

Vu Voltage sensor

This Voltage sensor is for use with the Vu data logger. It is used to measure the voltage across a component in a **0 to 3 V** DC low voltage circuit.

The sensor has 4 mm plugs that will plug into the 4 mm sockets fitted to most electronic kits. The 2 crocodile clips (also supplied) can be used to connect to bare wires.

Product No. 2325

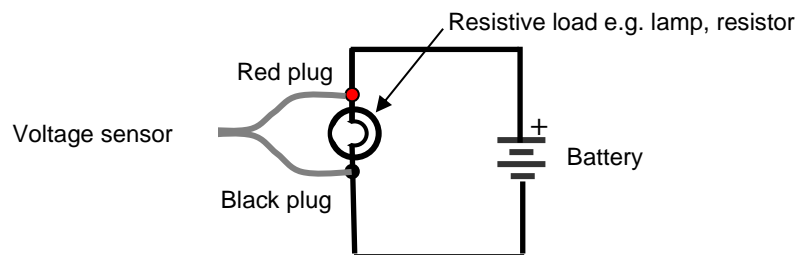


Specifications

Range (V)	0 to 3 V
Resolution (V)	0.1
Protected to a maximum voltage (V)	± 4.5
Impedance (Meg ohm)	1

Practical information

Voltage, referred to as potential difference or electromotive force (e.m.f.) is the electrical potential energy between two points in a circuit and is the driving force pushing the electricity around a circuit.



- The Voltage sensor is used to measure the potential difference between the ends of an electrical component so is connected across (i.e. in parallel) the component.

IMPORTANT: The sensor will only measure a positive voltage so observing **correct polarity** when connecting is important i.e. connect the black lead from the sensor to the negative terminal of the cells.

- Batteries are the first choice as the source of energy.

An alternative is to use a fully isolated mains power supply with a regulated DC output (smoothed and fully rectified) capable of being **limited to 3 V** (a voltage higher than ± 4.5 V will damage this sensor).

Note: Be aware that some power supplies are $\frac{1}{2}$ wave rectified producing an average rather than true DC. The Voltage sensor will 'pick up' the fluctuations in voltage and current from this type of power supply

- If a Voltage sensor is connected to Vu, without being part of a complete circuit, then data collected may appear 'noisy'. To measure voltage accurately you need high impedance (resistance). The Voltage sensor is a high impedance device and will pick up any electrical 'noise'.

Note: Zero impedance can be demonstrated by briefly shorting out a Voltage sensor (connecting its black & red plugs together).

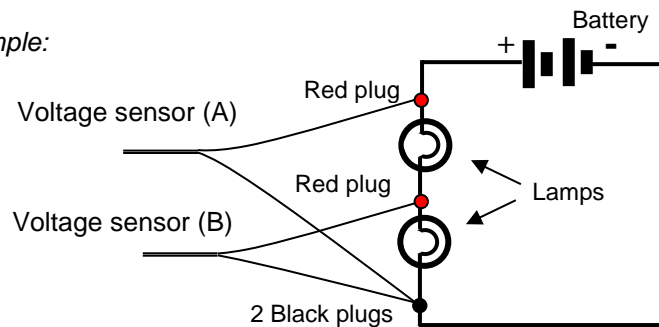
Primary investigations

- *Battery life*
- *Bulb / LED comparisons*
- *Conductor and non-conductors*
- *Series and parallel circuits*
- *Ohm's law*
- *Alternative power investigations* e.g. Solar cells.
- *Power House* e.g. Electricity from solar energy: Clouds in front of the sun, following the sun's path, angle of elevation, reflected and concentrated sunlight, the closer the brighter.
A wind power plant for your house: At the right angle? Will fewer blades work? Airflow resistance.
- *To measure the voltage from a homemade battery* e.g. Fruity volts

Advanced User information

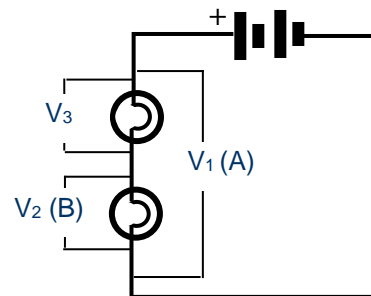
- The black plug lead of the sensor will be 0 V of the Vu logger which if connected to USB will also be the 0 of the PC and potentially connected to Earth through the PC. Therefore all black plug leads in a circuit should be connected together at a common point.
- It is best to only use one Voltage sensor in a circuit at the same time but if more than one Voltage sensor is used, ensure they share a common earth (the same black lead).

For example:



V_1 measures the circuit voltage.
 V_2 measures voltage across a single lamp.

$$V_3 = V_1 - V_2$$



Limited warranty

For information about the terms of the product warranty, see the Data Harvest website at: <https://data-harvest.co.uk/warranty>.

Note: Data Harvest products are designed for **educational** use and are not intended for use in industrial, medical or commercial applications.



WEEE (**W**aste **E**lectrical and **E**lectronic **E**quipment) Legislation

Data Harvest Group Ltd is fully compliant with WEEE legislation and is pleased to provide a disposal service for any of our products when their life expires. Simply return them to us clearly identified as 'life expired' and we will dispose of them for you.