

Re: 4017 Counter skips under load

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 - *Date:* Tue, 03 Jul 2007 12:44:25 -0700
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On Jul 2, 3:24 pm, "David L. Jones" <altz...@xxxxxxxxxx> wrote:

On Jul 3, 7:11 am, jcargile2...@xxxxxxxxxx wrote:

I have a fairly simple circuit that consists of a 4017 decade counter and nine relay/LED combinations. The relays are very small and the circuit operates just fine with no load, or when I connect an LED to the relay output. But when I try to operate the circuit under load (it is being used to fire nichrome ignitors), then the counter simply skips the loaded relay and moves right to the next output. So if I send the counter a series of 5 clock pulses, and put a load on the relay attached to output 3, then the count goes 1,2,4,5,6. The final count ends up being one off, so it's almost like the output in question doesn't exist. What I don't understand is why this is happening, since the relay is what bears the load, not the 4017. Shouldn't the output requirement on the counter be the same regardless of what the relay is switching?

Yes, it should be, but only if you have used proper circuit physical circuit layout techniques to ensure that there is no ground or power bounce.

Think "star grounding" and power decoupling.
Very common trap for young players.

Dave.

I installed the final power setup (on the tests I just had the board jumpered onto the power supply) and now it will fire the ignitors. The problem is that the counter is now behaving irrationally. It will skip several counts when receiving a clock pulse and will jump around with the slightest change in ground (even connecting a single lead from the multimeter to any point on ground advances the count). I've tried several different caps (.01-10 uF) connected directly to the power leads of the 4017 with no luck. All of the info I can find on decoupling keeps talking about selecting the capacitor based on frequency. But I'm only sending a single pulse of about 25 ns every

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10–20 seconds. Does this mean I can use a larger cap? I'm seriously freaking out at this point cause I only have 24 hours to get this working. Thanks for the help!

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