

DIM10-087-00
Load Ratings: 1.2W @ 5 to 24V DC
Installation Guide

ORDERING INFORMATION

Part Number: DIM10-087-00

FEATURES

- Small form factor
- Powered from LED driver auxiliary supply or other source
- 0-10V dimming, up to 10mA source/sink
- Push-button terminal blocks for easy installation

RATINGS

Voltage Input: 5 to 24V DC

Power Consumption (Max): 1.2 W

DESCRIPTION

The Synapse DIM10-087 is designed to be integrated into fixtures and controls lighting in commercial and industrial buildings using the SNAP wireless mesh network. It provides 0-10V analog dimming control using the 0-10V analog dimming protocol. The DIM10-087 is DC powered by an auxiliary output from compatible LED drivers or through other DC power sources. Synapse lighting controllers can be controlled with a browser-based application available with the Synapse SimplySNAP lighting solution.

SPECIFICATIONS

Dim Control Max Load: 10 mA Source/Sink
Radio Frequency: 2.4 GHz (IEEE 802.15.4)
RF Transmission Output Power: +15dBm
Operating Temperature: -40 to +85 C
Operating Humidity: 10 to 90%, non-condensing
Dimensions: 2”L x 1.6”W X .3”H (51 X 40.7 X 6.4 mm)
Configuration/Programming: Stored in non-volatile memory

INSTALLATION

CAUTION

- DIM10-087-00 controllers must be installed in accordance with national, state, and local electrical codes and requirements

Needed Materials

Wiring Connectors: All existing wiring connectors must be replaced with new UL listed wiring connectors. All wiring connectors must be correctly sized for the application and the number and the size of the electrical conductors.

Mounting: Secure with 1 #4 screw (**max diameter of .312**) and standoff.

Mounting Options: Mount in an LED Fixture or a Troffer. An external antenna utilizing a u.FL connector must be used to provide RF connectivity to the SNAP mesh network.

Installation Instructions

1. WARNING: TO AVOID FIRE, SHOCK, OR DEATH: TURN OFF POWER AT CIRCUIT BREAKER OR FUSE AND VERIFY THAT POWER IS OFF BEFORE WIRING!
2. Place the DIM10-087-00 in desired location and secure it using #4 sized screw and stand-off using the mounting hole located in the center of the board. Prior to permanently mounting the DIM10-087, make sure the antenna is free of any objects within 3 in. of the antenna.

Note: When installing the DIM10-087-00 into an enclosure, consideration of antenna position and interference is required in order to provide the most optimum wireless signal strength.

3. Connect the 5-24VDC Aux output from LED driver to terminal block pin J4.1 on the DIM10-087-00. (See Figure 2 to better identify terminal block pins.)
4. Connect the Aux ground from the LED driver to terminal block pin J4.2 on the DIM10-087-00.

Note: Steps 5-8 are for Class 1/2 Dimming Control

5. Connect the DIM- wire on the LED driver to the DIM- input on terminal block pin J5.2 on the DIM10-087-00.
6. Connect the DIM+ wire on the LED driver to the DIM+ input on terminal block pin J5.1 on the DIM10-087-00.
7. Switch power on to the fixture. The light should turn on.

Note: When switched on, lamps should turn on to full brightness; approximately 10 VDC signal on the DIM+ wire using the DIM- wire as reference.

8. Refer to the SimplySNAP User’s Manual for information on provisioning the DIM10-087-00.

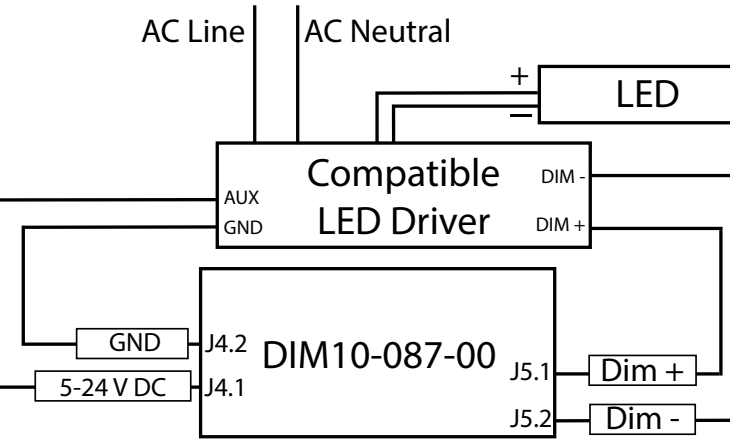


Figure 1 - Wiring Diagram

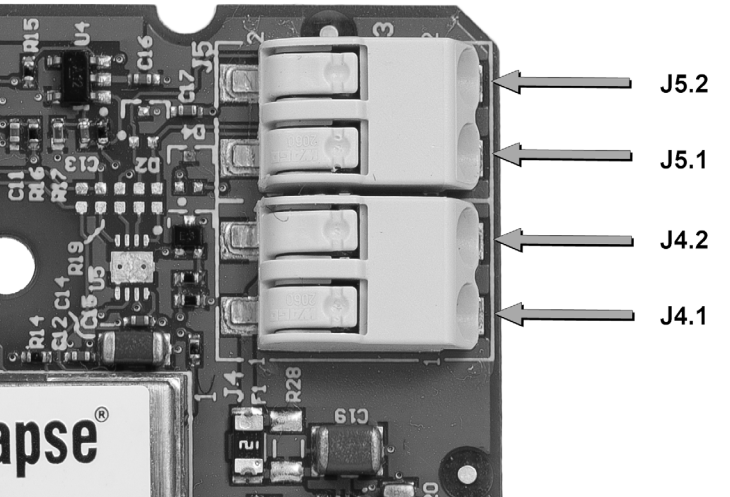


Figure 2- Terminal Block PINS

Connecting u.FL Antenna

An u.FL antenna needs to be connected to the DIM10-087-00 in order to get maximum RF connectivity. The recommended antenna kits are:

- GLP-KIT-ANTUFL18-01
- GLP-KIT-ANTUFL18-02

Please see the DIM10-087-00 cut sheet or contact Synapse sales for more information.

To install the antenna:

1. Connect the u.FL end of the antenna cable to the u.FL terminal on the DIM10-087-00. (see Figures 3 and 4)
2. Connect the antenna to the bulkhead.
3. Connect antenna to the SMA Bulkhead Jack.

Dimming

Below are some recommendations for successful dimming using the DIM10-087-00. The dimming control wires are referenced as Dim+ and Dim-. The dimming signals have a Maximum voltage of 10V DC.

- Use multi-strand 18 Gauge Wire for noise immunity and current capability
- Do not ground the dimming wire; this is a return signal and is critical for dimming
- Route dimming wires away from AC lines if possible
- Use connections with properly sized connectors
- Eliminate excess wire between fixtures; Line length will cause voltage drop
- Number of fixtures that can be daisy-chained is dependent upon the following factors: dimming current, current requirements for LED driver, length of wire, quality of connection, and gauge of wire
- Verify dimming capability via a “test bed” with the number of actual fixtures, wire length, connectors, and wire gauge

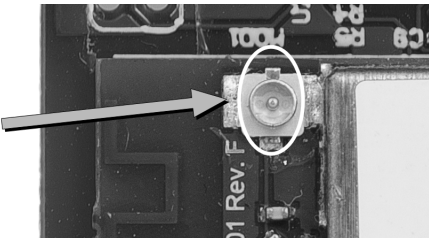


Figure 3- u.FL Terminal

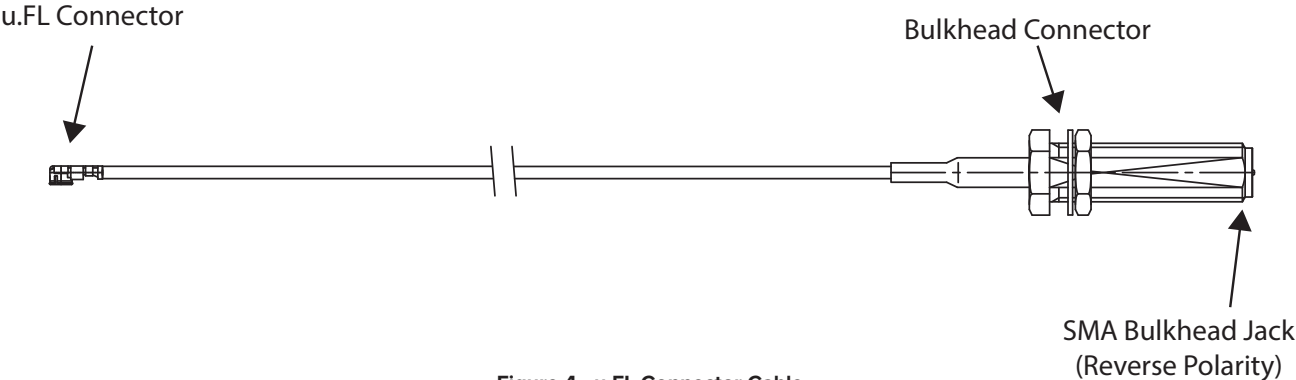


Figure 4 - u.FL Connector Cable

Regulatory Information and Certifications

RF Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada (IC) certifications: This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n’émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

FCC certifications and regulatory information (USA only)

FCC Part 15 Class B: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) These devices must accept any interference received, including interference that may cause harmful operation.

RADIO FREQUENCY INTERFERENCE (RFI) (FCC 15.105): This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. 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: (1) Re-orient or relocate the receiving antenna; (2) Increase the separation between the equipment and the receiver; (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected; (4) Consult the dealer or an experienced radio/TV technician for help.

Declaration of Conformity (FCC 96-208 & 95-19): Synapse Wireless, Inc. declares that the product name “DIM10-087-00” to which this declaration relates, meet the requirements specified by the Federal Communications Commission as detailed in the following specifications:

- Part 15, Subpart B, for Class B equipment
 - FCC 96-208 as it applies to Class B personal computers and peripherals
 - This product has been tested at an External Test Laboratory certified per FCC rules and has been found to meet the FCC, Part 15, Emission Limits. Documentation is on file and available from Synapse Wireless, Inc.
- If the FCC ID for the module inside this product enclosure is not visible when installed inside another device, then the outside of the device into which this product is installed must also display a label referring to the enclosed module FCC ID. Modifications (FCC 15.21): Changes or modifications to this equipment not expressly approved by Synapse Wireless, Inc., may void the user’s authority to operate this equipment.

CERTIFICATIONS

UL File No: E346690

Contains **FCC ID:** U9O-SM220 and **IC:** 7084A-SM220