OVERVIEW

24VDC Commercial Grade 0-10V Dimmable LED Drivers are essential components for retrofitting fluorescent tubes to low voltage LED fixtures in 0-10V control systems. These drivers are ideal for commercial applications designed with 0-10V systems, are rated for wet and dry locations, and offer a smooth, continuous dimming range from 100-10% brightness. These drivers are engineered to work with 0-10V dimming controls for superior dimming performance. These drivers are IP67 rated (driver only) and are suitable for install in dry, damp, or wet locations.

FEATURES

• 120~277VAC Input
• Flicker-free dimming range of 100-10%
• Short circuit, over current, over voltage, over temperature protections
• Plastic housing with Class II design, fault ground protection
• Class 2 power unit
• Fanless design, cooling by free air convection
• No load power consumption <0.15W
• UL Recognized Component (driver only)
• UL Listed (LO-PRO® Junction Box & Driver Combo)
• 5-year warranty

RECEIVE A UL LISTED DRIVER WHEN ORDERING THE LO-PRO® JUNCTION BOX & DRIVER COMBO ON PAGE 2.
SPECIFICATIONS - 120VAC~277VAC (24VDC Output) Models

Input Voltage / Frequency: 120 ~ 277VAC, 50/60Hz (Refer to 'Static Characteristics Curve')

Dimmable: Yes, with any 0-10V dimmer or control. Output PWM Frequency to LED load is 300Hz.

Ambient Temp: 40 ~ +185°F (Refer to 'Derating Curve')

Operating Temp: 40 ~ +185°F

Environment: IP67 outdoor / wet location when installed in wet location J-Box. Lo-Pro J-Box & Driver Combo is suitable for indoor / dry locations.

Working Humidity: 20 ~ 95% RH non-condensing

Housing / Cooling: Plastic housing / cooling by free-air convection

UL Recognized Component (Driver Only): UL8750 (type“HL”), CSA C22.2 No. 250.13-12, ENEC EN61347-1, EN61347-2-13 independent, EN62384, IP67 approved; Design refer to EN60335-1. CE Certified.

UL Listed (LO-PRO® J-Box & Driver Combo): UL 1598 UL# E469769. UL8750 (type“HL”), CSA C22.2 No. 250.13-12, ENEC EN61347-1, EN61347-2-13 independent, EN62384, EN60335-1. CE Certified.

LO-PRO® JUNCTION BOX & DRIVER COMBO

DI-DM-MW24V60W-0-10V
DI-DM-MW24V60W-0-10V-LPS
DI-DM-MW24V90W-0-10V
DI-DM-MW24V90W-0-10V-LPL

Power / Max Load: 60W / 2.5A (See Derating Curve) 90W / 3.75A (See Derating Curve)

Output Full Load: 24VDC 24VDC

Class 2: Yes Yes

Minimum Load: None None

Input Current Full Load: 0.8A@115VAC, 0.4A@230VAC, 0.32A@277VAC 0.6A / 115VAC, 0.3A / 230VAC, 0.25A / 277VAC

Primary Leads: SJTW 18/2AWG, AC/L (Brown), AC/N (Blue) SJTW 18/2AWG, AC/L (Brown), AC/N (Blue)

Secondary Leads: UL 2464 18/2AWG, V+(Red), V-(Black) UL 2464 22/2AWG, DIM+(Blue), Dim-(White) UL 2464 18/2AWG, V+(Red), V-(Black) UL 2464 22/2AWG, DIM+(Blue), Dim-(White)

Voltage Boost: No No

Circuit Breakers: Auto Reset Hiccup Auto Reset Hiccup

Efficiency / PF Full Load: 89% / PF: ≥0.97@115VAC, ≥0.95@230VAC, ≥0.92@277VAC 86% / PF: ≥0.98@115VAC, ≥0.96@230VAC, ≥0.94@277VAC

THD Full Load: 5%@115VAC, 10%@230VAC, 16%@277VAC 5%@115VAC, 8%@230VAC, 14%@277VAC

Dimensions: 5.9 x 2.1 x 1.4 in. (L x W x H) 11.25 x 3.75 x 1.90 in. (L x W x H) 6.8 x 2.5 x 1.5 in (L x W x H) 13.5 x 4.5 x 3.75 in. (L x W x H)

Weight: 1.1 lbs (17.6 oz.) 3.0 lbs (48 oz.) 1.1 lbs (17.6 oz.) 5.7 lbs (91.2 oz.)

1. Refer to the 'Static Characteristics Curve' if installing under low input voltage conditions to properly derate the power supply load
2. Not compatible with 120VAC dimming controls. PWM dimmer/control spec sheet will indicate if multiple controls can be paired to a single driver.
3. Refer to the 'Derating Curve' if nearing max. ambient temperature to properly derate the power supply load. Do not install product in an environment outside the listed ambient temperature.
4. Operating temperature is measured according to the minimum and maximum ambient temperature environment. Operating temperature is measured according to the minimum and maximum ambient temperature environment.
DERATING CURVE

DI-DM-MW24V60W-0-10V

DI-DM-MW24V90W-0-10V

STATIC CHARACTERISTICS

DI-DM-MW24V60W-0-10V

DI-DM-MW24V90W-0-10V
MECHANICAL DIAGRAM (LO-PRO® JUNCTION BOX & DRIVER COMBO)

DI-DM-MW24V60W-0-10V-LPS

DI-DM-MW24V90W-0-10V-LPL
DIMMING OPERATION

The PWM style output is a simple switching of supply ON/OFF at a rate so fast that the human eye cannot see led flickering. Duty cycle describes the proportion of time when output voltage is on relative to the entire period of time. It is expressed in percentage, 100% being fully on (maximal brightness) and a low duty cycle corresponding to lower brightness. Built-in 3 in 1 dimming function. The duty of the PWM style output can be adjusted through output cable by connecting a 0~10Vdc or 10V PWM signal or resistance between DIM+ and DIM-.

◊ Connection

LED Strips

+V

-DIM+

-DIM-

-VDc or 10V PWM or resistance control dimmer

“DO NOT connect “DIM- to -V”

◊ Duty cycle of output current VS Dimming input

100% when DIM+/DIM- are open circuit.

Note: 1. Min. dimming level is about 6%
2. The output current is not defined when 0%<out<6%
3. The output current could drop down to 0% when dimming input is about 0Ω or 0Vdc, or 10V PWM signal with 0% duty cycle

◊ PWM Style Output

Output DC current

0A

ON

OFF

Duty cycle(%) = \frac{T_{ON}}{T} \times 100%

Output PWM frequency : 300Hz fixed (Typ.)
COMPATIBLE CONTROLS

All 0-10V controls and dimmers are compatible with Diode LED’s 0-10V Dimmable Drivers. Below are a few popular 0-10V control models that may be installed with 0-10V Dimmable Drivers. Some dimmers require an additional power pack (relay switch) to support and On/Off control or occupancy sensor control.

### Controls / Dimmers

<table>
<thead>
<tr>
<th>MFG</th>
<th>Product Description</th>
<th>Model #</th>
<th>Power Input</th>
<th>Power Pack Required for On/Off Control?</th>
<th>Power Pack Required for Occupancy Sensor?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lutron</td>
<td>DIVA® 0-10V Preset Dimmer</td>
<td>DVTV</td>
<td>Control: 0-10VDC, 30mA Switch: 24VDC, 100mA</td>
<td>Yes*</td>
<td>Yes*</td>
</tr>
<tr>
<td>Lutron</td>
<td>NOVA® 0-10V Slide-to-off Dimmer</td>
<td>NFTV</td>
<td>Control: 0-10VDC, 30mA Switch: 24VDC, 100mA</td>
<td>Yes*</td>
<td>Yes*</td>
</tr>
<tr>
<td>Lutron</td>
<td>NOVA T® 0-10V Slide-to-off Dimmer</td>
<td>NTFTV</td>
<td>Control: 0-10VDC, 30mA Switch: 24VDC, 100mA</td>
<td>Yes*</td>
<td>Yes*</td>
</tr>
<tr>
<td>Leviton</td>
<td>ILLUMATECH® 0-10V Preset Dimmer</td>
<td>IP710-LFZ</td>
<td>120VAC and 277VAC. See MFG installation guide for maximum loads.</td>
<td>No</td>
<td>Yes†</td>
</tr>
</tbody>
</table>

* Lutron® Series Power Packs (relay modules) must be installed to support On/Off control and when installing Lutron® occupancy sensor controls. Specify the Auxillary Power Pack when installing more than 3 Lutron® occupancy sensors.

† The Leviton® IP710-DLZ dimmer supports On/Off control. The Leviton Power Pack is required when installing Leviton® occupancy sensor controls.

### Power Packs (Relay Modules)

<table>
<thead>
<tr>
<th>MFG</th>
<th>Product Description</th>
<th>Model #</th>
<th>Power Input</th>
<th>Power Pack Required for On/Off Control?</th>
<th>Power Pack Required for Occupancy Sensor?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lutron® Series Power Packs</td>
<td>Power Packs</td>
<td>PP-120H</td>
<td>120VAC, 60 Hz</td>
<td>24VDC, 5mA</td>
<td>24VDC, 100mA</td>
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<tr>
<td></td>
<td></td>
<td>PP-230H</td>
<td>230VAC, 50/60 Hz</td>
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<tr>
<td></td>
<td></td>
<td>PP-277H</td>
<td>277VAC, 60 Hz</td>
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<tr>
<td></td>
<td></td>
<td>PP-347H</td>
<td>347VAC, 60 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auxillary Power Pack</td>
<td>PP-SH</td>
<td>N/A</td>
<td>24VDC, 5mA</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Leviton® Occupancy Sensor Power Packs

| Auto On               | OPP20-0D1                   | See MFG Specs |                                          |                                          |
| Auto/Manual On, Local Switch | OPP20-0D2                    | See MFG Specs |                                          |                                          |
| Auto On, Photocell    | OPP20-RD3                   | See MFG Specs |                                          |                                          |
| Auto/Manual On, Local Switch, Photocell | OPP20-RD4                   | See MFG Specs |                                          |                                          |
SYSTEM DIAGRAMS

Below are examples of 0-10V system diagrams that apply to the controls on page 5. Leviton® models don't require a Relay Switch. Lutron® models require a relay switch.

0-10V CONTROL SYSTEM DIAGRAM (NO RELAY SWITCH)

0-10V CONTROL SYSTEM DIAGRAM (W/ POWER PACK RELAY SWITCH)
ADDITIONAL RESOURCES
12VDC COMMERCIAL GRADE 0-10V DIMMABLE DRIVER Spec Sheet
0-10V DIMMABLE DRIVER Installation Guide
VOLTAGE DROP CHARTS

SAFETY / WARNINGS / DISCLOSURES

1. Install in accordance with national and local electrical code regulations.
2. This product is intended to be installed and serviced by a qualified, licensed electrician.
3. DO NOT modify product beyond instructions or warranty will be void.
4. Turn power OFF at main breaker before servicing or installing this product.
5. Proper heat dissipation will prolong the working lifespan of this product. Install in a well-ventilated area free from explosive gases and vapors.
6. Refer to the ‘Static Characteristics Curve’ if installing under low input voltage conditions to properly derate the power supply load.
7. Drivers are rated for maximum power output at optimum thermal and voltage conditions. Please refer to the ‘Derating Curve’ for maximum load ratings.
8. Ensure a compatible LED fixture with the correct operating voltage is installed with this product.
9. Suitable for outdoor and wet locations when installed in a wet location J-Box. LO-PRO Junction Box & Driver Combo is rated for indoor / dry locations.
10. To compensate for voltage drop, ensure applicable gauge in-wall rated wire is installed between driver and LED fixture.
11. Compatible with 0-10V dimmers/controls. Not compatible with 120VAC dimming controls or PWM controls.

WARRANTY

Limited Warranty
This product has a five (5) year limited warranty from the date of shipment. This warranty does not include the additional accessories referenced in this specification sheet. Complete warranty details for fixtures and additional accessories are available at www.diodeled.com/limited-warranty/ within the Policies section. For warranty related questions please contact product support.

Consumer’s Acknowledgment
Diode LED stands behind its products when they are used properly and according to our specifications. By purchasing our products, the purchaser agrees and acknowledges that lighting design, configuration and installation is a complex process, wherein seemingly minor factors or changes in layout and infield adjustments can have a significant impact on an entire system. Choosing the correct components is essential. Diode LED is able to work with the original purchaser to make an appropriate product selection to the extent of the limited information that the customer can provide, but it is virtually impossible for Diode LED to design a system that foresees every unknown factor. For this reason, this Warranty does not cover problems caused by improper design, configuration or installation issues. Any statement from a Diode LED employee or agent regarding a customer’s bill of goods and/or purchase order is NOT an acknowledgment that the products purchased are designed and configured correctly. The purchase agrees and acknowledges that it is the customer’s responsibility to adhere strictly to all information contained in the Product Specification Sheets.

There is often more than one way to design, configure and layout an LED lighting application properly to achieve the same lighting effect. Diode LED strongly recommends that licensed professionals be used in the design and installation of lighting systems that include Diode LED products. The specifications include important information that a designer and installer should carefully review and strictly follow. Qualified designers and certified and/or licensed installers, with access to the final installation environment, customer goals, and Diode LED product specifications can make the requisite decisions appropriate for a successful finished lighting application.