

Re: is there a way to increase the light of an LED with a dial?

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Source: <http://sci.tech--archive.net/Archive/sci.electronics.repair/2008-01/msg01145.html>

- *From:* "Michael Kennedy" <Mikek400@xxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Thu, 24 Jan 2008 11:00:41 -0500
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"Arfa Daily" <arfa.daily@xxxxxxxxxxxx> wrote in message
[news:diZlj.32794\\$a61.16999@xxxxxxxxxxxxxxxxxxxxxxxx](news:diZlj.32794$a61.16999@xxxxxxxxxxxxxxxxxxxxxxxx)

"Michael Kennedy" <mikek400remthis@xxxxxxxxxxxx> wrote in message
news:G9Ondnd0VHtxBagranZ2dnUVZ_jmdnZ2d@xxxxxxxxxxxxxxxx

"Arfa Daily" <arfa.daily@xxxxxxxxxxxx> wrote in message
[news:5JDlj.1081\\$HV6.836@xxxxxxxxxxxxxxxxxxxxxxxx](news:5JDlj.1081$HV6.836@xxxxxxxxxxxxxxxxxxxxxxxx)

"Michael Kennedy" <mikek400remthis@xxxxxxxxxxxx>
wrote in message
news:4JudnT1vx6hOOwvanZ2dnUVZ_qmlnZ2d@xxxxxxxxxxxxxxxx

"James Sweet"
<jamessweet@xxxxxxxxxxxx> wrote in
message
[news:Y7Alj.8931\\$4b6.560@xxxxxxxxxxxx](news:Y7Alj.8931$4b6.560@xxxxxxxxxxxx)

"Victory"
<bionicbuddha@xxxxxxxxxx>
wrote in message
<news:ab24aa3c-3838-4c03-b20d-0b9db6f6c09d@xxxxxxxxxxxxxxxxxxxxxxxx>

I guess I am
looking for
a dimmer or
something
for it – just
a dial
that can turn
the light up
to full or

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down a
little
depending
on what
I want. But
I want it to
be
controllable
with a dial
or
something.
I
hope that is
clearer.
Thanks for
the quick
response
and looking
forward to
the next
one!

You want a variable resistor.
The value depends on the
particular LED
but you might try 2.5K or
5K.

Yes, James ie right. You don't want a variable
resistor like I said. You
want a variable resistor. haha. I'm terrible at
typing.

Mike

It may not work with a simple variable resistor because at
higher
settings, the current will increase enough to probably just
burn out the
small piece of the pot track that's still in circuit. A fixed
resistor
will also still be needed to limit the full brightness current. In
order
to get a decent control range, without risk of over-running

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the pot's track and wiper, I would suggest that a small transistor needs throwing into the mix to control the LED current, whilst the pot is left the low-current job of controlling the transistor's base. If I get time today, I'll give it a try.

Arfa

Arfa, How much current are we talking about here? If this is what I'm imagining in my head with 2 or 3 led's it shouldn't draw much power. I guess he could have one of those 5w led flashlights, but that was not what I had in mind when he said dollar store.

Mike

Hi Mike.

Well, if you reckon on a maximum current of say 20mA per LED, then for 3, that's 60mA. Depending on what rail voltage he's figuring on running it from, there's a good chance that if he was just using a pot on its own – even allowing for still using any original limiting resistor – that when he got towards the low end of his pot, he might be getting towards the dissipation limits of the track and the wiper structure. Most carbon track pots that you are likely to pick up at a 'general' electronics store, are only rated to a few mW, and are not designed to carry current. There are exceptions such as wirewounds, and some plastic tracked types. It just seemed to me that the addition of a 20c transistor guaranteed that the pot would not be damaged the first time it was turned up.

Someone mentioned pulse drive, which is the better way to do it, both from linearity of control and LED life angles, but you are then into either a specialist driver IC, or something like a 555 timer IC and a couple of extra Rs and Cs and *still* the pot as well.

Arfa

I wasn't saying that your idea was bad, but just thought it might be a little over complicated considering the OP's apparent electronics knowledge. I agree that using a transistor would be best for reliability. The only reason I questioned you is that in the past I have used pots for exactly this, but then again that was before all of these high power blue / white LEDs existed too.

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