

# Re: Light bulb power control/dimmer

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- *From:* Jim Thompson <[To-Email-Use-The-Envelope-Icon@xxxxxxxxxxxxxxxx](mailto:To-Email-Use-The-Envelope-Icon@xxxxxxxxxxxxxxxx)>
  - *Date:* Wed, 21 Nov 2007 13:09:40 -0700
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On Wed, 21 Nov 2007 11:58:01 -0800, LVMarc <[LVMarc@xxxxxxx](mailto:LVMarc@xxxxxxx)> wrote:

Spehro Pefhany wrote:

On Sun, 18 Nov 2007 17:16:22 +0000 (UTC), the renowned [don@xxxxxxxxxxxxxxxx](mailto:don@xxxxxxxxxxxxxxxx) (Don Klipstein) wrote:

In article  
<[pan.2007.11.16.21.28.25.395724@xxxxxxxxxxxxxxxx](mailto:pan.2007.11.16.21.28.25.395724@xxxxxxxxxxxxxxxx)>, Nobody  
wrote:

On Fri, 16 Nov 2007 10:55:56 -0500,  
Tam/WB2TT wrote:

Remember, with cycle  
skipping the frequency  
changes. At 10 percent  
power the  
frequency would be 6 Hertz.

The flicker will be 12 Hertz (as opposed to  
120Hz at full power). You  
don't have to skip whole cycles; half-cycles  
will do. The polarity doesn't  
matter for a resistive load.

In extreme cases, I have seen incandescents visibly flicker  
from  
skipping every other half cycle. The main example is a 4  
watt or 7 watt  
120V incandescent nightlight with a diode. The thin filament

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warms and  
cools fast enough to have significant 60 Hz flicker. 60 Hz  
flicker is  
sometimes visible.

– Don Klipstein (don@xxxxxxxxx)

Yes, you can't practically dim an incandescent bulb by skipping cycles. I tried it many years ago and the results were miserable. Maybe if you had control over the bulb design and could add some thermal mass to the filament, but I tried it with a huge incandescent (kW, IIRC) and even that thick filament responded too fast. I used some kind of clever (I thought) CMOS circuit (I forget the details) using something like a rate multiplier to get a relatively fast cycle time (eg. 50% would be a 30Hz cycle). OTOH, it worked a charm on relatively fast-response heaters for tight temperature control, which was the intended purpose.

Best regards,  
Spehro Pefhany

The persistence of vision, the flicker frequencies for most folks is about 8hz, so when the proportion of 1/2 cycle approaches that some folks will begin to see it, and other will not, as you eat more cycles of course the drive is more choppy and you can't average out the photons as the other poster noted :-)

But, you can conceptually make this dimmer and that's what the poster wanted. The traditional and widely adopted intra-cycle modulation is used everywhere.... Perhaps there is a space where you want one, maybe one that can do both.. not sure?

OTOH, one poster suggested that, using 1/2 cycle non symmetry would result in a net DC component and that it was bad. Not sure what would be bad on a light bulb load, with a slight, very tiny mathematical sized DC component.. Please advise what sort of effects you were envisioning??

best regards,

marc Popek

I dimmed neon in a disco by skipping WHOLE cycles going into the HV transformer (~1980).

...Jim Thompson

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