

### *Using a digital multimeter*

I've included a digital multimeter ("DMM" or "DVM" for short) in your tool kit. It's an incredibly useful tool: you can use it to check for open circuits, whether or not a device is actually powered, and so forth. In the following figure I've set the DVM to read DC volts, with a maximum value of  $\pm 2$  V.



I suspect that you'll use the various resistance and DC volt scales more than anything else.

Plug the red and black probes into the DVM as shown in the next photo: the black lead goes into the COM jack, while the red into the VΩmA jack.



It will probably never come up that you'll want to directly measure a large current by putting the DVM in series with a current source; that's the function of the 10ADC jack into which you could plug the red probe.

Please turn the DVM off when you're not using it: its battery lifetime is pretty good, but not infinite.

The internal resistance of the DVM is small, but not zero: when set to a full scale resistance of  $200\ \Omega$ , the meter on the photo typically reads around  $0.4\ \Omega$ . Oh-- when the resistance between the probe tips is larger than the full scale dialed into the DVM, the display will show a left-justified 1, as in the following photo.

