

LIGHTING CONTROLS

Universal Dimmer

GFX-DIM



KEY FEATURES

Schedule and dim any 0-10V dimmable LED light or 0-11.5V dimmable HPS light

Connect up to 50 lights to each Universal Dimmer

Compatible with wide range of lighting manufacturers

Remote control and scheduling on any device through GrowFlux App

GrowFlux Mesh wirelessly networks many Universal Dimmers for farms of any size

Long range, reliable wireless communications - all layers are securely encrypted

IP66 waterproof

Sealed cable system available to daisy chain dimming signal to up to 50 lights, sold separately

Easy installation and setup, suitable for retrofit & new installations

The Universal Dimmer is a connected lighting controller capable of scheduling and dimming up to 50 lights per controller. The Dimmer scales to farms of any size with reliable GrowFlux Mesh wireless connectivity.

COMPATIBLE WITH MOST HORTICULTURAL LIGHTS

The Universal Dimmer single interface has been developed and tested to be compatible with a wide range of horticultural lights, including LED and dimmable HPS lights from the industry's top manufacturers.

Tested with major manufacturers of LED drivers, including Inventronics, Meanwell, Artesyn, Powerland, and others.

Includes specialized support for signaling to large groups of dim-to-off drivers, ensuring lights turn off reliably in critical production environments

GROWFLUX MESH

Works together with the GrowFlux Access Point and other GrowFlux Mesh enabled products to propagate a high reliability wireless network locally within your farm. Utilizing 900MHz frequencies for ultimate range and reliability, GrowFlux Mesh is built for critical production environments and is hardened against security threats with AES128 and TLS encryption.

SOFTWARE DEFINED ZONING

Never manually program a lighting controller again with Software Defined Zoning. Zones can contain any number of Dimmers and can be reconfigured in minutes within the GrowFlux App.

UNLOCK ENERGY SAVINGS

Meet regulatory requirements with both LED and HPS lights with precision scheduling and dimming. The GrowFlux App gives total control over PPFD light density and energy loads.

CONTROL FROM ANY DEVICE

Monitor, schedule, and control your lighting network from anywhere with the GrowFlux App for iOS and Android, or the browser based GrowFlux app at <https://panel.growflux.com>. GrowFlux Access Point required, sold separately.

GrowFlux Mesh



MESH NETWORK UP TO 200 DEVICES

Up to 200 Universal Dimmers can be connected to each Access Point. Each Universal Dimmer extends GrowFlux Mesh; high reliability wireless mesh network connection is automatically managed.



SCALE WITH MORE ACCESS POINTS

Additional Access points can be added to a single facility for more GrowFlux Mesh devices. Accounts can have multiple access points in different time zones for multi-facility management.



EASY SOFTWARE ZONING

Reconfigure your farm with ease with software defined zones. Schedules and settings are sent to all devices in a zone at once, eliminating repetitive programming tasks.



CONTROL ON ANY DEVICE

Manage your lighting systems from anywhere on any device with the GrowFlux App, available for iOS and Android, as well as the GrowFlux web app for browser and desktop control.



BUILT FOR OPERATIONS CONTINUITY

Reliable through power outages, internet outages, and on-the-fly changes to devices to the network to ensure that your farm runs on schedule no matter what. Each device stores a schedule, and the Access Point has a battery backed clock to keep accurate date and time on site through power and internet outages.

RETROFIT FRIENDLY

Designed to easily install into existing facilities to save energy and comply with evolving regulations. The Universal Dimmer family includes turnkey cabling that installs in seconds and supports the most commonly installed lights in the industry.

IP66 WATERPROOF

UV resistant IP66 construction with IP67 connectors. Internal water resistant PTFE vent for pressure equalization keeps water out through changes in atmospheric pressure. Waterproof power cables are available separately.



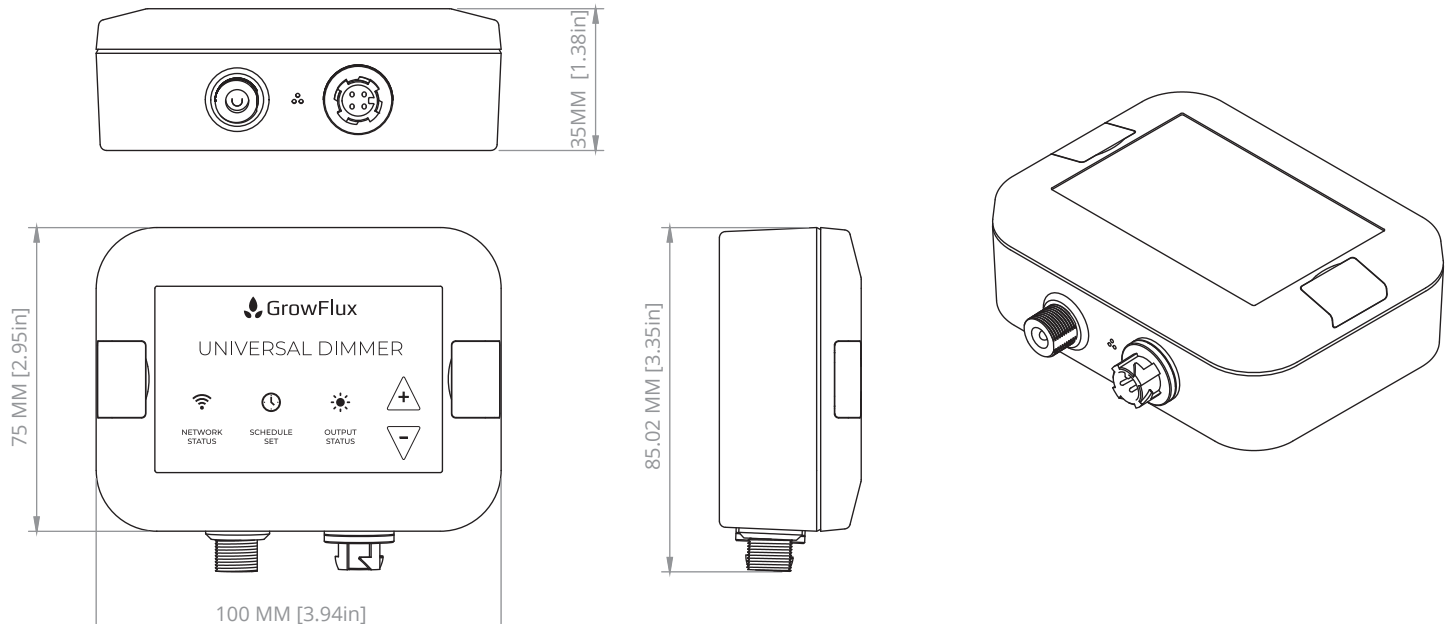
Technical Specifications

GENERAL SPECIFICATIONS	
Dimensions:	100mm x 85mm x 35mm (3.94" x 3.35" x 1.38")
Weight:	150g (5.3 oz)
Ingress Protection:	IP66 - resistant to dust ingress and direct sprays of liquid water
Operating Temperature Range:	-40 to 60°C (-40 to 140°F)
ELECTRICAL SPECIFICATIONS	
Voltage input:	15 - 24 VDC
Current consumption:	320mA absolute max current draw at 15VDC; 220mA absolute max current draw at 24VDC
Output control voltage range:	0.00-10.00 VDC ¹ when configured for LED control; 0.00 - 11.50 VDC when configured for HPS ¹
Dimming resolution:	8 bit
Quantity of lights supported	Up to 50 lights ²
Source / sink current output:	50mA; supports both sink and source type analog dimming control
Output voltage ripple:	50mV max ³
Power input current consumption:	320mA absolute max current draw at 15VDC 220mA absolute max current draw at 24VDC
WIRELESS SPECIFICATIONS	
Wireless protocol:	GrowFlux Mesh - standards based wireless mesh; requires GrowFlux Access Point and Ethernet internet connection for remote management & scheduling. Without Access Point, Dimmer functions with pushbutton control only
Security:	RF data is AES128 encrypted; application layer is TLS encrypted. No inbound connections
Wireless frequency:	902-928MHz (North America Market; ITU Region 2)
Wireless range:	500 feet line of sight (dimmer-to-dimmer or dimmer-to-Access Point / repeater; reduced to 300 feet indoors through most types of walls. Capable of 10km+ (6 mile+) wide networks with meshing ⁴
Meshing:	Automatically meshes to nearest always-on device, such as a Dimmer, Repeater, or GrowFlux Mesh enabled device from third party manufacturers; Smart range extension & self healing mesh ⁴
Wireless channels:	50 channels; automatic channel hopping
Radio Power:	Up to +12dBm
Antenna:	2.0dB high gain internal antenna

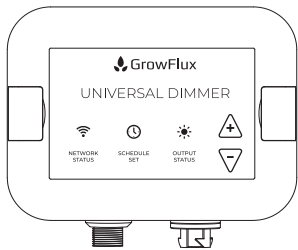
Notes:

1. Some power supplies built into lighting products are biased with a positive voltage on the dimming control terminals, preventing the control interface from reaching 0.00V. Electrical characteristics of some lights may prevent 0-10V line from reaching 10.00v; voltage at dimming control terminals at light is dependent on proper sizing of wiring.
2. The Universal Dimmer contains specialized hardware and firmware for enhanced dimming performance for large networks of lights - up to 50 lights. Actual quantity of lights supported by the Universal Dimmer may vary by lighting manufacturer.
3. Performance measured simulated loads on 0-10v interface; actual performance may vary by lighting manufacturer.
4. The Universal Dimmer will extend network range of nearby devices by automatically meshing to devices at the edge of the network. 10km+ (6+ mile) network range is common for networks incorporating devices spread out over large areas such as farms and cities. The Universal Dimmer will extend battery life of nearby battery powered sensors by automatically relaying messages, allowing sensors to reduce transmit power and stay asleep. Building materials such as metal, concrete, metal stud walls, and metal paneling will affect indoor through-wall range. GrowFlux Mesh typically performs with 100-300 foot range through concrete floors, CMU walls, brick walls, metal stud walls, and low-e coated windows. GrowFlux Mesh Repeaters or any GrowFlux Mesh enabled (non-battery powered) device can be used to extend wireless range for all GrowFlux Mesh enabled devices.

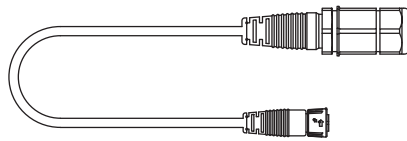
Drawings



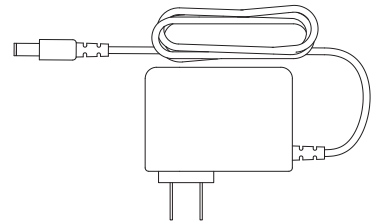
Whats Included



GrowFlux Dimmer
GFX-DIM-10VP-1P2C-XX



2 conductor screw terminal break-out cable with sealed cable gland
GFX-DIMA-ST



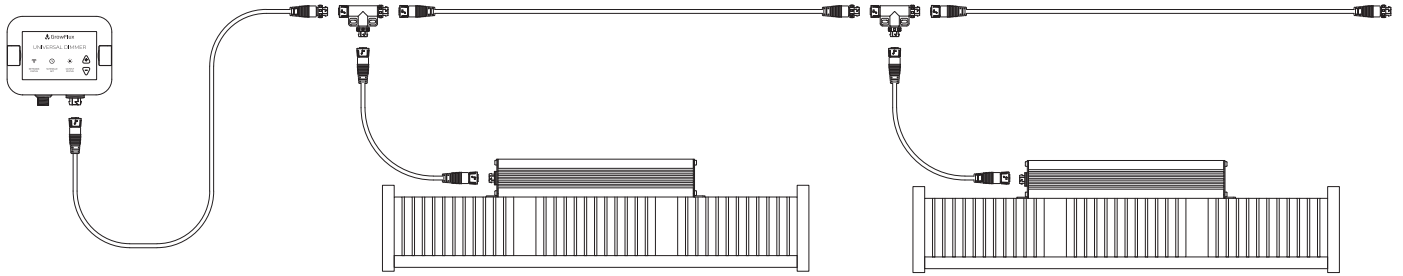
15VDC Power Adapter
5.5mm x 2.0mm barrel plug,
NEMA 115 / North America plug

Not Pictured:

Perpetual license for Basic Cloud Controls
Quickstart Guide

Accessories

The Dimmer family includes a sealed IP67 cable system to daisy chain dimming signal to up to 50 lights. See growflux.com for latest manufacturer compatibility.



GFX-DIMTEE
Signal tee connector



GFX-DIMEXT-2M
Signal extension cable,
2 meters



GFX-DIMEXT-3M
Signal extension cable,
3 meters



GFX-DIMEXT-5M
Signal extension cable,
5 meters



GFX-DIMA-ST
Screw terminal bare
wire adapter with
sealed cable gland



GFX-DIMA-RJ
Adapter cable with RJ
connector



GFX-DIMA-FB
Adapter cable for
Fluence and other
brands using a
3-pin M16 push lock
connector



GFX-ATM-DC2.5-3M
IP67 sealed power
cable, bare wire leads,
3 meters length



GFX-ATM-DC2.5-FW
IP67 sealed power
connector. Soldering
required.

Ordering Information

Typical Part Number

GFX - DIM - AV - 1C2P - NA - KIT

1

2

3

4

5

1 - Series Name

DIM - GrowFlux Dimmer

2 - Interface

AV - 0-10V or 0-11.5V configurable analog dimming signal with up to 30mA sink / source capability

3 - Number of ports and channels

1C2P - 1 channel and 1 2-pin signal connector

4 - Region

NA - North America, 900 MHz wireless

EU - Europe, 868 MHz wireless

5 - Packaging

KIT - Plug and play kit in retail packaging. Bundled with basic cloud services including scheduling and zoning. Waterproof power and dimmer cabling available separately.

Accessories

GFX-DIMTEE - Signal tee connector, IP67

GFX-DIMEXT-2M - Signal extension cable, 2 meters, IP67

GFX-DIMEXT-3M - Signal extension cable, 3 meters, IP67

GFX-DIMEXT-5M - Signal extension cable, 5 meters, IP67

GFX-DIMA-ST - Screw terminal bare wire adapter with sealed cable gland, IP67

GFX-DIMA-RJ - Adapter cable with RJ connector

GFX-DIMA-FBM12 - Adapter cable with 3-pin M12 threaded connector with metal locknut, for Fluence, IP67

GFX-DIMA-FB - Adapter cable with 3-pin M16 push lock connector, for Fluence, IP67

GFX-ATM-DC2.5-3M - Power cable, bare wire leads, 3 meters length, IP67

GFX-ATM-DC2.5-FW - Power connector, soldering required, IP67