

Re: Multimeter woes

Source: <http://sci.tech--archive.net/Archive/sci.electronics.basics/2007-05/msg00168.html>

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 - *Date:* Fri, 04 May 2007 10:29:43 -0700
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Circa 4 May 2007 03:11:26 -0700 recorded as
<1178273486.828798.201530@xxxxxxxxxxxxxxxxxxxxxxxxxxxx> looks like Noodle
<dean@xxxxxxxxxxxxxxxx> sounds like:

It looks like a decent meter, but it has no current ranges. It looks like the usual current functions were traded off for the capacitance meter and frequency counter functions. You have a 200 mV range, so you could insert a .1-ohm precision resistor into the circuit and measure the voltage across it, reading .199V as 1.99 amps.

Thanks for that Stephen, wish I understood what you was going on about hehe. I'm gonna bookmark this thread then read this in a few months time when I have learn't a bit more and will probably understand what you mean then hehe. :P

In your first post, it seemed clear that you know how to find amp values by combining voltage and resistance:

"...cannot for the life of me find how to do it unless I measure the resistance and voltage separately."

What Stephen is saying is the same thing, and many high-power circuits that have a need to know current conditions real-time, use these small, precision resistors. They are called shunt resistors.

The value is chosen small enough so not to interfere in more than a negligible way with the current in the circuit. So, you build a circuit, get it wired up, and oh by the way put a 0.1 ohm resistor in the common path. Don't forget to put test terminals on each side. Get the thing running, and measure the voltage across the resistor. Multiply the voltage by ten (which is the same as division by 0.1: $I = E / R$), and you have the current.

You can use this technique as a way to measure current in any circuit. Interrupt the output path, and insert the precision resistor in the path (if you put it in the return/common/ground path, exposure to high voltage

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will be avoided). Reconnect everything, and voltage measurements across the resistor will allow you to simply convert the measurement to amps. This is precisely how ammeters work, when you buy one that has the function. The big giveaway hint is that in addition to AMPS range on the meter selector, it will have a separate input jack for measuring amps.

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