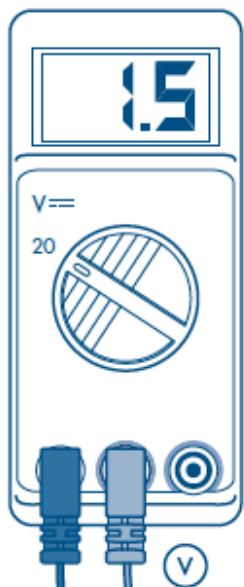


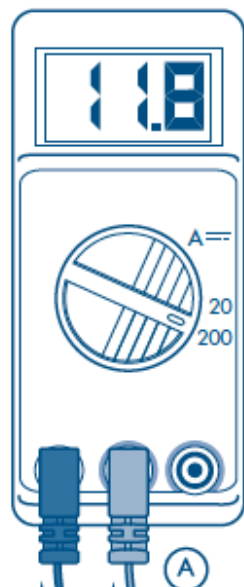
Measuring DC Voltage

This meter is measuring 1.5 volts.



Measuring Current

This meter is measuring 11.8 mA.



Output devices

Wind turbines produce electricity, and the best way to understand this is to hook your turbine up to some load or an output device. Our kits come with a variety of different output devices and more are available.

Different turbines are capable of powering different loads. The Basic Turbine and the MINI Turbine are *direct drive* turbines. They do not produce as much power as the Geared Turbine or the ALTurbine, which both use gear trains to increase generator shaft speed. We sell many output devices, but try hooking up other small loads you have, too!

Multimeter

Using a multimeter, you can quantify the voltage and/or current your turbine is producing. Learning how to accurately measure the voltage and current for a range of situations will help you compare data when testing blades, comparing gearing, or changing any other variables on small turbines. You will also need this information if you want to calculate the power your turbine produces.

Measuring voltage

Attach the wires from the generator to the multimeter. Polarity is not relevant at this point.

To check the voltage, select DC volt (V) and set the number to 20.

Place your turbine out in the wind or in front of a fan and let it spin. It is normal for the voltage readings to fluctuate. Voltage output is often unsteady because of the inconsistent nature of the wind or unbalanced blades.

Voltage is related to how fast the DC generator is spinning. The faster it spins, the higher the voltage. When there is no load on the generator, it has little resistance and can spin very fast.

You can measure voltage with no load, but it is more realistic to place a resistor in the circuit and measure the voltage across the resistor. We commonly use 10, 30, 50 or 100 ohm resistors when measuring voltage on KidWind Turbines.

Measuring current

To calculate your turbine's power output, you will need to measure current as well. To collect amperage data, you will need to place a load, preferably a resistor, in series with the multimeter so that the generator is forced to do some work.

When measuring current, you are monitoring how many electrons are being pushed through the wire by the turbine. We measure current from our turbine in milliAmperes. Recall that 1A = 1000mA

MEMENTO MORI

Turn off the multimeter when you are done, or the battery will die!

