Re: relays

Source: http://sci.tech−archive.net/Archive/sci.electronics.design/2008−11/msg02930.html

- *From*: John Fields <jfields@xxxxxxxxxxxxxxxxxxxx>
- *Date*: Tue, 18 Nov 2008 14:56:23 −0600

On Tue, 18 Nov 2008 07:28:19 −0800, John Larkin
<jjlarkin@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> wrote:

> On Tue, 18 Nov 2008 06:14:29 −0600, John Fields
> <jfields@xxxxxxxxxxxxxxxxxxxx> wrote:
>
> > On Mon, 17 Nov 2008 11:59:47 −0800, John Larkin
> > <jjlarkin@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> wrote:
> >
> > > On Mon, 17 Nov 2008 11:13:30 −0600, John Fields
> > > <jfields@xxxxxxxxxxxxxxxxxxxx> wrote:
> > >
> > > > On Sun, 16 Nov 2008 21:02:29 −0800, John
> > > > Larkin
> > > > <jjlarkin@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
> > > > wrote:
> > > >
> > > > > On 15 Nov 2008 18:34:02
> > > > > −0600, The Phantom
> > > > > <phantom@xxxxxxx>
> > > > > wrote:
> > > > >
> > > > > > On Fri, 14
> > > > > > Nov 2008
> > > > > > 07:21:12
> > > > > > −0800, John
> > > > > > Larkin
> > > > > > <jjlarkin@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
> > > > > > wrote:
> > > > > >
> > > > > > > On
> > > > > > > Fri,

14
Nov
2008
08:02:08
−0600,
John
Fields
<jfields@xxxxxxxxxxxxxxxxxxxx>
wrote:

On
Thu,
13
Nov
2008
19:22:07
−0800,
John
Larkin
<jjlarkin@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
wrote:

On
Thu,
13
Nov
2008
17:40:30
−0800,
"Joel
Koltner"
<zapwireDASHgroups@xxxxxxxxx>
wrote:

Hey
John,

"John
Larkin"
<jjlarkin@xxxxxxxxxxxxxxxxxxxxx
wrote
in
message
news:qblph4lch7ca5kl0q8e3qt8hogfc

Play
with
words,

or numbers, all you like. I have been careful to specify "power gain."

Using your definitions, a mechanical valve can have power gain, yes? That'd be an awfully early form of a gain element.

Its power gain is infinite, because once you turn the valve, the water

flows
forever.
It's
a
power
integrator,
not
an
amplifier.

–––
No,
it's
an
amplifier.

If
you
turn
it
a
little,
a
little
water
will
come
out,
but
if
you
turn
it
a
lot,
a
lot
of
water
will
come
out.

But
that
water
will
come
out

forever, with no further effort exerted on the valve. The longer you wait, the more output power, without limit. The output power is the *integral* of the input power.

Wouldn't it be the output *energy* which is the integral of the input power (times a multiplicative constant)?

The output energy is the (assume constant) output power integrated over time. The input energy is fixed, just however many joules it took

> to turn the latching relay on,
> just once.
>
> If you compute the average
> power gain over some time
> period, starting
> maybe just before the
> turn−on blip, the Pout is
> constant, but the Pin
> declines with time. So the
> averaged power gain is
> some constant
> integrated over time.
>
> All of which indicates that
> the power gain of a latching
> relay is
> different from the power
> gain of a regular relay.

–––

Yes, of course; that's what 'most everyone's been saying all along.

The point, which you initially seem to have been trying to dodge, but are now trying to make seem like your own idea, is that if there's the slightest amount of energy expended in latching the relay then it can't have infinite power gain.

Your position, from an earlier post:

–––

JL: "Sure. And a latching relay has infinite gain."

JF: "Actually, it doesn't."

JL: "OK, please post the equation for the power gain of a latching relay."

seems to indicate that you believed latching relays had infinite power gain.

–––

Your post, above, while stopping short of

admitting that a latching
relay can't have infinite power gain with
your conclusion that:

"All of which indicates that the power gain
of a latching relay is
different from the power gain of a regular
relay."

does preach to the choir about the reasons
for the difference.

So, in order to clear this up once and for all,
I'll just ask you
straight out: "Does a latching relay have
infinite gain?"

JF

Certain parties are now arguing that a quantity that has no upper
bound may not qualify as "infinite."

−−−
Ah, but that's not what we're arguing, is it?
−−−

So, given my working−engineer definite of "infinite" as "having no
upper bound", a latching relay can have a power gain that, averaged
over time, is unbounded, so infinite by my standards.

−−−
Well, I didn't think I'd get a straight answer, and I was right.

I clarified what's−his−name's obsfucation of my use of the word "infinite". Since he can't understand the electricity, he wants to play word games with math definitions. As I read the Wikipedia article on infinity, my association of limitlessly large isn't an unreasonable use of "infinite."

−−−
It is when you associate it with a device which requires finite power to switch.

−−−

> But that's a silly distraction. We were talking acout the power gain
> of a latching relay. If you guys insist that limitlessly large and
> unbounded isn't "infinite", ok, that's a definition.

−−−
What's been agreed upon, and what you're still trying to pooh−pooh with
your silly innuendo is that the gain of a system can't be infinite if it
requires finite power to switch.
−−−

> > In the first place, John, it's not you who's setting the standards, and
> > in the second place either you still don't understand the drill or
> > you're playing the fool, hoping for disengagement with as little damage
> > done to your reputation as possible.
>
> No damage done, and I don't give a rat's ass what you think my
> "reputation" is. My customers matter, and you don't. They buy my gear,
> some of which works very well because I chose to use latching relays,
> and I chose them for their nanowatt coil power consumption.
>
> http://www.highlandtechnology.com/DSS/V450DS.html
>
> http://www.highlandtechnology.com/DSS/V470DS.html

−−−
Oh, for God's sake go and post that crap in a for−sale site, where it
belongs.

In any case, you're off−topic since we're not talking about equipment
which uses latching relays, we're talking about why latching relays
can't have infinite gain.
−−−

> > The plain truth is that the power used to latch the contacts will always
> > keep the power gain of the relay, in the limit, from becoming infinite,
> > no matter what, and your homesy "working engineer" dismissal at excusing
> > yourself by not at least trying to be rigorously accurate is telling
> > since, on other occasions, you've held other folks' feet to the fire for
> > less.
>
> Only for being wrong, but mostly for being fatheaded about being
> wrong.

−−−
Which is exactly what you're doing right now.

Doesn't that seem at least a _little_ hypocritical to you?
−−−

> I thought I was being helpful by pointing out the power−saving virtues
> of latching relays.

−−−
Well, I guess you were wrong about that too...
−−−

> > But really, this was just a curious observation. You've blown it up
> > way more than it deserves, for some reasons of your own.
>
> −−−
> I merely noted that your statement:
>
> "Sure. And a latching relay has infinite gain."
>
> was incorrect.
>
> You did the rest.
> −−−

> > I like latching relays mostly for their thermal EMF's which (another
> > debate!) are effectively zero. That's because the averaged coil power
> > approaches zero for long observations, which was my point in the first
> > place...
>
> −−−
> Then that's what you should have said instead of:
>
> "Sure. And a latching relay has infinite gain."
> −−−

> > Pout/Pin tends to grow as Pin approaches zero.

−−−
Yes, it does, and although we've already discussed that to death, it
seems you're just now getting on board and reinventing the wheel.
−−−

> Most of our
> products aren't especially power−consumption sensitive.

???

And that's relevant, why?

I don't need to be relevant.

−−−
That's right, just spew out any old thing to try to derail the thread.
−−−

This is a discussion group, not a girls' school debating society.

−−−
Pretty much the same thing, so far.
−−−

No lady teachers are going to vote you a blue ribbon for your debating skills.

−−−
Ah, but we all judge each other's debating skills and award mental blue
ribbons to the best.

After all, why're you still hanging around, blabbing away?
−−−

Electronics is about designing stuff that works, and getting people to pay you for it.

−−−
That's not necessarily true.

Look at Sloman. He still does electronics (if only from a theoretical
point of view) by contributing here even though he doesn't get paid for

it.

Look at Michael Terrell. He fixes computers and gives them away to seniors and contributes here and gets paid for neither.

And look at me. I do a lot of original designs here and don't get paid for them either, so I guess there's more to electronics than just your crass: "Electronics is about designing stuff that works, and getting people to pay you for it."

JF
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