



USB Power Monitor

This monitor can show the power at which a device is being charged. It allows you to see the effect of different chargers and cables on charging speed by connecting between the charger and cable.

Fundamentals of Electricity

There are three units of measurement to consider when measuring electricity:

- **Voltage measured in Volts (V)** For devices which use the USB specification this will always be around 5 Volts, but can be slightly higher or lower depending on how much power is being output . One volt (1V) is equivalent to 1000 milliVolts (1000mV).
- **Current measured in Amps (A)** A standard USB socket will output 0.5A of current, however many devices including PCs, mains and solar chargers are capable of outputting higher currents. One Amp (1A) is the same as 1000milliAmps (1000mA).
- **Power measured in Watts (W)** This is the most useful way of measuring the amount of energy being transferred from a charger to the device being charged. Power is simply calculated by the formula:
Power = Current x Voltage

The monitor also shows the total energy which has passed through the monitor in Ah (Amps x hours) or Wh (Watts x hours), and the time elapsed. Use the 'time / power' button to swap between these two or to activate the backlight. Use the pause button to stop the time and total energy counters temporarily. Use the reset button to set these two back to zero.

The front cover is protected by a thin plastic sheet to protect it from scratches / dirt, this can be left on or removed.

Usage

Before first use, ensure the monitor is charged through the '5V DC' socket using the cable supplied. There are then three ways to use the monitor:

1. **Measuring USB charging** Plug the USB Y-cable provided into the 'Power Test' Socket. Attach the other ends of the Y-cable to the USB socket you're charging from, and the USB cable leading to the device you're charging. Insert all cables / connectors tightly for the monitor to work correctly.
2. **Measuring DC power source charging** Plug the DC Y-cable into the 'Power Test' socket. Connect the two DC cable clamps into the other ends of the Y-cable, and using a screwdriver connect cables leading to the DC power source and the device you're charging, being careful to match the + and - cables according to the symbols on the cable clamps.
3. **Measuring voltage from a DC power source** Plug the two voltage tester cables into the V-Test sockets, and touch the tips of the metal pins against the + and - ends of the DC output power supply.

If you have any issues or feedback contact us at info@portablepowersupplies.co.uk. Or if you're satisfied with the monitor please leave a review on the site where it was purchased.

Specifications

Limits: 0-50 Volts, 0-5 Amps max 250 Watts	Error: < 0.2% below 2A, < 1% above 2A
Resolution: voltage 0.0001V current 0.0001A	Measurement rate: 3 times / sec
Battery Life: 40 Hours	Operating temperature: 0-60 C