

# Technical Information

## Dimming data of LED Light strips using compatible dimmers

	Transformer Model	Compatible Dimmers	Max level Power	Min level Power
1	EX95101, EX95121 (120VAC input)	Leviton: VPE04(06)-1L, ATE04(06)-1L, ACE06-1L, DSE06-10Z	98%	1.7%
		Lutron Maestro MAELV-600, MSCELV-600	98%	1.7%
		Lutron Diva DVELV-300, 303, DVCL-153PR	98%	0.1%
		Lutron Skylark SCL-153P, SLV-600P, SELV-600	98%	0%
		Lutron Radio Rà (1 and 2) RRD-6NA	98%	0%
		Grafik Eye 3000, 3504, QS (set of ELV,1 driver per channel only)	98%	0.1%
		Vantage Controls: Qlink System	98%	0.5%
2	EX95301, EX95321 (277VAC input)	Lutron Grafik Eye 3000, 3504, QS, Radio Rà RRD-6NA with PHPM-PA-DV module	98%	0%
		Lutron MAELV, MSCELV, with Lutron PHPM-PA-DV module	98%	12.8%
		Leviton: VPE04-1L, VPE06-1L, ATE04-1L, ATE06-1L, ACE06-1L with Lutron PHPM-PA-DV module	98%	13%
3	EX95201, EX95221 (230VAC input)	Lutron Grafik Eye GRX-3100, GRX-3500 for 220V-240V or 230V (CE) (1 driver for channel only)	98%	0%
		Philip Dynalite DDMC802GL controller w/LEDM401	98%	5%
		Helvar 452 trailing edge	98%	5%

Dimming data using flexible LED light strips that uses current limiting resistors. Results with other designs not tested  
Not all LED lamps behave the same way. Consult factory when using other lamps

Check out these videos. They feature dimming LEDs with our transformers:

[http://youtu.be/yP0\\_oF7XeaY](http://youtu.be/yP0_oF7XeaY) (EX95121 with 24VDC LED light strip, dimming)

<http://youtu.be/4JWUt1EJM7k> (FX97311B, 300W with 3 Soraa)

<http://youtu.be/W2fDFMqHqSg> (2 x FX95100 with 1 Soraa each on same dimmer)

<http://youtu.be/1ZQOgKjvToY> (FX95100 with LEDs and controlled by Grafik Eye)

## Dimmer FAQs

### Skylark SLV-600P, SCL153P

Q: This is a magnetic dimmer, correct? Will it work with an electronic driver?

A: Yes this works with our EX drivers. This is the only magnetic dimmer that will work. The electronic version of this works too. But the magnetic version costs less.

### Diva DVELV-300

Q: This is an electronic low-voltage preset dimmer with a nightlight; single pole, 120V 300W.

A: Yes this works with our EX drivers. Only the DVELV version works, both DVELV-300 or DVELV-303 work. The version without the "E" will not work.

### Diva DVCL-153PR

Q: This is an electronic low-voltage dimmer for LED, incandescent and halogen lamps with a range preset; single pole, 120V 150W for LED, 600W for incandescent or halogen (with low voltage transformer)

A: Yes this works with our EX drivers. May need to adjust dimming range to prevent slight flickering at the bottom 1%.

### Leviton VPE04-1L, VPE06-1L, ATE04-1L, ATE06-1L, ACE06-1L

Q: All of these models work?

A: All of these versions of dimmers for electronic low voltage transformers have been tested to work with our drivers over the entire dimming range without any flicker.

### Maestro MAELV-600

Q: This is an electronic low-voltage digital-fade dimmer; multi location / single pole, 120V 600W.

A: Yes this works. Only the MAELV version works. This applies also to the multi-location version MSELV. Again, only the "E" version works. The others will not work despite some say they are for LED loads. Can be used to control the Lutron PHPM module for 277V installations.

### RadioRA 2 Maestro

Q: There are two models that may work: **RRD-6NA-WH** or **RRD-F6AN-DV-XX**, which is the right one?

A: The Radio Ra dimmer is basically a Maestro dimmer. The only difference is that this dimmer has the added feature that you can purchase a remote from Lutron that can control the dimmer without having to actually push button on the dimmer. (like a TV remote). Only the RRD-6NA-XX version will work. The XX suffix refers to the color and will not affect the operation of the unit. Like the Maestro model, this dimmer can be hooked up to the driver directly for 120V operation or you can use it in conjunction with the Lutron PHPM module for 277V power (see below).

### GRAFIK Eye 3000

Q: GRAFIK Eye 3000 is obsolete and replaced by **GRAFIK Eye QS**. Can you explain to me exactly how this works, and is there a specific model you recommend? Is it always used in combination with RadioRA 2, and also with **PHPM-PA-DV MODULE** when using 277V?

The Grafik Eye 3000 series is still sold by Lutron. It is now model GRX3504, 4 zone control for 120V application. The 1 advantage of our EX drivers is that you can connect the EX driver directly to the

Grafik Eye unit without the need for an interface. But only connect 1 driver per channel. Grafik Eye GRX3504 can also be used in conjunction with Lutron PHPM for 277V power or boost the number of drivers per channel. see PHPM section below.

The Grafik Eye QS is like the Grafik eye 3500 except it comes with more bells and whistles. For our EX drivers, choose the units that will work with electronic low voltage transformers. Models QSGR-xP, QSGRJ-xP will work. The x stands for the number of channels. It can be 3, 4, 6.

Grafik Eye and Radio Ra are both dimmers and are separate products. They do not hook up to each other.

### **Lutron PHPM-PA-DV Module**

Q: It looks like from your chart below that you always need this module for each set-up when using 277V regardless of whether you are using **Maestro MAELV-600, GRAFIK Eye, RadioRa RRD-6NA** or Leviton products.

A: Correct. None of the above dimmers work with 277VAC. We have not found a commercially available dimmer straight out of the box that will work with 277V. The only way at present to dim with 277VAC input is using an adaptive module. We have tested the Lutron PHPM-PA-DV module extensively and it works very well. Basically, you put 120VAC into the dimmer (DVELV, MAELV, Grafik Eye, etc). The output of the dimmer goes into the control side of the PHPM. You connect 277 volt on the load side and now you can achieve full dimming with 277V feed into the driver. The PHPM module can also be used in 120V installations with the Grafik Eye when you have more than 1 driver per channel. The -DV means dual voltage which means it can work with 120V or 277V. For 230V operation, consult with Lutron for the appropriate PHPM module.

Note: different dimmers have different dimming results from basic to sophisticated.

Skylark and Diva are pretty basic. May not get the same dramatic dimming effect from maximum to minimum. The dimming is not as gradual.

The Maestro is higher performance and the dimming is more gradual.

The Radio Ra has better low end dimming characteristics than Maestro.

The Grafik Eye is the ultimate with all the bells and whistles. It also gives the best dimming results that goes from 100% very gradually to near 0%