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:

1. 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

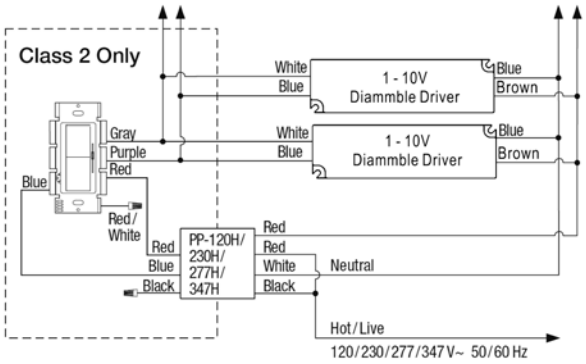

Fig. 1 – Dimming with ON/OFF control

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.

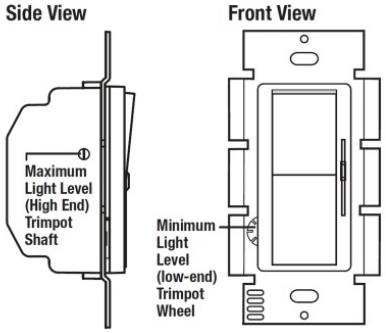

Fig. 2 – DVTV's Trimpot Locations

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