Compatible With Our Tape Light

Project Name:
Fixture Type:

Driver Load Calculation

There are two different concepts that you need to understand when choosing a driver for your tape light project:

1) Driver load calulation

2) Maximum Tape Light/Wire Length Calculation

Driver Load Calculation:

To calculate the driver you need, you need to make a mathematical calculation based on the tape light's wattage. We also need to calculate the fact that most of our drivers run at >80% efficiency1.

To calculate the amount of watts required for your project, use the following forumla:

$$Total\ wattage = \frac{Watts\ per\ feet * \ Lenght(feet)}{Efficiency\ of\ the\ driver}$$

So, for example, if you are using Hi-Beam Tape Light, which is 4.4W/ft (as stated in table 1), and you have a 10 feet run, the total wattage will be:

$$Total\ wattage = \frac{4.4\ W/ft * \ 10ft}{0.80} = 55\ Watt$$

So the minimum wattage driver you can use is 55W. Because we do not sell 55W drivers, you can round up to the closest capcity we do carry, which, in this case, is 60W. Note: All our low voltage tape light and drivers work at 24VDC.

Maximum Tape Light/Wire Length Calculation:

There is a voltage drop across tape light, which results in flickering, loss of light and change in color. You can use the same driver to power multiple run lengths of tape light, as long as each one connects back to the driver doesn't exceed the maximum continous run lenght stated in table 1.

Tape Light Type	Watts Per Foot	Max one Run "foot"
Lo-Beam/ Lo-Beam Wet	1.46	52.6
Beam/ Beam Wet	2.93	26.24
Hi-Beam/ Hi-Beam Wet	4.4	17.5
Hi-Beam RGB	4.4	17.5
Zig-Beam	4.4	17.5
Hi-Beam Hi Efficiency/ Hi-Beam Hi Efficiency Wet	4.4	17.5
Hi Beam Full Specturm	4.6	17.0
Hi-Beam RGBW	5.85	13.12
Beam Double/ Beam Double Wet	5.85	13.12
Cool Beam/Cool Beam Wet	6.24	12.3
Hi-Beam Double/ Hi-Beam Double Wet	8.8	8.75
Ultra-High Beam	8.78	8.75
Super Beam	16	4.37

Table 1

1 Please check the tables below or exact efficiency of each driver.

52 Railroad Ave
Valley Stream, NY 11580

www.preciseled.com
info@preciseled.com

Compatible With Our Tape Light

Project Name:
Fixture Type:

However, there is a maximum length of wire between the driver and the tape light that you can use due to the voltage drop across the wire. To calculate the maximum length of wire to use, use the following wire resistance chart and equations or the voltage drop chart at each tape ligh's page on our website under downloads section. Please note that the maximum length of the wire depend on the length of the tape light that you will use

Wire Gauge	12AWG	14AWG	16AWG	18AWG
Resistance per ft.	0.001588	0.002525	0.00402	0.00639

$$Current(Amps) = \frac{Power\ (Watt)}{Voltage\ (Volt)}$$

$$Voltage\ drop = Resistance\ per\ foot * Lenght\ of\ wire(feet) * Current$$

Voltage drop across the wire should be less than 3% to aviod flickering, loss of light and change in color (which mean it should be less than 0.72 Volts as all of our tape light works with 24 VDC)

For example, if we are using Hi-Beam Tape Light , which is 4.4W/ft, and you have a 10 foot run of the tape light, and want to use 20 feet of 16AWG you use the following equation:

$$Current = \frac{4.4 * 10}{24} = 1.83$$

$$Voltage\ drop = 0.00402 * 20 * 1.83 = 0.147\ Volt$$

52 Railroad Ave
Valley Stream, NY 11580

www.preciseled.com
info@preciseled.com

Compatible With Our Tape Light

Project Name:
Fixture Type:

LED Driver Frequently Asked Questions

1)Do you need dimming?

-If so, do you know what kind? MG (MLV/Triac), ZO (0-10), and LA& LP series dim, the rest do not.

2)Do you need to install in a wet location?

-ZO, are suitable for wet location, the rest are not.

3)How long is the tape light?

Each series can support the “max length” you see on the tape light specification sheets.

3)Which kind of dimming is the best?

-Our most common driver is MG series. There is no real “best” dimming, each has it’s advantages and disadvantages. MG series (MLV dimming) works with triac (incandescent dimming), so many like it for its compatibility with older systems. ZO series (0-10V) is the most efficient but most difficult to wire. But keep in mind that if the tape light is to be installed on the same switch as another fixture, you must check the dimming standard of that fixture.

4)How many watts do I need?

-That depends on the length of tape light and the product that you have. You can use the calculator on the top of each driver web-page to determine the minimum wattage driver you need or you can use the information in table 1.

52 Railroad Ave
Valley Stream, NY 11580

www.preciseled.com
info@preciseled.com

Compatible With Our Tape Light

Project Name:
Fixture Type:

LED Driver				
Dimming	Non-Dimmable	Dimmable		
Series	NN Series	Z0 Series	MG Series	LA&LP Series
Wet Location	Yes	Yes	No	No
Compatible Dimmer	----	0-10V	MLV/Triac	Several dimmers[1]
Class 2	Yes	Yes	Yes	Yes
Avaiable Wattage	60W 96W	60W 96W	60W 96W	LA (40W) LP (96W)

NN Series LED Drivers

These drivers are constant voltage LED drivers that are available in multiple form of wattage to meet your low-voltage LED lighting needs. It is Single Output Power Supplies feature short circuit and over-voltage protection. Enclosed in a fully isolated plastic case, it is designed for the increasing demands of LED lighting.

MODEL	DRIV-NN-24V-60W	DRIV-NN-24V-96W
WATTAGE	60 W	96 W
STANDARD INPUT VOLTAGE	120 ~ 277VAC	120 ~ 277VAC
OUTPUT VOLTAGE LOADED	24 VDC	24 VDC
OUTPUT CURRENT	2.6A	4.1A
INPUT FREQUENCY	50/60Hz	50/60Hz
EFFICIENCY	86%	87%
WORKING TEMPERATURE	-30 ~ 40 °C	-25 ~ +40 °C
CLASS 2	Yes	Yes
DIMENSIONS (L*W*H)	11.84” x 2.4” x 1.4”	11.84” x 2.4” x 1.4”

1 There are several dimmers that control these drivers depending upon dimmer style or system. Compatibility info can be found on the Specification Sheet.

52 Railroad Ave
Valley Stream, NY 11580

www.preciseled.com
info@preciseled.com

Compatible With Our Tape Light

Project Name:
Fixture Type:

Z0 Series LED Drivers

These are 0-10V Dimmable LED Drivers which are essential components for low voltage LED fixtures in 0-10V control systems. These drivers are rated for wet and dry locations, and offer a smooth, continuous dimming range from 1-100% brightness. These drivers are engineered to work with 0-10V dimming controls for superior dimming performance

MODEL	DRIV-ZO-24V-60W	DRIV-ZO-24V-96W
WATTAGE	60 W	96 W
STANDARD INPUT VOLTAGE	120 ~ 277VAC	120 ~ 277VAC
OUTPUT VOLTAGE LOADED	24 VDC	24 VDC
OUTPUT CURRENT	2.6A	4.1A
INPUT FREQUENCY	50/60Hz	50/60Hz
EFFICIENCY	87%	87%
WORKING TEMPERATURE	-25 ~ +40 °C	-25 ~ +40 °C
CLASS 2	Yes	Yes
DIMENSIONS (L*W*H)	11.84” x 2.4” x 1.4”	11.84” x 2.4” x 1.4”

MG Series LED Drivers

The Magnetic Dimmable Driver is the compatible power source for projects using magnetic low voltage 120-277V dimmer switches to dim 24V LED Tape lights. These drivers are rated for dry locations, and offer a smooth, continuous dimming range from 1-100% brightness. This driver meets Class 2 code specifications.

MODEL	DRIV-MG-24V-60W	DRIV-MG-24V-96W
WATTAGE	60 W	96 W
STANDARD INPUT VOLTAGE	120~277V	120~277V
OUTPUT VOLTAGE LOADED	24 VDC	24 VDC
OUTPUT CURRENT	2.5A	4A
INPUT FREQUENCY	60Hz	60Hz
EFFICIENCY	80%	80%
CLASS 2	Yes	Yes
DIMENSIONS (L*W*H)	10.11” x 3.29” x 2.91”	11.08” x 4.33” x 4.19”

52 Railroad Ave
Valley Stream, NY 11580

www.preciseled.com
info@preciseled.com

Compatible With Our Tape Light

Project Name:
Fixture Type:

LA&LP Series LED Drivers

• The Lutron® Hi-lume 1% 2-wire forward phase LED Driver is a high performance LED driver that provides smooth, continuous, flicker free dimming from 1%-100% lighting level for 24VDC sources up to 40W. The Lutron LED Driver ensures a safe and reliable installation because it is pre-packaged with its own specialized wiring and mounting enclosure. It is specifically engineered to work with a full range of Lutron® controls.

• The Hi-lume® Premier 0.1% 5-96watts 3-wire/digital EcoSystem Driver is a high-performance LED driver capable of controlling up to 96 W of 24 V- constant voltage loads. This driver provides smooth and continuous dimming down to 0.1% low-end. It is ideal for use with strip lighting in applications such as coves, under or over cabinet lighting and pathway lighting. The driver is UL® Listed with an integrated wiring compartment.

MODEL	DRIV-LA-24V-40W	DRIV-LP-24V-96W
WATTAGE	40 W	96 W
STANDARD INPUT VOLTAGE	120V	120/277V
OUTPUT VOLTAGE LOADED	24 VDC	24 VDC
INPUT FREQUENCY	50/60 Hz	50/60 Hz
EFFICIENCY	-	89% at Max Load
OPERATING AMBIENT TEMPERATURE	0 ~ +40 °C	0 ~ +40 °C
CLASS 2	Yes	Yes
DIMENSIONS (L*W*H)	4.89” x 4” x 2.62”	10.5” x 5.5” x 2”

52 Railroad Ave
Valley Stream, NY 11580

www.preciseled.com
info@preciseled.com