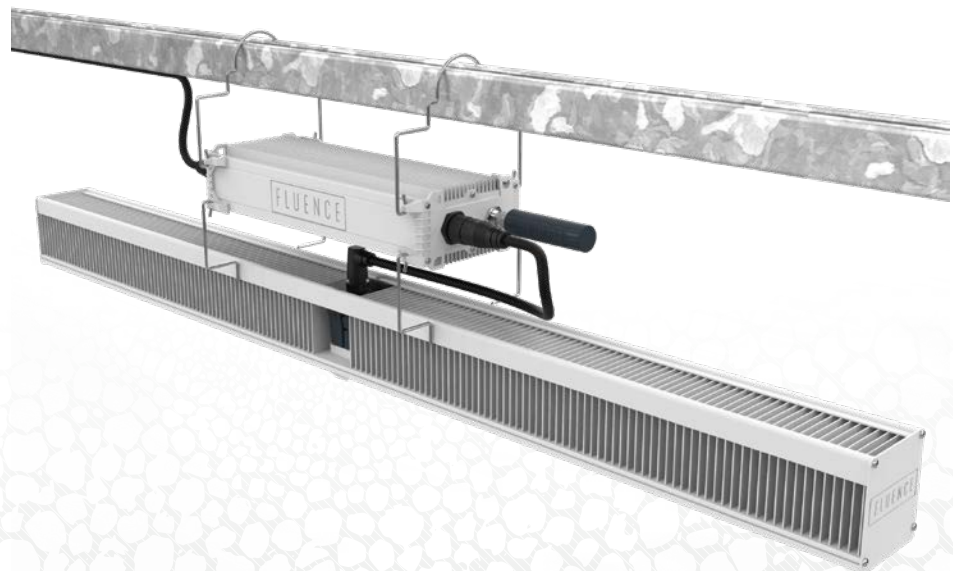




WIRELESS FLEX DIMMING HARDWARE INSTALLATION GUIDE





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1. INTRODUCTION

Thank you for choosing Fluence Wireless Flex Dimming!

Fluence Wireless Flex utilizes qualified Bluetooth® mesh technology enabled by SILVAIR for wireless control of Fluence luminaires.

This guide will help you to properly install Wireless Flex Dimming hardware and avoid potential issues that could impact the product's reliable operation. This includes:

- Planning advice to determine if additional hardware is required
- Guidelines for different zone sizes to ensure that Wireless Flex Dimming devices are located correctly for proper communication
- Instructions to install Wireless Flex Dimming system hardware components
- A checklist to verify that the Wireless Flex Dimming hardware is ready for commissioning

CHEMICAL EXPOSURE PRECAUTION

Fluence lighting systems are designed to be resilient against crop protection products. Many chemicals used in the Commercial Horticultural Industry are corrosive to electronic equipment. Care should be taken to ensure that only approved crop protection products, cleaning agents and/or other chemicals (e.g., pesticides, fungicides and insecticides) may come in contact with the device. If the device is accidentally exposed to a corrosive liquid or vapor (e.g. VOC –Volatile Organic Compound and H₂S – Hydrogen Sulfide) the device must be rinsed with clean water as soon as possible. The product warranty will no longer apply if the product is repeatedly exposed or remains in the corrosive environment for a prolonged period. It is recommended the devices be removed and protected from the corrosive environment during all periods of aggressive disinfection or sanitization of the facility. The product warranty will be void if the product is repeatedly exposed to Sulfur.

2. PLANNING YOUR INSTALLATION

Note: If you already have an installation layout designed by Fluence or a system integrator, you can proceed directly to [Section 3. Hardware Installation.](#)

The first step in planning a Wireless Flex hardware installation is to determine if it is simple or advanced.

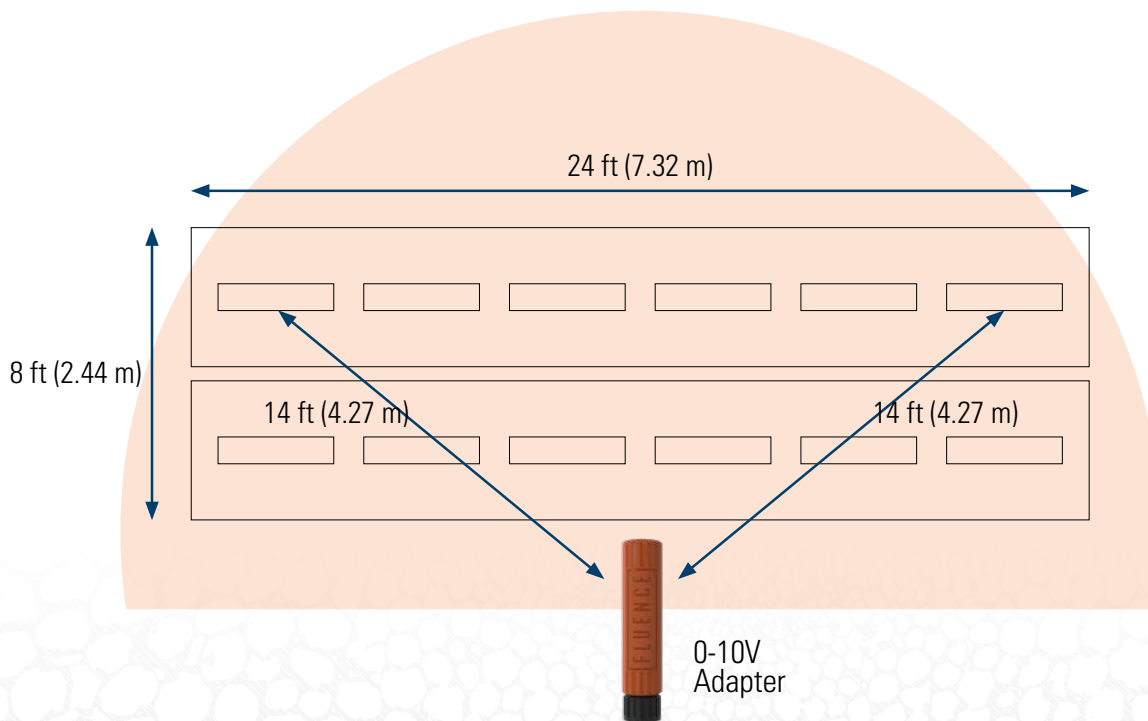
2.1 SIMPLE INSTALLATIONS

A simple installation:

- Contains a maximum of 10-12 luminaires per control zone (controlled by one Wireless Flex 0-10V Adapter)
- The distance from the Wireless Flex 0-10V Adapter to the farthest Wireless Flex Receiver is less than the communication range of the Wireless Flex Dimming devices (50 ft (15.24 m) line-of-sight, 10-30 ft (3-9.1 m) with obstructions like walls, metal posts, or metal racks)

Example of a simple installation:

- Containing 10 luminaires
- A maximum communication distance of 14 ft (4.27 m) from the 0-10V Adapter to the farthest Receiver



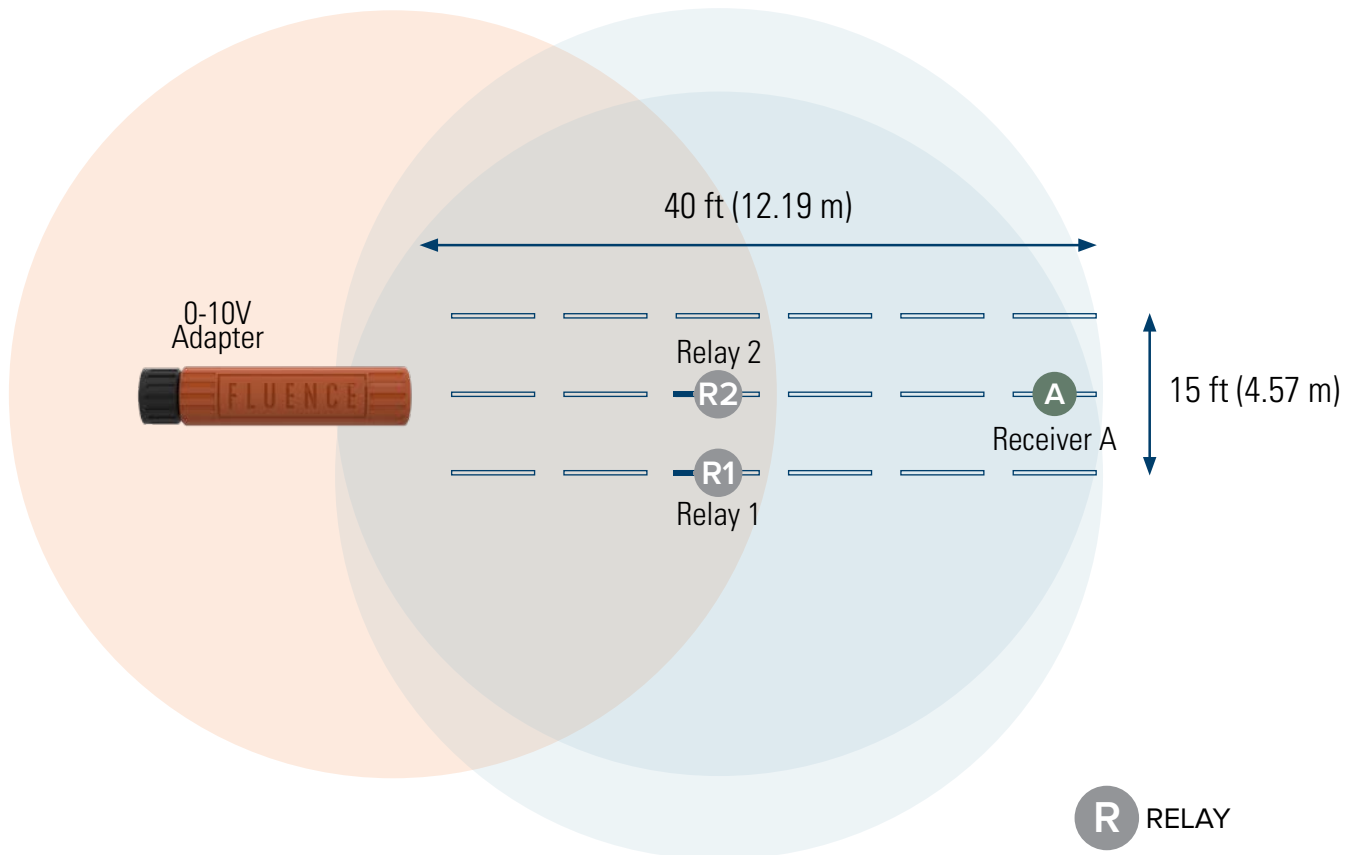
For a simple installation, no further planning is required, and you can proceed directly to [Section 3. Hardware Installation.](#)

2.2 ADVANCED INSTALLATIONS

Relay Light Fixture

If your facility doesn't meet the requirements for a simple installation, some of the Wireless Flex Receivers in the network must be configured as relays. Relays are used to repeat messages throughout the mesh network so that devices far away from the 0-10V Adapter can hear its control messages.

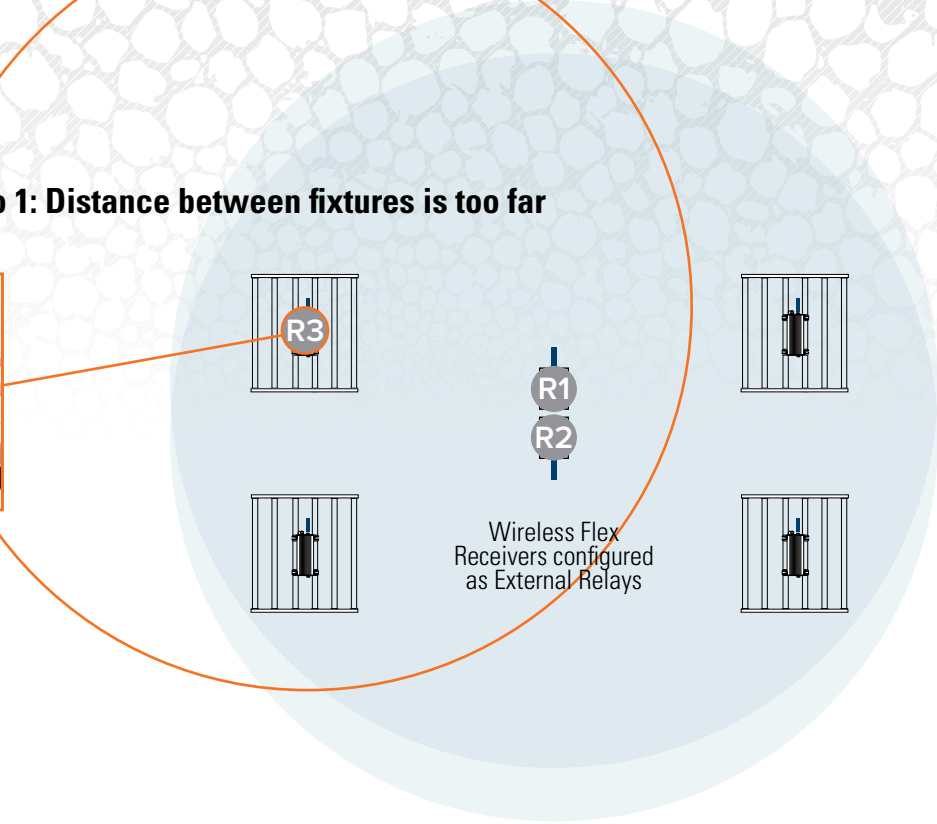
In the example below, Wireless Flex Receiver R2 is configured as a relay. It repeats the messages from the 0-10V Adapter so they can be heard by Receiver A. R1 is a second relay for redundancy to avoid a single point of communication failure.



External Relays

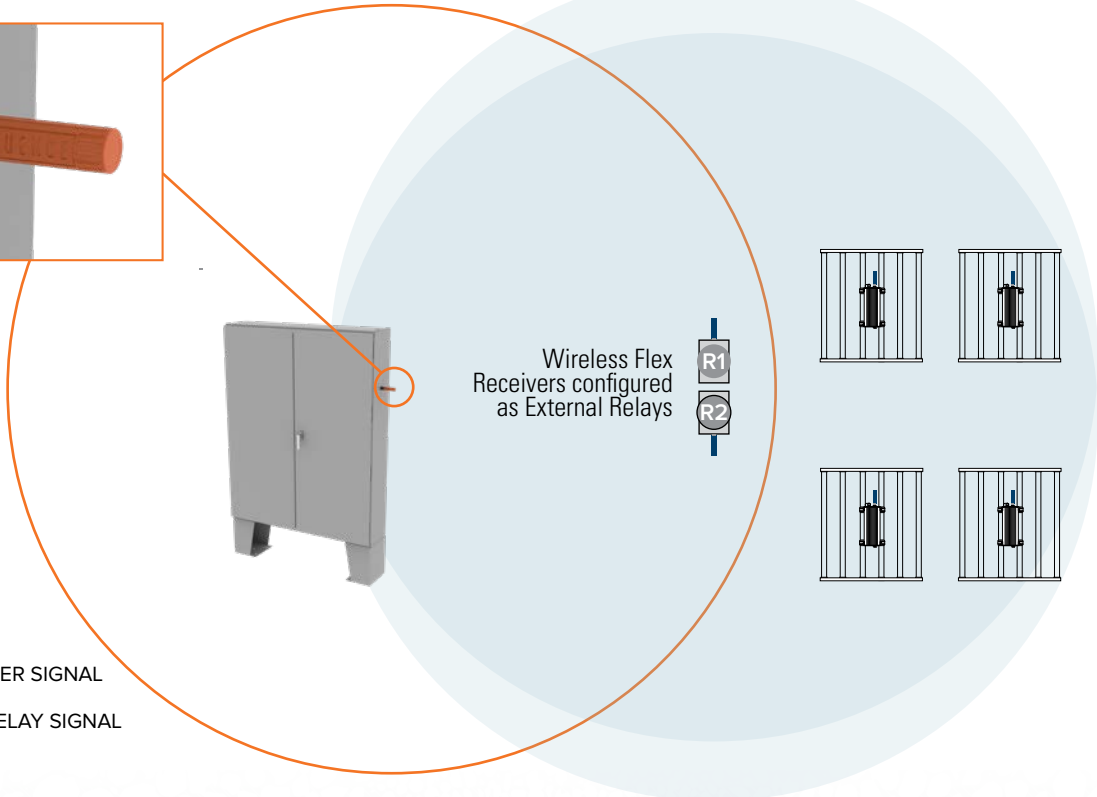
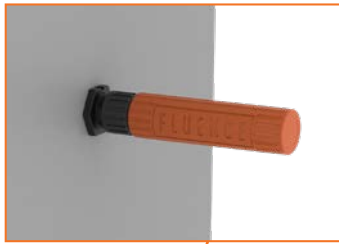
The number and location of relays must be determined prior to installation, since in some cases external relay(s) are required. An external relay is a Wireless Flex Receiver which is installed in a standalone configuration, and not directly connected to a Fluence luminaire. See the “Small Zone Requiring External Relays” layout below for an example, and the *Wireless Flex External Relay Implementation Guide* application note for implementation details. Contact Fluence if you require assistance planning your installation.

External Relay Scenario 1: Distance between fixtures is too far



- FIXTURE RELAY SIGNAL
- EXTERNAL RELAY SIGNAL

External Relay Scenario 2: Distance from light fixtures to lighting control panel is too far



- 0-10V ADAPTER SIGNAL
- EXTERNAL RELAY SIGNAL

Guidelines:

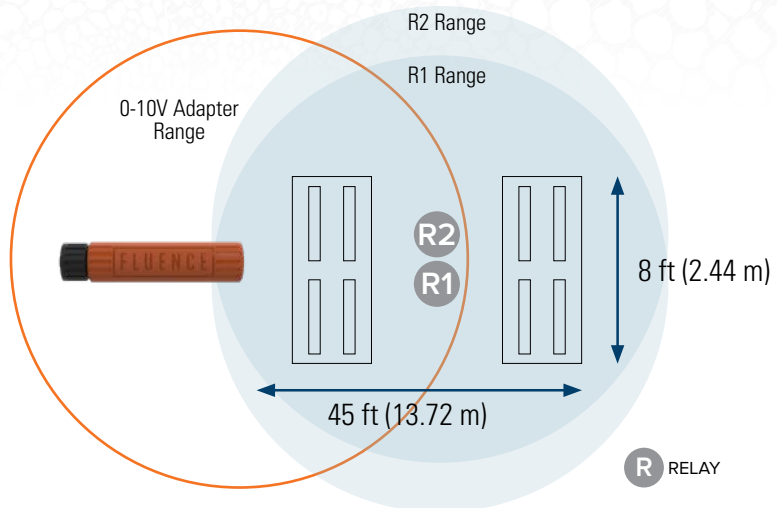
- Relays should be placed in the middle of the zone to maximize their communication distance.
- We recommend configuring at least two devices as relays to avoid a single point of failure.
- To ensure good network performance, no more than -10% of the devices in a zone should be configured as relays (for networks containing more than 20 devices).
- Additional Wireless Flex Receivers can be added to the network solely to function as relays (without controlling a luminaire) if the layout requires it. Contact Fluence for details.

CONFIGURATIONS REQUIRING EXTERNAL RELAYS

SMALL ZONE

(Up to 10 – 12 luminaries):
2 Relays required

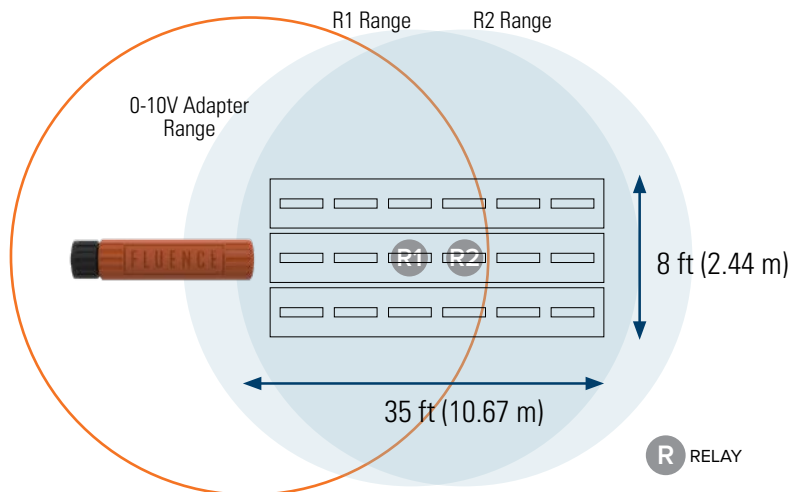
R1 and R2 are external relays.
R2 is the primary external relay,
and R1 is a second external relay
for redundancy to avoid a single
point of communication failure.



MEDIUM ZONE

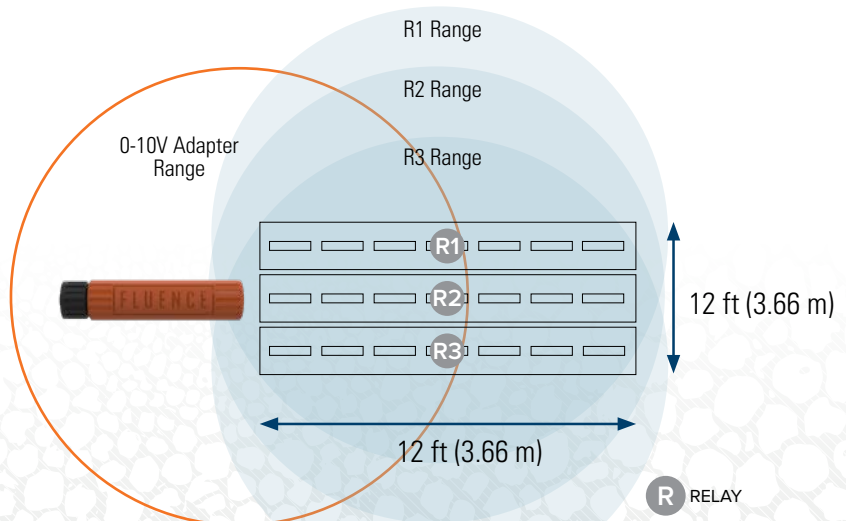
(10 – 12 luminaries):
2 Relays required

Relays are required in this
configuration because the
distance from the 0-10V Adapter
to the farthest Receiver exceeds
the communication range of the
0-10V Adapter.



LARGE ZONE

(20 – 30 luminaries):
3 Relays required

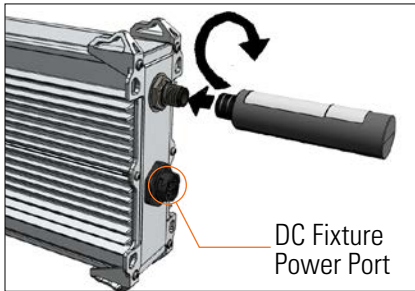


3. HARDWARE INSTALLATION

3.1 WIRELESS FLEX DIMMING RECEIVER

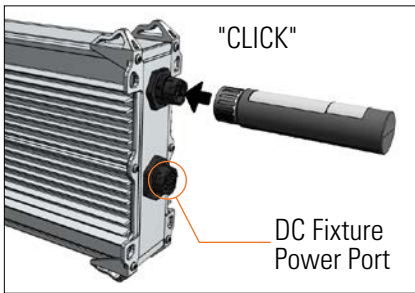
STEP 1:

Remove the dust cap from the light fixture power supply dimming port. The dimming port is the 3-pin connector located on the DC end of the power supply next to the 2-pin DC fixture power port that connects to the luminaire. Install a Wireless Flex Receiver on the Fluence light fixture dimming port per Figure A or B.



A. M12 (Metal) Dimming Port

Line up the pins and push in. Screw the locking ring clockwise until hand tight. To remove, unscrew the locking ring counterclockwise until loose and pull out.

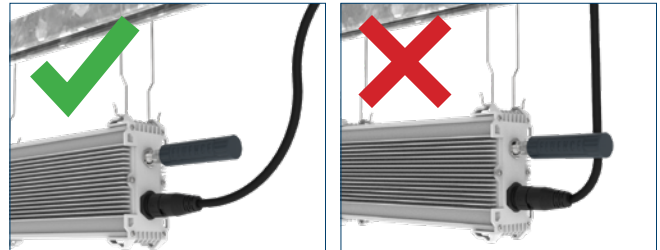


B. M16 (Plastic) Dimming Port

Line up the pins and push on until it clicks. To remove, twist the locking ring a quarter turn counterclockwise and pull out.



IMPORTANT: Ensure that the cable for the DC Fixture Power Port is run away from the Wireless Flex Receiver. The cable should not come closer to the Receiver than the distance between the DC Fixture Power Port and the Dimming Port.



STEP 2:

Remove the tear-off portion of the product label and use it to mark the installation location on a site map for future reference.



CAUTION: The tear-off portion of the label must be removed prior to final installation. The tear-off portion could possibly detach and fall off over time if not removed.

STEP 3:

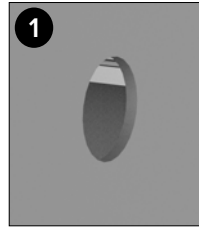
Repeat Steps 1-2 for each Fluence light fixture in the installation. Receivers can be installed at any point during or after light fixtures are installed. An uncommissioned Receiver will set the light fixture's level to 100% brightness.

3.2 WIRELESS FLEX DIMMING 0-10V ADAPTER

Install a Wireless Flex 0-10V Adapter on your 0-10V lighting control system panel or box and connect it to a dimming channel output and 12-24 V DC power. One Wireless Flex Adapter is required per 0-10 V lighting zone/channel.

STEP 1:

For a waterproof application, drill a 3/4" (19mm) hole in the side of the lighting control system panel or box. If the application doesn't require waterproofing, a standard 1/2" trade size (M20) knockout can be used.

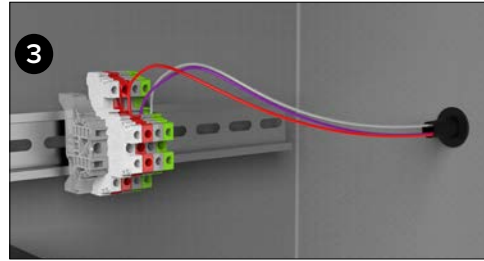


STEP 2:

Insert the panel connector leads through hole and tighten the lock nut.

STEP 3:

Wire the panel mount lead colors per the Pin Assignments table to the 0-10 V DC dimming channel output and a 12-24 V DC power supply. Ensure that the 12-24 V DC power source has adequate surge protection.



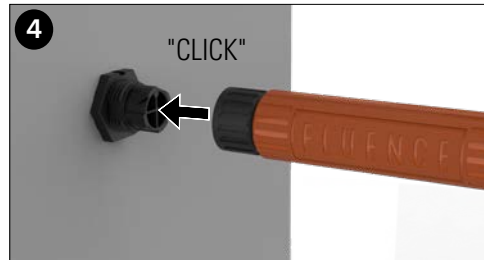
0-10 V ADAPTER PIN ASSIGNMENTS

PIN	PIN Assignment	Lead Color
1	Ground/DIM-	Gray
2	DC Input (12-24 V DC)	Red
3	DIM+ (0-10 V DC)	Purple
4	No Connection	N/A

STEP 4:

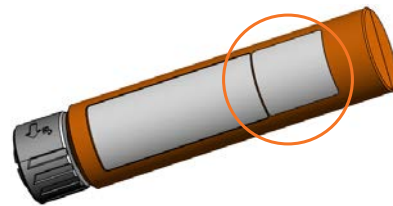
Line up the Adapter pins and push on until it clicks.

To remove, twist the locking ring a quarter turn counterclockwise and pull out.



STEP 5:

Remove the tear-off portion of the product label and use it to mark the installation location on a site map.



CAUTION: The tear-off portion of the label must be removed prior to final installation. The tear-off portion could possibly detach and fall off over time if not removed.

STEP 6:

Repeat Steps 1-5 for each Zone/0-10V Adapter in the installation.

4. COMMISSIONING READINESS CHECKLIST

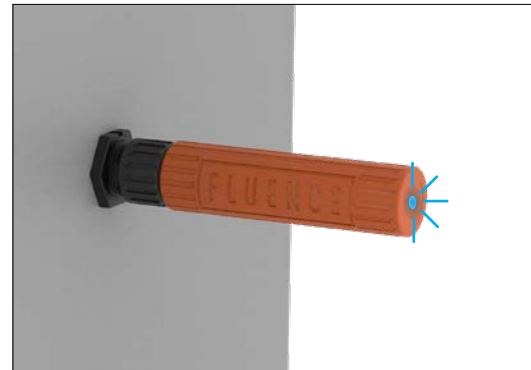
WIRELESS FLEX RECEIVERS

- All Wireless Flex Dimming Receivers are installed per [Section 3.1 Wireless Flex Dimming Receiver](#) and comply with the guidelines in [Section 2 Planning your Installation](#)
- Verify that all light fixtures are at 100% brightness.
- For External Relays, verify that the blue status LED at the end of each Wireless Flex Receiver is illuminated and blinking fast. If the status LED is not blinking, the Receiver is not powered.



WIRELESS FLEX 0-10V ADAPTERS

- All Wireless Flex Dimming 0-10V Adapters are installed per [Section 3.2 Wireless Flex Dimming 0-10V Adapter](#) and comply with the guidelines in [Section 2 Planning your Installation](#)
- Power all lighting control panels and verify that the blue status LED at the end of each Wireless Flex 0-10V Adapter is illuminated and blinking fast. If the status LED is not blinking, the 0-10V Adapter is not powered.



0-10V ADAPTER AND RECEIVER STATUS LED:

- **No Blinking:** device is not powered
- **Fast Blinking:** not connected to the network
- **Slow Blinking:** connected to a network

When all items in the checklist are completed, the Wireless Flex Dimming installation is ready for commissioning!

5. PRODUCT INFORMATION



WIRELESS FLEX DIMMING APPS:

Web App: <https://fluencewirelessflex.com>
First create an account, then download the mobile app.

Mobile App: iOS App Store (free download)
<https://apps.apple.com/us/app/fluence-wireless-flex/id1558821999>



Wireless Flex

Mobile App



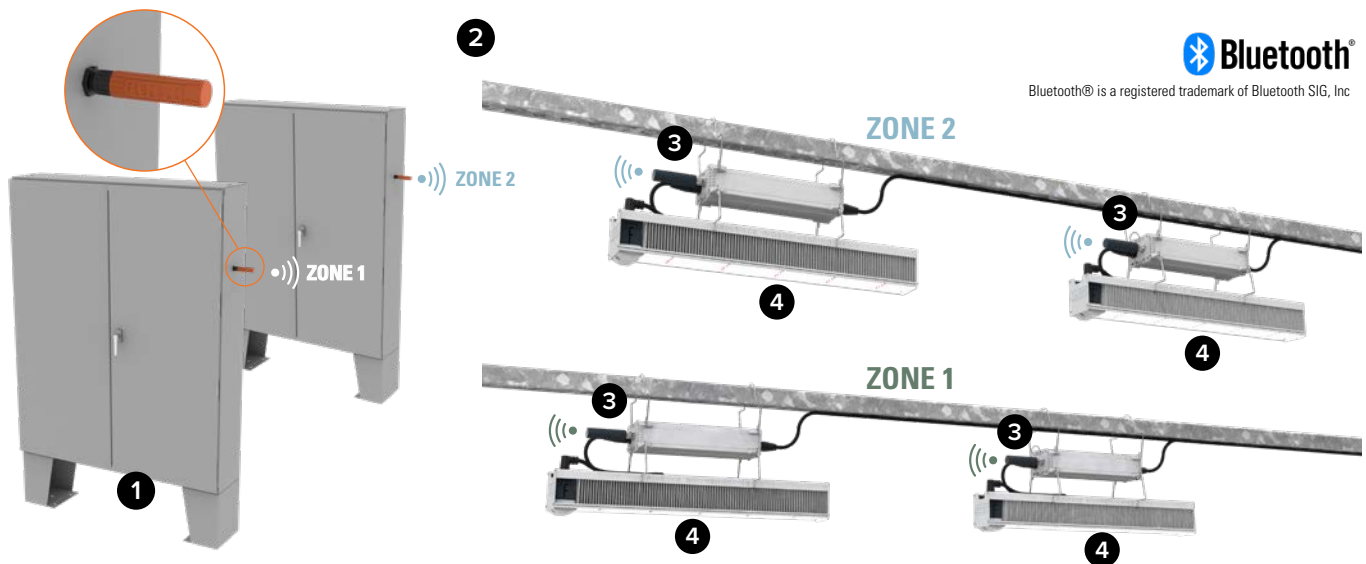
<https://apps.apple.com/us/app/fluence-wireless-flex/id1558821999>

Complete Product Information, Quick Start Guide, and Installation Videos:

fluence.science/products/wireless-flex-dimming/

Support and Application Assistance:
support@fluence-led.com

SYSTEM DIAGRAM (TWO ZONES)



COMPONENTS

- 1 Any Lighting Controller with an industry standard 0-10 V DC output and 12-24 V DC power source
- 2 Wireless Flex Dimming 0-10 V Adapters (1 required per zone)
- 3 Wireless Flex Dimming Receivers (1 per power supply/light fixture)
- 4 Fluence Light Fixture

0-10 V ADAPTER PIN ASSIGNMENTS

PIN	PIN Assignment	Lead Color
1	Ground/DIM-	Gray
2	DC Input (12-24 V DC)	Red
3	DIM+ (0-10 V DC)	Purple
4	No Connection	N/A

WIRELESS RECEIVER PIN ASSIGNMENTS

PIN	PIN Assignment	Lead Color
1	Ground/DIM-	Gray
2	DC Input (12 V DC)	Red
3	DIM+ (0-10 V DC)	Purple

ORDERING INFORMATION

	Descriptions	Ordering Code
A	Wireless Flex Dimming Receiver for Fixture with M12 dimming port	WFDM-10538-01
B	Wireless Flex Dimming Receiver for Fixture with M16 dimming port	WFDM-10537-01
C	Wireless Flex 0-10V Adapter (includes transceiver and panel mount connector with pigtails)	WFDM-10539-01
D	3.9 in (10 cm) Wireless Flex Dimming Receiver Mating Connector, Pigtail, Panel Mount M12 Connector (for use in external relay application)*	WFDM-M12RXPIGTAIL
E	3.9 in (10 cm) Wireless Flex Dimming Receiver Mating Connector, Pigtail, Panel Mount M16 Connector (for use in external relay application)*	WFDM-M16RXPIGTAIL

*For more details, please see the **Wireless Flex Dimming External Relay Implementation Guide** available at <https://www.fluence.science/wirelessflex>.



6. CONTACT INFORMATION

Support: support@fluence-led.com

Business development: support@fluence-led.com

For More Information Visit: fluence.science/products/wireless-flex-dimming/

In Europe: fluence-led.com/products/wireless-flex-dimming/

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