❏ **Measuring Voltage and Current in a battery operated circuit**

A circuit and wiring diagram for measuring both the voltage over a lamp and the current passing through it. Always keep the black wires together. Some software will allow you to derive a graph from 2 variables e.g. a VI power curve.



Variable Resistance

Lamp load

Battery supply

**V**

**I**



Variable Resistor

Lamp load

Battery supply

voltage adapter

current adapter

Internal circuitry links negatives/ black sockets, so always connect black wires to the same measuring points on circuit

LogIT Datalogger

Connect black wires together

For more information visit our web site

**DCP microdevelopments**

**www.dcpmicro.com**

# *Microsense®*
# *Current Probe for LogIT*

**DataMeter✓   LIVE✓   LogIT SL✓**



**1A CURRENT ADAPTER**
Input range +/- 1A dc max
Refer to supplied instructions
LogIT System
Part No D200096
DCP microdevelopments

❏ **Set contents**

- Current Probe Adapter with 4mm sockets (Part No D200096)
- Pair of cables with set of interchangeable plugs, probes and clips
- Instruction leaflet (this document)

❏ **General information**

The Microsense Current Probe set measures dc current in the range of -1A to +1A dc and is supplied with a set of interchangeable plugs and clips.

An internal thermal cutout fitted inside the adapter offers limited protection but care should be taken not to exceed the 1 amp dc maximum rating.

The adapter is very straightforward to use, but please note the following:

• Digital multimeters have built-in 'damping' or smoothing to effectively cover-up rapid changes of signal or noise so that you can easily read the display. This adapter does not include damping because it could hide small or fast signals you may be trying to measure or record using the datalogger (if you want to hide noise on a graph some software offers smoothing or averaging).

• As with most multi-input instruments the input-ground terminals on the current adapter are not isolated from each other or from other equipment which may be indirectly connected via the LogIT, such as the computer. Therefore when using more than one current or voltage adapter the common negative (black) terminal are effectively linked together and care is needed when testing and connecting to circuits to be measured (see inside page).

• Maximum current rating          +/- 1Amp dc

• Effective resistance over probes    0.5Ω (ie maximum 0.5V drop at 1 amp)

• Nominal accuracy              +/- 1%  (Microsense® ID code 29)

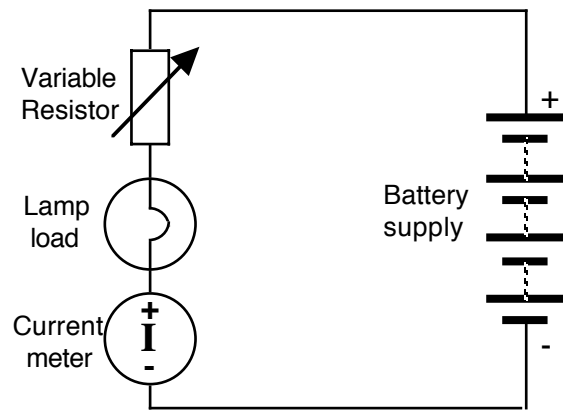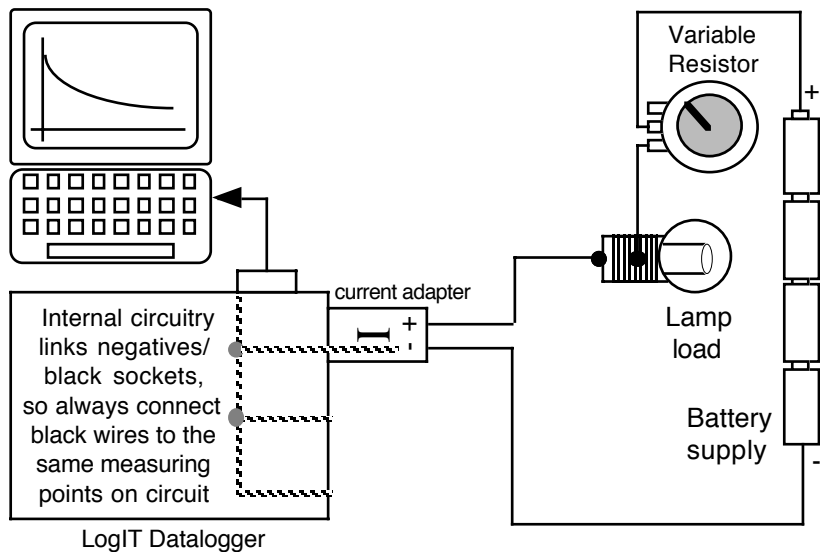## ❏ Measuring Current in a battery operated (isolated) circuit

A typical circuit diagram for measuring the variable current through a lamp.



To apply this in practice using LogIT and a current adapter connect as follows:



**TIP   Using an ac mains operated power unit instead of a battery**

You could use a mains operated dc supply but beware of 2 potential problems:

1) Any noise or ripple on dc supply will show interference on the display/graph.

2) You need to ensure that the supply is a double-insulated type otherwise a Common Earth Return could cause a problem with the 'hidden' earth loop connection back into LogIT via the computer's earth. You could use a remote LogIT to store data while disconnected from the computer, then download later

## ❏ Measuring Two Currents in a battery operated supply circuit

A circuit diagram for measuring current flow in 2 parts of the same circuit
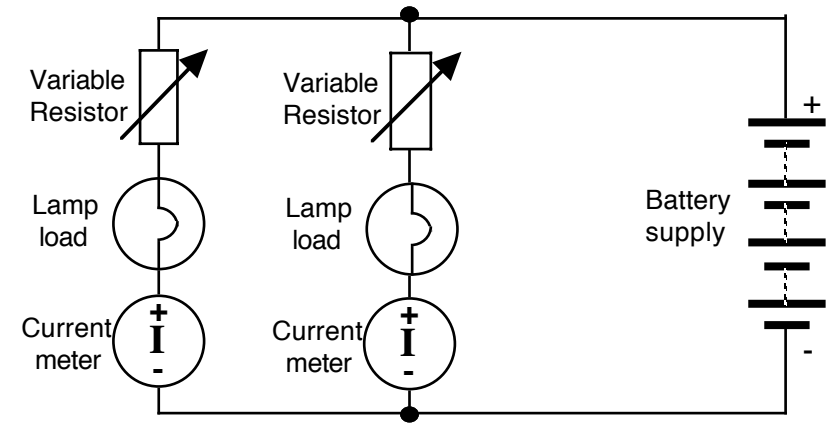


This is how you would wire this circuit using LogIT and two current adapters:
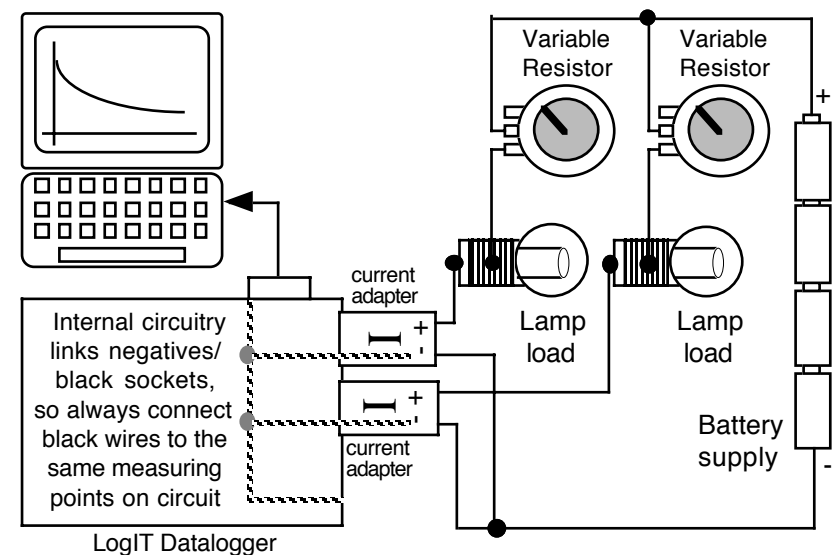


**Important**   When measuring more than one current in the same circuit you must always connect all of the black/negative terminals of the current adapters together because they are common inside LogIT (just as you have to connect both screen connections together when using a dual trace oscilloscope).