

Re: Amp Meter

Source: <http://sci.tech-archive.net/Archive/sci.electronics.basics/2005-02/0915.html>

From: Rich Grise (richgrise_at_example.net)

Date: 02/19/05

Date: Sat, 19 Feb 2005 03:06:54 GMT

On Fri, 18 Feb 2005 21:37:55 +0000, Roger Johansson wrote:

> *Rich Grise <richgrise@example.net> wrote:*

>

>> *I've also seen a circuit where a microammeter is turned into a
>> voltmeter – in this case, 10.4K gives 1.5V full-scale. A shunt resistor
>> that drops 1.5V at 60A would be .025 ohm, which is much more manageable
>> of a value than 0.0083 ohm, and the calibration isn't anywhere near as
>> persnickety.*

>>

>

> *In this case you are wasting a major part of the signal. That is not a
> good idea, seen from an engineering point of view.*

>

> *We want a shunt which gives as low voltage drop as possible. Your
> idea would make the voltage drop many times bigger, from 50mV to 1500mV.*

>

> *The 0.0083 Ohm shunt is easy to construct from heavy gauge copper wire.*

> *Or a thinner wire laid double, in quadruple, etc..*

>

> *Adjustment can be made by moving the probe measuring point a little, or
> by connecting an adjustment pot in parallel with the shunt. A wirewound
> pot will be suitable for this.*

Well, in my defense, in a different post, I did mention that this technique depends on the headroom of the supply. And you can certainly decrease the ranging resistors, to decrease the shunt drop. It's just a seat-of-the-pants sort of thing – you decrease the pickiness of the shunt by adding *_some_* resistance in series with the meter.

I've calibrated ammeter shunts, and it's a PITA. They wouldn't let me grind on the brass strip with the Dremel while power was on. ;-)

I've also seen ammeters that have no leads at all – they have a clip on the back that clips over the cable, and the meter itself is nothing but a spring-loaded compass. You calibrate them by moving the cable around until the meter reads right, then hot-glue it.

sci.electronics.basics: Re: Amp Meter

Cheers!
Rich