

LEVITON LED LIGHTING CONTROLS

The use of LEDs as an energy efficient lighting solution, also known as Solid State Lighting (SSL), offers great promise as the next generation of lighting for everyday environments. Unlike traditional sources that use vacuum or gas filled tubes, such as incandescent, fluorescent, and HID lighting, LEDs produce light solely by the rapid movement of electrons through a semiconductor material.

LEDs generate light so efficiently that they are becoming an attractive alternative lighting source. Compared to traditional sources, LEDs draw less power and produce a lower heat output. This results in a significant reduction for two of the largest energy consumers in our working and living environments: HVAC and lighting. LEDs typically offer the additional advantage of having a longer service life than traditional sources.

LEDs are directly controlled by a "driver" which in turn is controlled by a control source. The LED driver regulates the current flowing through the LED during operation to produce the maximum output. It protects the LED from voltage and current fluctuations to prevent pre-mature failure. The driver also acts as an interface between the LED and a standard control source.

In order to select the appropriate control source, it is critical to first understand the fixture/driver combination's specific requirements. Fixtures may be primarily designed for simple on/off switching, dimming, color changing, or purely for effect. Because of the vast array of fixture/driver combinations, there is no one standard control solution for all combinations. The intent of the output dictates the requirements of the control especially in the case of color changing or other effects. Leviton offers several control solutions for LED technology.



LEVITON LED COMPATIBLE CONTROLS

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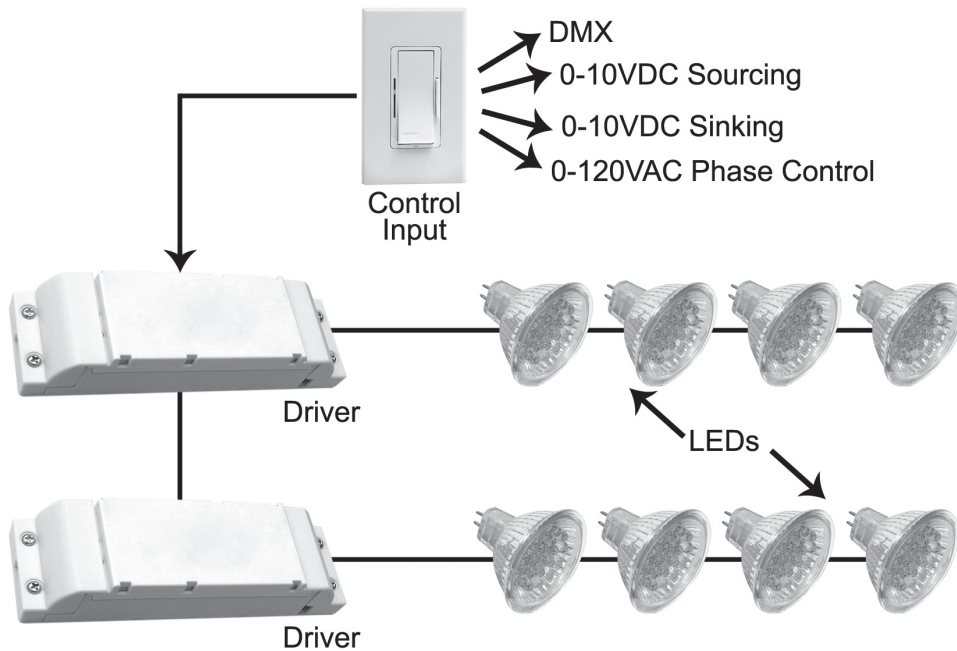
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LED FIXTURE/DRIVER COMBINATIONS AND CONTROL OPTIONS



To select the correct lighting control, determine the control signal type required by the LED driver.

DEFINITIONS OF LED DRIVER CONTROL TYPES:

DMX: Short for digital multi-plex, is an ANSI standard communications protocol that originated from the theatrical industry. It's ideal for applications where fast guaranteed communication between devices is required and only channel level information is required to be communicated.

0-10VDC Sinking: A driver's setup for 0-10VDC sinking control works identically to how a 0-10VDC fluorescent dimming ballast operates and can be controlled by the same types of controllers. Controllers supporting this type of signal "sink" absorb different amounts of voltage to indicate the dimming level. In this fashion, each driver acts like its own power supply allowing even a small controller to support a large numbers of devices.

0-10VDC Sourcing: A driver which requires a 0-10VDC sourcing control operates using a more traditional 0-10VDC analog controller. In this case, the controller provides all voltage and current and varies the voltage to determine the dimming level.

0-120VAC Forward Phase Control: A line voltage dimmer where the front part of the sine wave is truncated to get different levels of output. This is how most SCR and TRIAC based solid state dimmers operate.

0-120VAC Reverse Phase Control: A line voltage dimmer where the back part of the sine wave is truncated to get different levels of output. Although becoming more common, this is a more specialized type of dimmer.

Switching: A driver that requires a switching control input usually allows for on/off control only. Generally the input is a maintained 120VAC to indicate the "on" state and no connection to indicate the "off" state.

Application Note for Leviton LED Lighting Controls

Leviton LED Controls	LED DRIVER CONTROL TYPES						LED FUNCTIONS	
	DMX	0-10VDC Sourcing	0-10VDC Sinking	0-120VAC Forward Phase Control	0-120VAC Reverse Phase Control	Switching	Dimming	Color Changing
Satellite & Rack Mount Dimmer Packs				All Models		Most Models	Yes	
High Density Dimming Products				iSeries iSeries e		iSeries iSeries e	Yes	
Dimensions® D4000 System	All *	All *	All *	All *		All *	Yes	Yes
Dimensions® D8000 System	All *	All *	All *	All *		All *	Yes	Yes
Remembrance		All models		All *		All *	Yes	Yes
a2000®			All models	All models		All Models	Yes	
Power Extenders			PE300	PE100	PE400	Consult Factory	Yes	
Monet® Wall Box Dimmers					MNE04	MNS20	Yes	
Renoir® Wall Box Dimmers							Yes	
Van Gogh® Wall Box Dimmers							Yes	
Acenti®					ACE04 ACE06	ACS15 AC201	Yes	
Vizia™					VZE04 VZE06 RZE06	VZS15 RZS15	Yes	
IllumaTech™			IP710		IPE04	5601 5603 5604	Yes	
Custom Solutions	*	*	*	*	*	*	*	*

* Note: Other products may be required for a complete LED control system. Contact your local Leviton representative for more details.

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