

### Application Note for Current Sink Only Controls

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Some Lutron controls work exclusively with the current sink standard. If current sourcing with these particular products is necessary, then the Lutron provided custom power supply can be used.

#### **0-10 V<sub>DC</sub> Dimming**

0-10 V<sub>DC</sub> is an analog lighting control protocol. A 0-10 V<sub>DC</sub> control applies a voltage between 0 and 10 V<sub>DC</sub> to produce a varying intensity level. There are two existing 0-10 V<sub>DC</sub> standards. They are not compatible with each other, so it is essential to understand which type is required.

The two control types are current source (a theatrical dimming standard) and current sink (a dimming ballast standard).

There is an IEC standard for current sink controls - Standard 60929 Annex E. The standard requires that the ballast (or driver) provides full light output when the control voltage is 10 V<sub>DC</sub> (or above). As the control voltage is reduced by the control, the light level is reduced. At a control voltage of 1 V<sub>DC</sub>, the ballast (driver) provides its minimum light level. An additional specification that needs to be considered is the current carrying capacity of the control. Standard 60929 Annex E requires the ballast (driver) to limit the current draw to 2.0 mA maximum.

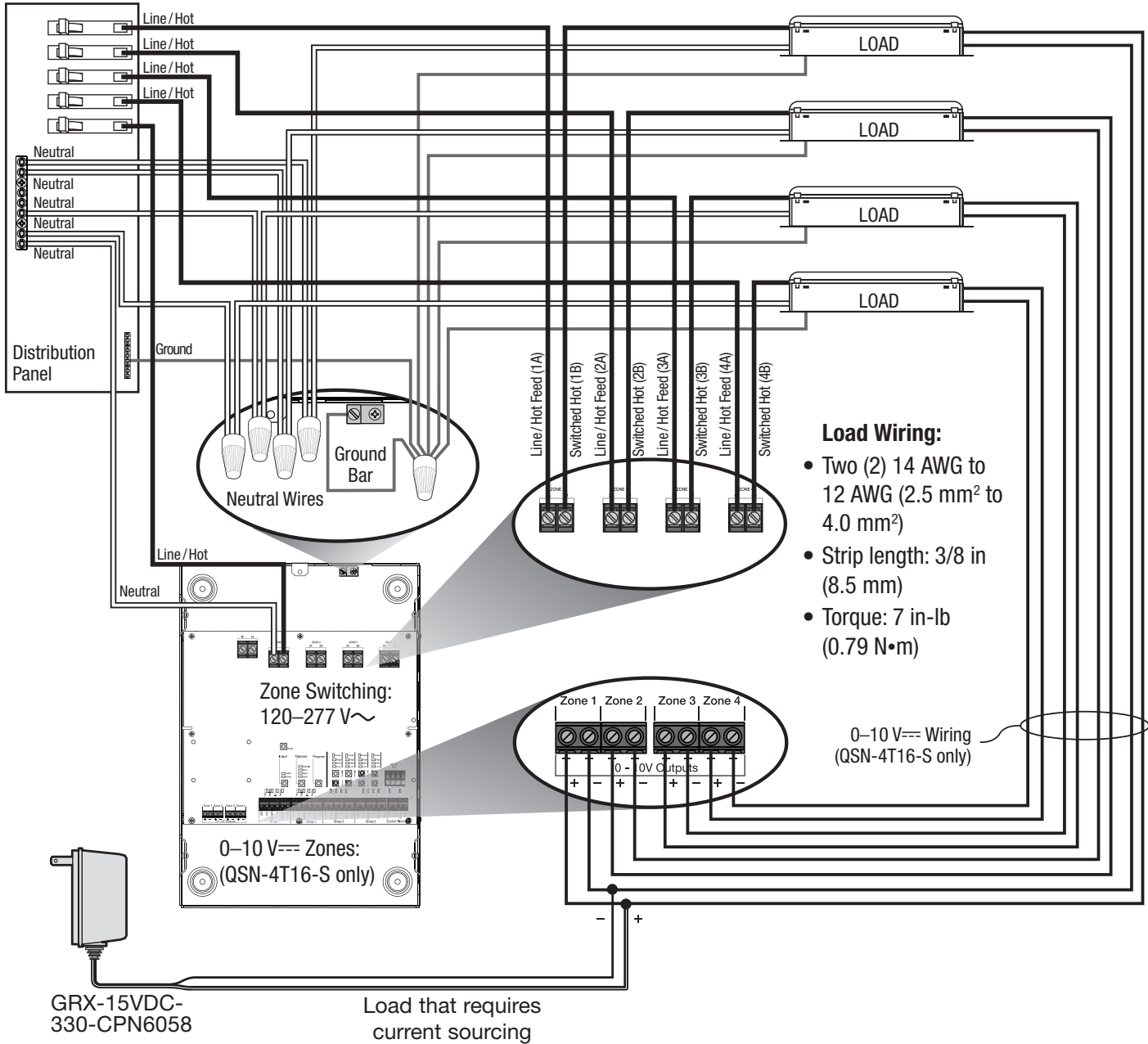
Current sourcing controls for 0-10 V<sub>DC</sub> are supported by the standard ESTA E1.3, Entertainment Technology – Lighting Control System – 0-10 V<sub>DC</sub> Analog Control Protocol, Draft 9 June 1997. It defines 10 V<sub>DC</sub> as 100% light level and 0 V<sub>DC</sub> as off. Drivers using this protocol require the control to provide (source) the voltage.

#### **Lutron Solutions**

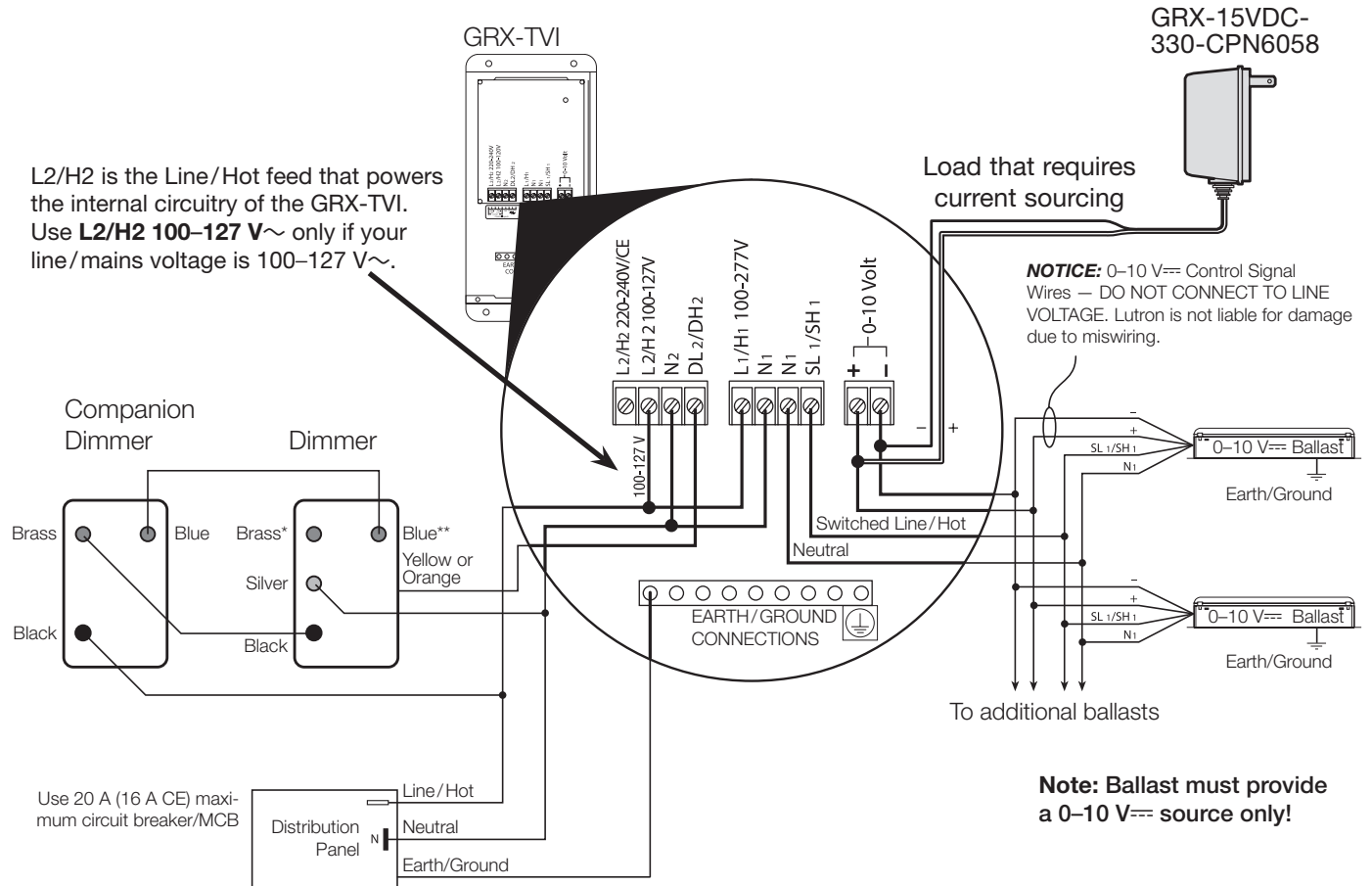
This Lutron part has a 10 mA capacity, with capability to operate a minimum of 5 ballasts (drivers) if they are compliant with ESTA E1.3. The Lutron model number is GRX-15VDC-330-CPN6058. Ballasts must be wired as shown in the diagrams on the following pages. For proper operation, each diagram corresponds to a different Lutron product that only supports current sinking. They are the Energi Savr Node GRX-TVI and Nova, Nova T<sup>☆</sup> and Diva 0-10 V<sub>DC</sub> Controls with PP-120H Power Pack.

**Note:** For emergency setups, connect the provided Lutron® power supply to emergency power.

## Ballast Wiring Diagram for ESN Domestic



## Ballast Wiring Diagram for GRX-TVI Interface

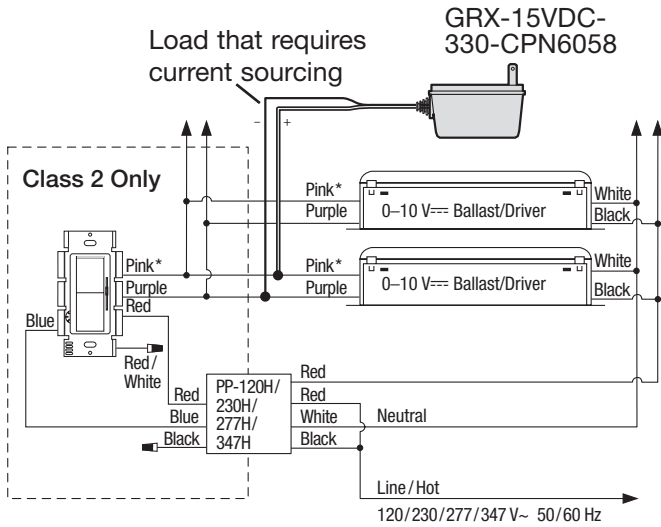


\* The brass screw terminal is not used. Tighten the brass screw terminal. Do not connect the brass screw terminal to ground or to any other wiring.

\*\* When used as a single-pole dimmer, the blue screw terminal is not used. When used as a single-pole dimmer, tighten the blue screw terminal—do not connect the blue screw terminal to ground or to any other wiring.

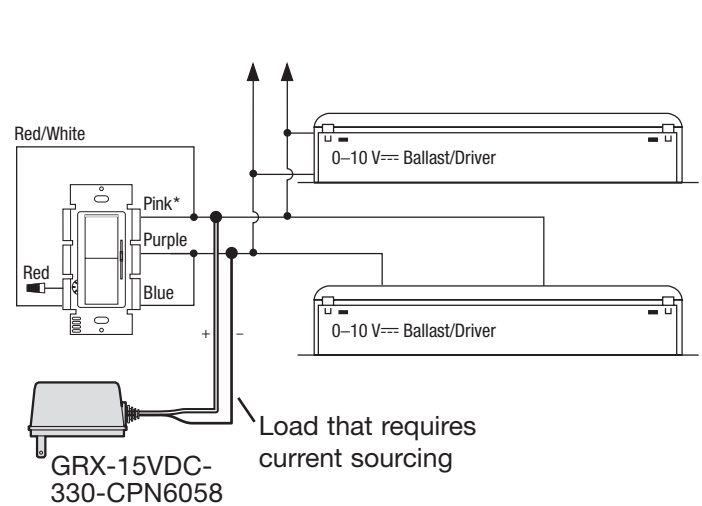
## Ballast Wiring Diagram for Nova® and Diva® with PP-120H Power Pack

Dimming With ON/OFF Control  
Wiring Diagram Using Power Pack



\* This wire/terminal may be gray on older products or in retrofit applications.

Dimming With ON/OFF Control For Drivers Which Support  
Dim To OFF Capability  
Power Wiring Not Shown—See Lighting Device For Wiring



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