Armacost LIGHTING

# Universal Dimming LED Driver

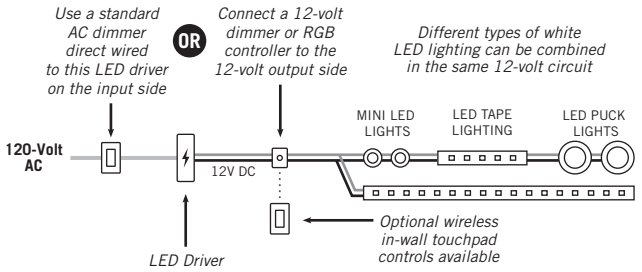
## Class 2 Constant Voltage Power Supply

Suitable for use in dry and damp locations

Models: MD24W, MD45W, MD60W with 12-Volt DC Output

## IMPORTANT: Read before installing

1. This driver works with 12-volt dimmers, RGB controllers, or 120-volt AC dimmers, but not at the same time.




   **Never combine a 120-volt AC dimmer, a 12-volt DC dimmer, or an RGB controller in the same circuit. Using a standard on/off wall switch with a 12-volt dimmer or controller is permitted.**

2. Some LED driver models may come with an AC cord. While a plug can be used with 12-volt LED dimmers and RGB controllers, the unit must be direct wire installed when used with a 120-volt AC dimmer. Please read the section, "Using Direct Wire Hook Up" in these instructions.
3. One AC dimmer can be direct wired to multiple LED drivers at the same time.
4. Never combine a 12-volt white LED dimmer and an RGB controller in the same low-voltage circuit. Do not use more than one 12-volt controller or dimmer in the same low-voltage circuit.
5. Always use one driver for each zone of any 12-volt LED lighting. Never connect two LED drivers to a single run of LED strip lighting.
6. This LED driver works only with LED lighting that requires 12-volt DC constant voltage power.
7. The dimming features of the driver will not work if your LED lighting is not compatible with PWM dimming. If unsure, ask the manufacturer of your LED lighting.

*If you have questions about how to install and wire this product, contact a qualified professional.*

## Installation Guidelines

**SHOCK HAZARD!** If direct wiring this LED driver to a 120-volt circuit with an AC dimmer, turn off the power at the circuit breaker before installing. Failure to do so may result in serious injury or death.

**MAINTAIN POLARITY:** Observe the polarity of the 12-volt DC output and the device or lighting to which you're connecting. Failure to maintain the same polarity could damage LED lighting, dimmers, and RGB controllers. Always connect positive (+) to positive and negative (–) to negative.

The total wattage of all LED fixtures connected to this LED driver must not exceed the maximum watt rating of the unit. If you don't know the wattage rating of your lighting, ask the manufacturer.

Allow for ventilation; do not install in an airtight compartment. Operate only within the specified ambient temperature range of 4°F (-20°C) to 104°F (40°C). Operate at cooler surrounding air temperatures to extend driver life.

Mount the driver flush to the surface to provide heat transfer for better cooling. It's normal for this LED driver to feel warm to the touch, especially when under a full wattage load.

Protect from water. For locations that could be exposed to rain or splashing water, install the driver in a suitable wet location power supply enclosure.

Use only insulated staples or plastic ties to secure cords and wires. Route and secure wires so they will not be pinched or become damaged.

Do not install Class 2 low-voltage wiring in the same run as AC main power. If AC and low-voltage wires cross, keep them at 90° angles.

All wiring must be in accordance with national and local electrical codes, low-voltage Class 2 circuit. For wire runs inside walls, use properly certified CL2 or better cabling and appropriate mounting hardware.

## LED Driver Location and Voltage Drop

The shorter the 12-volt DC wire lead is between the LED driver and your LED lighting, the brighter and more consistent the lighting will be. Do not coil extra wire. As a practical approach, test your LED lighting prior to final installation. If voltage drop appears to be an issue, use thicker, heavier gauge wires or use less lighting. Visit armacostlighting.com/voltagedrop for an easy-to-use online voltage drop calculator.

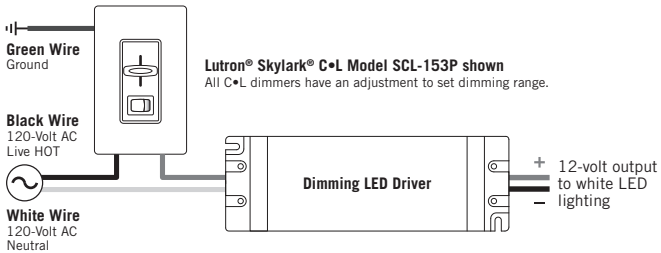
## Using Direct Wire Hook Up

*Electrical code requires hardwire hookup to be used when connecting this driver with a 120-volt AC dimmer.*


Remove end caps to access the terminal block connectors for both AC input and DC outputs. Use Romex® style 14 gauge cable to tie in with the 120-volt AC line voltage. For 12-volt DC output 18 gauge cable is generally recommended, however, DC terminal block can also accept thicker wires up to 14 gauge if required to reduce voltage drop. Be sure all wires are properly seated inside and under the terminal block screw clamp. Tighten down the clamp with a screwdriver. **Do not over-tighten.**

**Note:** Do not use AC ground wire. This LED driver uses Class II AC inputs with a fully isolated plastic case; ground wire is not required.

## Typical Wiring Diagram When Used with an AC Dimmer




## Dimmer Compatibility

Armacost Dimming LED Drivers are compatible with both forward phase (leading edge, triac, incandescent) and reverse phase (electronic low-voltage, ELV, and trailing edge) AC dimmers, including higher end lighting controls, such as Lutron GRAFIK Eye® systems. They are also compatible with low-voltage PWM dimmers and RGB color controllers.

Although virtually all dimmers will work with Armacost Dimmable LED Drivers, Armacost Lighting recommends dimmers that can be programmed or have an adjustment dial to set the low end dimming range, such as Lutron® C•L and Leviton IllumaTech® Universal Dimmers.

**IMPORTANT:** Armacost drivers do not need a minimum wattage load for proper operation, but some AC dimmers may have this requirement. Check the specifications of your dimmer to confirm that your lighting exceeds this value, or choose a dimmer with little or no load requirement.

## Large Area Lighting Applications and Maximum Load

For synchronized brightness control of large areas of LED lighting or lighting in different areas, connect one 120-volt AC dimmer to multiple dimming drivers. Do not exceed 40% of your AC dimmer's rated maximum allowable incandescent/halogen wattage capacity.

Use this formula to determine the number of power supplies that your dimmer can accommodate:

**[AC Dimmer Rating in Watts] X 40% ÷ [Power Supply Rating in Watts]**

For example: If the dimmer states 600 watts maximum incandescent load, and you are using a 24 watt driver, then you can connect no more than ten 24 watt drivers (max combined load of 240 watts).

**600 Watts X 40% = 240 ÷ 24 Watts = 10**

## Features and Specifications

*See model-specific information on your unit's case label*

- No minimum lighting load required for wide range dimming
- No de-rating is required; load up to 100% of the model's rated capacity
- Rated for 30,000 hours when used 8-12 hours a day at full load; expect longer life when dimmed or when using lesser wattage loads.
- Full safety shut off protection in case of lighting overload, open circuit, short circuit, over-temperature, or other fault. The driver will automatically restart after the fault has been corrected.
- Output: 12-volt DC constant voltage
- Ta = 4° F (-20°C) to 104° F (40° C)
- Class II AC input (two-wire connection, requires no ground)
- Complies with FCC Part 15B
- Safety Standards: UL Std. 1310 and 8750, Cert. to CAN/CSA Std. C22.2 No. 223-M91 and C22.2 No. 250.13; For dry and damp location use

Limited three-year warranty. Warranty will be void if LED driver is not installed per these instructions. Disregarding warnings, failure to use this product for its intended purpose, or improper installation will void warranty. Proof of purchase is required for all returns.

Part 15B Compliant

Intertek 5000923

SELV RoHS

american lighting association



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