cooling
2-4	An over-voltage error exists.	Verify that the device is not dimming Magnetic transformers in Reverse Phase Dimming mode.
3-1	A zerocross sync error exists.	Change the Zerocross mode from Basic mode to Filter mode.
3-2	No AC Power	Verify that the incoming AC voltage is within spec.

Zerocross Filter

An unusual line condition, indicated by a 3-1 flash pattern from the ERROR LED, can be corrected by changing the Zerocross mode from Basic mode (default) to Filter mode. Consult with Crestron Technical support before changing the Zerocross mode. To change the Zerocross mode:

1. Remove the cover as shown in the "Wiring" section.
2. Press the **ZEROCROSS FILTER** button. The BASIC or FILTER LED lights.
   - BASIC LED: Indicates that basic filtering is being performed.
   - FILTER LED: Indicates that the ZUMMESH-EXP-16A-DIMU is using filters to sync the AC line power.

For Additional Information

Scan or click the QR code for detailed product information.