

Re: Help needed designing simple circuit

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- *From:* Tim <tim@xxxxxxx>
 - *Date:* Fri, 27 Mar 2009 20:55:07 -0300
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In article <49c944ff\$0\$29984\$822641b3@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, nobody@xxxxxxxxxxxxxxxx says...

(famous last words, "simple circuit" ...)

OK, so I'm trying to come up with a simple (maybe even elegant) solution to a simple problem. Have an idea I want to run by y'all.

Function: person has a motion-detector light installed in their home. They want a buzzer/bell/annunciator of some kind to go off *momentarily* whenever the light is activated.

Here's my idea for the circuit:
<http://www.geocities.com/bonezphoto/misc/One-shotBell.gif>

First of all, please don't laugh at this. I am *not* a double-E or in any way an electronics expert. Also keep in mind that this is the farthest thing from a mil-spec application. It's just for fun; no life support medical devices will depend on it.

I'd like to know the following:

1. Will this circuit even work?
 - 1a. Will it work but end up destroying one or more components?
2. Is there a simpler way of accomplishing this task?
3. If it'll work, what are the right component values?

Explanation:

D1 is a half-wave rectifier. C2 filters the DC to produce more-or-less ripple-free current. C1 provides the momentary "on" signal, by charging, then "shutting down" when charged (sized according to RC time constant to provide the desired "on" time). R2 and R3 form a voltage divider to supply the appropriate base voltage to Q1. R1 acts as a voltage divider in series with the load to supply the appropriate output voltage. (I chose 24 volts DC arbitrarily; it might be less, probably not more.)

Component sizing:

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R1 would obviously have to be large enough (in terms of power capacity) to handle the load. The load would probably have a minimal current draw. And since it would only be "on" momentarily, R1 could probably be a bit undersized without worrying about damage.

Q1 would also need to be large enough to handle the load. I'm thinking a common TO-220 type might work fine.

R2 & R3 could be small 1/8 watters.

OK, have at it. Rip 'er apart!

OK, so a lot of issues here deal with the AC power being detected and transferred to something useful. I did a simple data logger for my well pump (URL: <http://personal.nbnet.nb.ca/snowowl/DataRecorder.html>), that had to deal 220V being sensed. I used a cheap little cell phone / palm pilot charger that was universal 110/220 50/60hz and wired it parallel with the motor leads. This gave me a nice 5 volts when the power was applied to the pump, so I could log it's on cycles. You still have to wire it up the the light, so that's a danger here as well. Dealing with AC mains wiring, there always a need for extra safety.

– Tim –

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