

Re: 555 timer -> Relay -> Light problem

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- *From:* "Echinos" <echinos@xxxxxxxxxx>
 - *Date:* 6 Sep 2006 19:07:39 -0700
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default wrote:

On 6 Sep 2006 08:43:23 -0700, "Echinos" <echinos@xxxxxxxxxx> wrote:

The lamp draws 4A when connected directly to the 12V power source, and the relay is rated for 5A. The relay is still OK, it works fine if I remove the lamp.

I guess I'm going on the assumption that the 555 is sitting there fat dumb and happy until a negative trigger comes in to pin 2 (if my memory is right) then the relay pulls in and light comes on for what should be a short period of time – but just stays on. Have I got that right? Relay and 4 amp light is working on normally open contacts?

Correct-a-mundo.

What initiates the monostable timing cycle? A switch or some other circuitry?

For now, just a momentary pushbutton. Later on it will be some sort of sensor or limit-switch type of thing. All this is on a breadboard atm.

I dunno about that 5 amp relay. I was referring to a 120 vac 100 watt lamp – reads about 6 ohms until it heats up, then it is over 100 ohms – halogen lamps are worse in that respect (smaller thicker filaments designed to run hotter).

Aha – this is a halogen lamp, I believe. Could be making the problem worse.

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I really don't understand it not at least clicking – drop out or try to, and the 555 re trigger immediately on the noise. That's what prompts me to ask about the relay.

A good thing to try would be to connect the light – trigger the monostable then physically disconnect the light, while the circuit is powered up and see if the relay drops out.

Yes, indeed, that's what happens. If I trigger the light, it turns on and stays on, and if I disconnect the lead going from the relay to the light, I hear the relay turn off immediately. I can then re-attach the light, and retrigger it, with the same results.

Depending on the state of your parts supply . . . Why not just eliminate the relay and see what happens? Use a power transistor to control the lamp. With 12 volts and a standard 555 you might have enough drive to saturate a switching transistor directly – you'd sure have enough to turn on a mosfet.

Basically, I'm working with what I have atm. I have no problem going and getting parts if I need them, but I had seen this described as a way to control higher current from a 555, so it just where I've started. I have tried a power transistor, but it did not seem to work. I think it might have to do with the fact that it is a halogen light. The power transistors I happen to have are the TIP31 and TIP32. I don't think they can handle 4A, but I might be able to use a different lamp with less current.

I built a solid state flasher for my motorcycle – can flash from 200 ma to over 10 amps using a single 30 amp mosfet with no heatsink – I cut the tab off the TO220 case to save room.

Impressive. I imagine such a mosfet might be a little pricey?

Cheers

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