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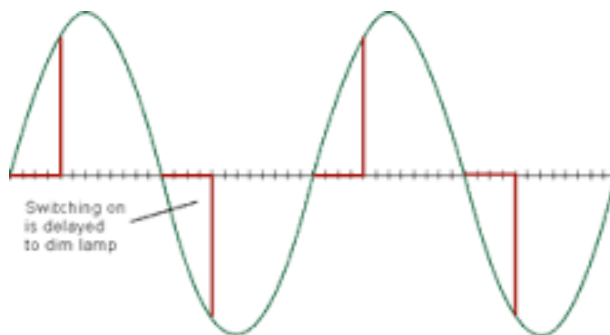
DOUG FLEENOR DESIGN

I Didn't Know Fleenor Did That.

In our last IDK*, due to space restrictions, we did not mention our latest Dimmer: the ELV. ELV is a TLA* for Electronic Low Voltage and refers to the type of LOAD the dimmer likes. Our ELV dimmer is still a line voltage (120VAC) dimmer, but excels at driving ELV loads.

In 1959, Joel Spira, founder of Lutron, today a giant in lighting, invented the solid-state dimmer. His invention dimmed lights by chopping out a portion of the voltage supplied to the lamp. Prior to this chopping technique, dimming was accomplished by bulky, energy wasting, heat producing, expensive products used primarily in theaters. For fun, the reader may now count the number of commas in this paragraph.

The portion of the AC sine wave that Mr. Spira's circuit chops out is the leading edge. Lamps are dimmed by varying the amount of the leading edge removed.

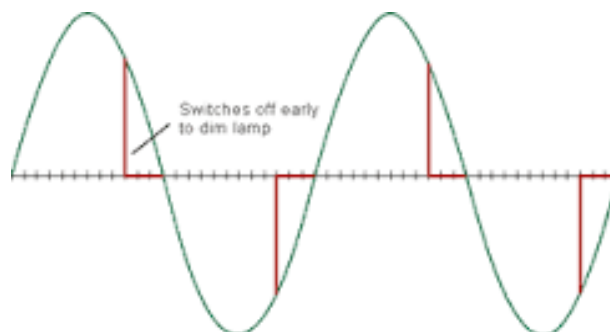


Leading Edge Dimming

This dimming technique worked well for over half a century, and continues to be the preferred method for most lighting, the exception being some modern electronic lighting loads, known as ELV.

An un-modified sine wave ramps up slowly to a peak, then ramps down slowly to zero. The second half of the cycle follows the same path, but with reversed polarity. To dim the load,

leading edge dimmers (aka forward phase dimmers) chop out the leading portion of the sine wave on each half cycle. Unfortunately, this results in a rapid rise in voltage at the turn-on point; a side effect some electronic loads don't like.



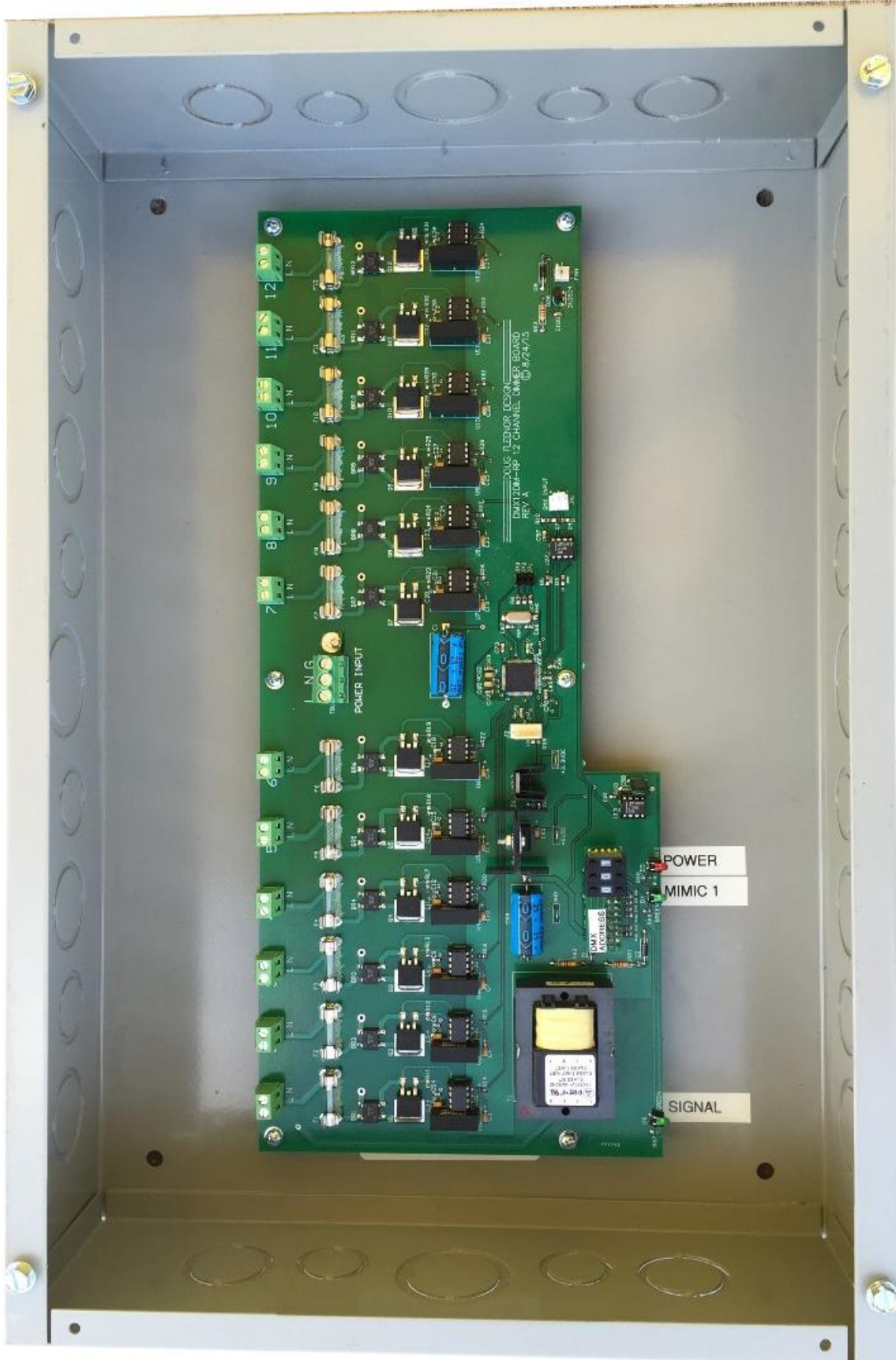
Trailing Edge Dimming

A solution to the rapid rise in voltage is: chop the trailing edge of the sine wave instead of the leading edge. This technique is known as trailing edge dimming (aka reverse phase dimming). The circuitry to implement trailing edge is more complex, more expensive, and less efficient. And... some loads don't like the sharp turn-off of trailing edge dimmers (anything magnetic like transformers or motors).



Our ELV dimmer is an ETL listed twelve channel, 100W per channel device. It is available in a one-unit rack enclosure or a NEMA 1 box. It ships as twelve trailing edge dimmers but each dimmer channel may be switched to leading edge if needed to drive transformers or motors (fans).





Reverse Phase Dimming? I Didn't Know Fleenor Did That!

Sine wave images courtesy of:

<https://federatedcontrols.wordpress.com/2011/03/21/electronic-vs-magnetic-dimming/>

which is a really good read.

*IDK: I Didn't Know (...Fleenor Did That)

TLA: Three Letter Acronym (Not to be confused with Two Letter Acronym, which is not a thing).

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