

# 1-10V DIMMING CONTROL

For LPF, HLG & HLN series

#### INTRODUCTION:

MEAN WELL has developed LPF, HLG and HLN series with advance "3-in-1 dimming" feature. This feature is available on B-TYPE only. "3-in-1 dimming" allows user to dim the LEDs with 3 different forms of signal, including 1-10VDC, PULSE WIDTH MODULATION (PWM) and PASSIVE-RESISTANCE. As result, it enhances the flexibility to make the design easier for different end-application. In this application note, 1-10V dimming control scheme will be introduced.

#### **TECHNICAL REQUIREMENTS:**

- The output current level of the dimmable driver is controlled by DC voltage (1-10V) applied to the control terminals (blue and white). The light output of LEDs is controlled by the amount of output current from the dimmable driver.
- The control device must be capable of sinking a DC current flow from the driver. The maximum amount under any condition is 500 microamps (uA) per driver.
- The control terminals of the dimmable driver are isolated from the power lines and are suitable for use as Class 2 wiring. If multiple drivers are desired for use with same control device, the control terminals may be connected in parallel in a bus configuration.
- Since the control bus is Class 2 wiring, all control devices that are connected to the power line must have proper isolation between the power line and the control terminals/bus.
- The control device, which intends to control more than one dimmable driver, must be capable of sinking the total current supplied to the control bus by the drivers.
- If the control terminals/bus is shorted in any case, the current on the control terminals/bus will be 500 microamps (uA) per driver maximum.
- If the control terminals are opened, the voltage on the control terminals will then be 10V ± 0.5 volt. As result, dimmable driver supplies maximum output current to LEDs under this condition.
- The driver is intended for use with control voltages between 1 and 10 VDC. The control equipment must not impose a voltage greater than 11V peak maximum on the driver control terminals.

## WIRING RECOMMENDATIONS:

LPF, HLG and HLN series support Lutron's DVTV control device, and it is recommended to use Lutron's Power Pack (PP-120H/230H/277H) along with DVTV as shown on Fig. 1.

**Important Notice:** Install in accordance with all local and national electrical codes. Read Lutron's installation instructions before install. For using different control device, contact MEAN WELL for compatibility.

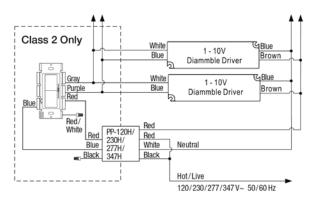


Fig. 1 – Dimming with ON/OFF control

### HIGH-END and LOW-END ADJUSTMENT:

It is recommended to adjust (in any conditions) the maximum control voltage from DVTV to be less than 10VDC and the minimum control voltage to be higher than 1VDC. Fig. 2 shows the trimpot locations on DVTV control device.

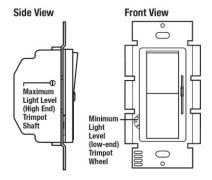


Fig. 2 – DVTV's Trimpot Locations