How to wire a high-power dimming module



Overview

0-10V Dimming Guide | Wiring, Installation & Dimmer Learn how 0-10V dimming works for LED high bays, parking lot lights & commercial fixtures. Wiring diagr.

Key Takeaways

High-power dimming modules require separate high-voltage load wiring and low-voltage control wiring, with careful attention to voltage compatibility, module spacing, and proper current-sinking or sourcing for 0–10V control.

High-

Power Dimming Module Wiring

Input and Load Circuits: High-power dimming modules, such as Lutron HP series, accept 120V or 277V input power and can control loads up to 30,000W/VA per module. Each module has feed-through input circuits and multiple load (output) circuits. When wiring: Do not mix voltages within the same module; each module must be dedicated to either 120V or 277V.

Do not mix load types on the same circuit; each load circuit can have different sources, but sources must not be combined on a single output. Allow proper ventilation: leave at least 6 inches (152 mm) in front of the module and maintain air channels behind the module to dissipate heat (~200 BTU/hour per load circuit),. Linking modules: Up to five modules can be linked to achieve higher load capacity, ensuring the total load does not exceed the module's rating.

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Control Wiring: High-power modules can be controlled via GRAFIK Eye 3000 Series, wall dimmers, or Class 2 momentary contact controls. For low-voltage control: Use 0–10V DC control wiring for LED drivers or dimmable fixtures. Two dedicated low-voltage wires (+DIM and –DIM, typically violet and gray) connect the dimmer to the driver.

Most systems operate as current-sinking: the LED driver sources voltage, and the dimmer sinks current to adjust brightness. If the control wires are disconnected, the fixture defaults to full brightness. Wire gauge: 18 AWG is standard for runs up to 150 ft; longer runs may require 16 AWG to minimize voltage drop.

Wiring Best Practices

Separate circuits: Keep high-voltage AC wiring separate from low-voltage control wiring to prevent interference and ensure safety. Consistent polarity: Maintain correct +DIM and –DIM connections throughout the chain of fixtures. Avoid capacitive fluorescent ballasts: High-power dimming modules are not compatible with capacitive loads.

Electronic low-voltage transformers: Use only those approved for forward-phase dimmers to prevent overcurrent or flickering. Surface mounting: Install modules indoors only, with proper spacing for cooling and maintenance access.

Summary

To wire a high-power dimming module safely and effectively: Connect high-voltage input and load circuits according to module ratings, keeping voltages and load types separate. Install low-voltage 0–10V control wiring with correct polarity and gauge, ensuring the dimmer can sink current from the driver. Maintain ventilation and spacing for heat dissipation.

Link multiple modules if needed, without exceeding total load capacity. Follow manufacturer guidelines and NEC/local codes for both AC and low-voltage wiring. This approach ensures reliable dimming performance, energy efficiency, and compliance with safety standards.

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Article Content

0-10V Dimming Guide | Wiring, Installation & Dimmer

Learn how 0-10V dimming works for LED high bays, parking lot lights & commercial fixtures. Wiring diagrams, dimmer switch selection, installation steps &

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Hi-Power Dimming Module System

Use two #12AWG (2.5mm2) wires to connect the Control Unit''s feed to the Dimming Module''s control circuit. This allows Dimming Modules to draw 40W/VA power for internal operations.

Momentary Switching Module Installation Instructions

The module uses a separate power relay for each of the two output circuits. Where the module is used for high and low beam headlight control, the module takes the place of a traditional floor or column

Lutron Vive PowPak Phase Select Dimming Module : Installation Manual

Wireless T ransmitter (s) (Pico remotes or RPS sensors) cannot be associated to PowPak module. • The maximum number of Wireless Transmitters have been associated to the PowPak module.

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HP-2, HP-4, & HP-6 Installation Instructions Dimming Module Please ...

Description The Hi-POWER 2•4•6TM Dimming Module provides the capability to control a large zone of lighting from either a Lutron incandescent wallbox dimmer or from Class 2 controls. Multiple modules

HP_2_4_6.qxp

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Local dimming is a technology we''re increasingly seeing on even budget TVs from brands like TCL and Hisense, where multiple LEDs in the back

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PowPak Dimming Module with 0-10V Installation Guide Part #041457a

Once installed, energize the PowPak® Dimming Module. Use the Toggle button “ ” to toggle between high-end and OFF to verify ballast wiring. Use the Raise “ ” and Lower “ ” buttons to verify control wiring.

Wiring diagram for LED dimming driver

It is crucial to correctly wire the dimming driver to ensure safe and optimal performance of the LED lighting system. The wiring diagram for an LED dimming driver typically includes several key

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Learn about the different wiring methods for 0-10v dimming systems, including series wiring, parallel wiring, and loop-in/loop-out wiring. Discover the advantages and disadvantages of each method and

How to connect a dimmable driver

On the AC (input) side, you''ll connect the neutral and ground wires directly to the power source. The live wire from your household power source will connect to the input of the dimmer switch - and the

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How to turn on a lamp without a switch using a wired motion sensor (source: sameer gupta & roboticsdna) Motion sensors come in all budgets, $15 for the basics, and $50+ for high-tech wired

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