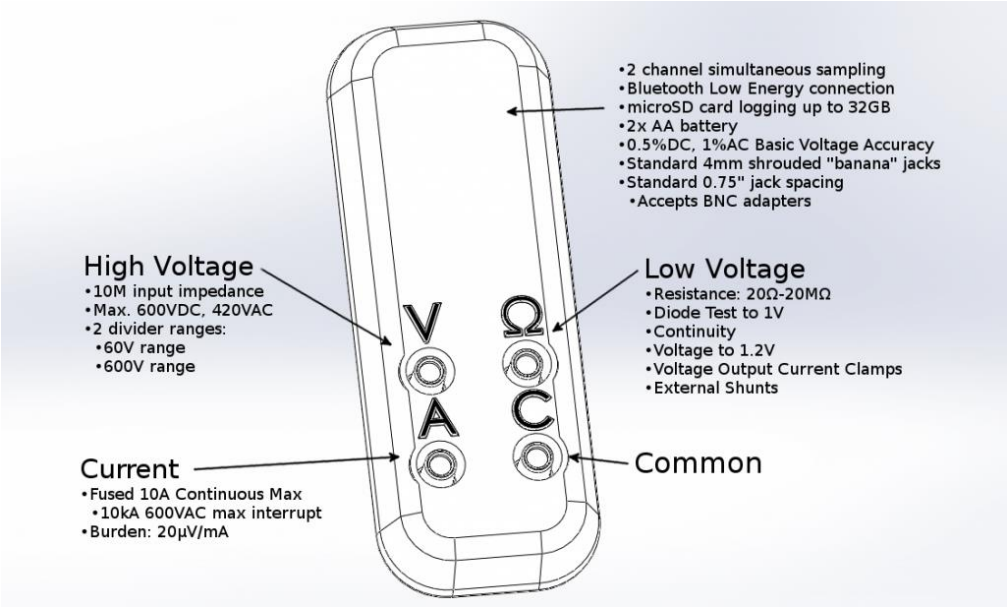
Digital Multimeter Specification Overview

Advanced Data Logistics



Voltage

- Up to 600V, DC or peak AC
- Up to 420VAC RMS sinusoidal
- Better than 0.5% accuracy DC
- Better than 1.0% accuracy AC for harmonic content below 1kHz
- >10 Megaohm input impedance

High Precision Voltage:

- Up to 100mV with <15nV per count resolution
- Up to 1.2V with <200nV per count resolution
- >10 Megaohm input impedance

Current, Internal

- Up to 10 Amps
- 20 µV / mA burden voltage (using factory fuse)
- Less than 5 µA per count in 10 Amp scale
- Better than 1% accuracy

Resistance

- Better than 1% accuracy over 20 Ohms – 20 Megaohms

Frequency

- Better than 1% accuracy up to 1kHz

Sampling

- 8kHz dual simultaneous sampling
- 4kHz analog bandwidth for most measurements
- 24-bit resolution max
- >18 Effective bits at 125 samples per second

On Board Storage – SD Card

- MicroSD Card
- Up to 32GB
  - More than a week of constant logging two channels at 8kHz
- SD or SDHC (not SDXC)

Wireless Range

The wireless range has been tested empirically through the following media while connected to a smartphone.

- 50m air, line of sight
- 5cm of refrigerator, door closed
- 1m of 2006 Honda Civic – Engine compartment to the passenger seat
- 10m air + safety shield of a Tesla Coil rock-bands testing facility

Impedance

Measure the supply sag under load to estimate:

- Supply or Battery equivalent resistance
- Battery State of Health

Diodes

- Up to 1V @ 100nA

Power

Simultaneous high-speed sampling of voltage and current gives the following power measurements:

- True Power
- Reactive, Complex, Apparent Power
- Power Factor
- Total Harmonic Distortion
- Phase Lead or Lag

Current with External Shunt

- Measure thousands of amps with sub-milliohm shunts
- Measure precision currents with large shunts
- Use the existing wiring for “quick’n’dirty” measurements
  - Use 1′ of 10AWG for 12µA per count resolution, up to several times the wires ampacity.

Temperature

- External Thermistors
  - Steinhart-Hart or Beta parameterized
- External Thermocouples
- Internal ambient temperature sensor