MAGTECH
High Power LED Driver/Power Supplies

AC-Dimm™ APPLICATION NOTE

Guide to Dimming LEDs

Overview

This Guide to Dimming LEDs answers typical questions encountered by Magtech Industries concerning LEDs dimmable applications.

In response to the need to dim LED light-engines, and after an extensive engineering research and development program Magtech has developed AC-Dimm™, special AC dimmable driver circuitry. AC-Dimm™ technology has been incorporated into our B10, B12, LP1017, LP1020, LP1025 and more to come in the future months.

Facts About LED Lighting

Why Use LED Lighting?

• LED lighting provides an excellent source of illumination, long life, safe and energy efficient.

• The LED Low-voltages contribute to extended LED life and increased safety.

• Small fixture sizes and low heat.

• Common applications include residences, display lighting, task lighting, and product highlighting.

What Is LED Lighting?

LED lighting uses a driver to reduce the 120VAC line voltage to a low-voltage signal, usually

3VDC to 36VDC with or without constant current drive. This lower voltage is then used to power the LED.

Where Is the Driver Located?

Depending upon the fixture style, a driver may be mounted remotely or as an integral part of the fixture.

Does Dimming Affect LED?

Dimming will not affect the already long life expectancy of the LED, it may actually increase life expectancy due to heat reduction on the LED. small color shifting may occur rarely.

Dimming LED Drivers.

When dimming a LED, you are controlling the 120VAC or 230VAC input side of the driver that drives the LED light-engine.

Important:

To dim LED fixtures with Magtech AC-DIM™ use only "electronic low-voltage dimmers". See chart for recommended dimmers(last page). These are available at all electric retailers.

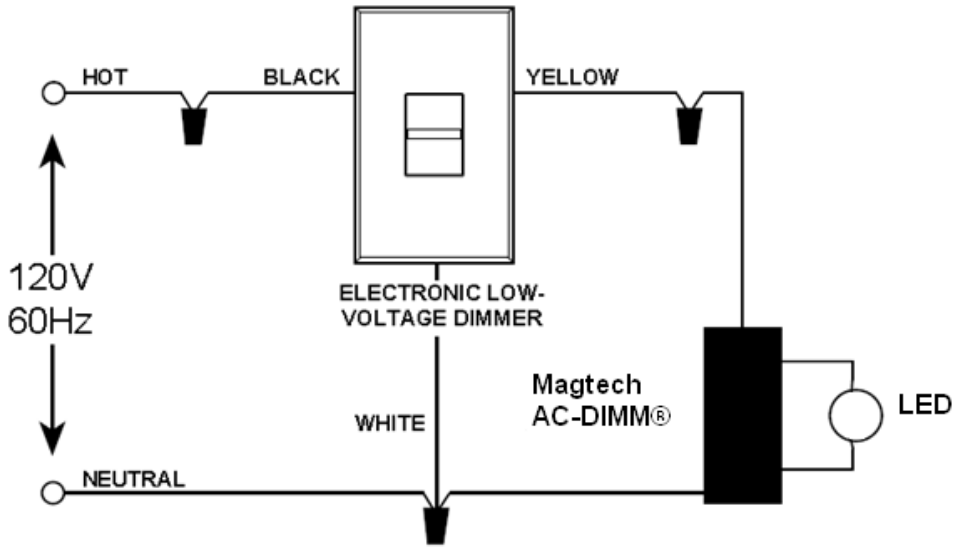
Magtech AC-Dimm™ should not be use with regular incandescent dimmers. When a standard low-voltage or incandescent dimmer is used on Magtech AC-Dimm™, there is interaction between the Magtech AC-Dimm™ and the dimmer. This interaction will cause any combination of the following: dimmer buzz, fixture buzz, lamp flickering, interaction between circuits, and radio frequency interference (RFI), and may damage the dimmer. To eliminate these problems, use recommended electronic low-voltage dimmers.

Note: Line voltage incandescent and low-voltage fixtures can be mixed on the same circuit, but the correct low-voltage dimmer (for the given low-voltage load) must be used. The total load **must not** exceed the dimmers capacity. **Do not** mix magnetic transformers and Magtech AC-Dimm™ on the same dimming circuit.

Wiring

Typical wiring for electronic low-voltage dimmers.

Note: All electronic low-voltage dimmers require a neutral wire.



Selecting the Right Magtech AC-DIM™ Driver.

Input Voltage

Almost all Magtech AC-Dimm™ will work from 100V to 240VAC.

Please notice; the dimming feature will only work at a pre selected voltage 115V or 230V

Power

Magtech AC-Dimm™ Drivers are available in various power outputs from 6W to 25W. Always select a power supply that is equal or bigger than the desire LED power. For example, for a 18W LED use LP1020-xx-xx-AC-DIMM™ this is a 20W power supply.

Output Voltage

Magtech AC-Dimm™ Drivers voltage range should match the LED used. Use the LED max forward voltage as Magtech AC-Dimm™ Drivers top voltage and make sure Vf at If(min) is more than Magtech AC-Dimm™ Drivers minimum output voltage.

Output Current

Output current can be adjusted (within range) for all Magtech AC-Dimm™ Drivers. Make sure to order the correct current output for your LED, known as nominal driving current. Driving the LED at more than the allow current will damage it.

Output Power

For Magtech AC-DIMM™ Drivers to dim correctly we need to adjust them to the right output power. When ordering a Magtech AC-DIMM™ Drivers please specify the LED power (watt), this value should never exceed the nominal forward voltage multiply by the nominal driving current.

Tested Dimmer for Magtech AC-DIMM™ Drivers

Lutron

SERIES	MODEL	POWER	AV. PRICE
Skylark			
Single Pole	SELV-300P	300W	$45-$55
3-Way	SELV-303P	300W	$50-$60
Diva			
Single Pole	DVELV-300P	300W	$80-$100
3-Way	DVELV-303P	300W	$80-$100
Maestro			
Single Pole	MAELV-600	600W	$110-$150
Nova			
Single Pole	NELV-450	450W	$80-$85
Interface			
ELVI-1000			$130-$180

Leviton

Surslide			
Single Pole	R02-06615-P0W	600W	$20-$30
3-Way	R02-06615-P0W	600W	$20-$30
Vizia			
Single Pole	VZE06-1LZ	600W	$120-$150
3-Way	VZE06-1LZ	600W	$120-$150

Disclaimer:

All of the above information are for reference use only. If you have any questions concerning information listed above, please call our customer service for more detail definitions.