

Electro-Resales

Technical Data – DC Voltmeter (A Visual Battery Gauge)

Thank you very much for your interest in the DC Voltmeter (Visual Battery Gauge) from Electro-Resales.

We appreciate your business and understand that you want this device to work properly and have a long working life.

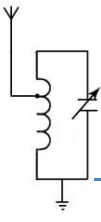
We share that desire, and have produced this support document to help you not only start to use the device, but also to provide answers to your questions. By following the simple instructions we have provided, you will quickly be up and running with your new voltmeter.

Background

The DC voltmeter has been designed to provide a quick visual indication of the state of a battery charge that the voltmeter is connected to.

Rather than provide a readout using a digital or analog meter, this gauge uses a multi-colored bar graph display to indicate charge/discharge levels between 10 Volts and 15 volts DC. We believe that having this more visual readout improves readability and interpretation of actual battery charge level.

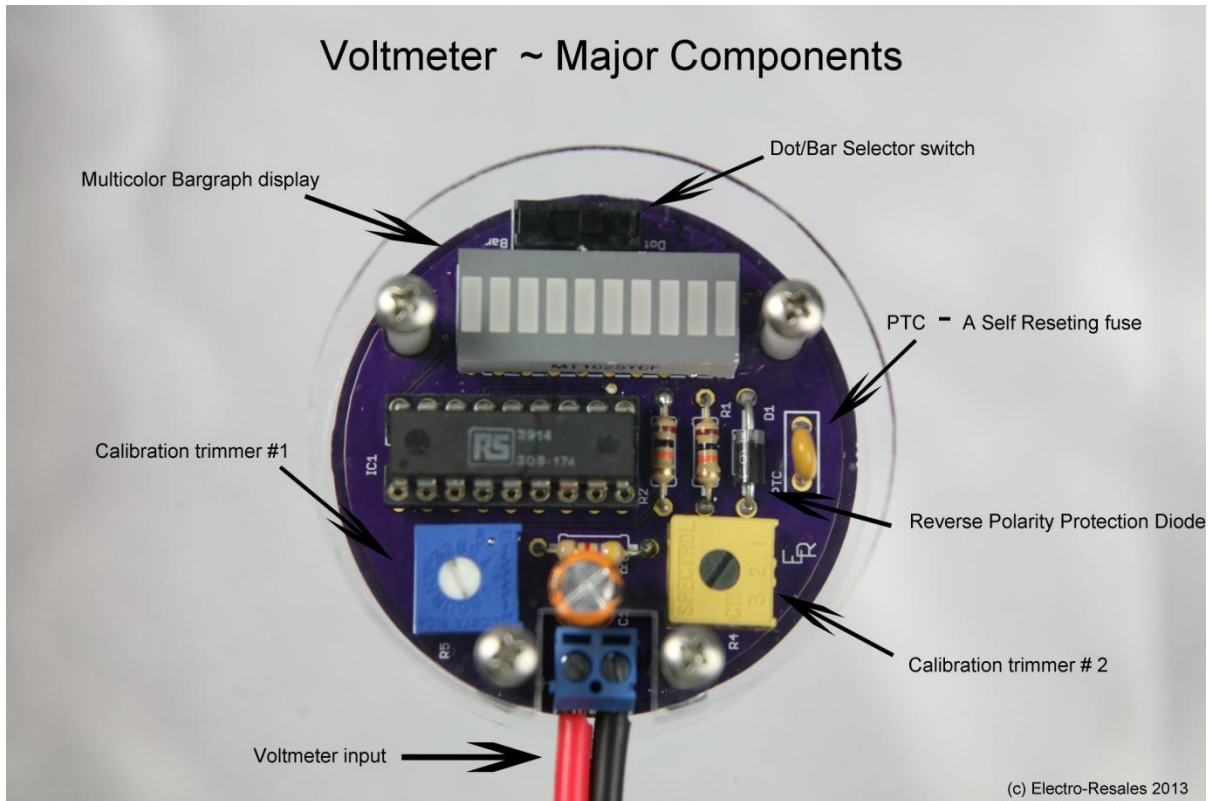
The bar graph being multi-colored makes interpretation even easier. The meter has an accuracy of approximately 0.5vdc/led division.



Overview

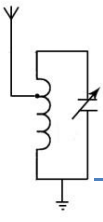
Refer to the picture marked #1 when reviewing this section, it will help you become familiar with the voltmeter and its parts.

Picture # 1 – The overview



The principle (user related) components of the voltmeter are:

1. PTC, a self-resetting fuse designed to protect the unit in event of problems
2. The reverse polarity diode protects the unit if the connection leads are reversed.
3. Input connections, bottom front, marked + on the left and GND on the right. Designed for 18-24 gauge wire.
4. The dot/Bar switch, top behind the display, allows the display format to be changed by the user

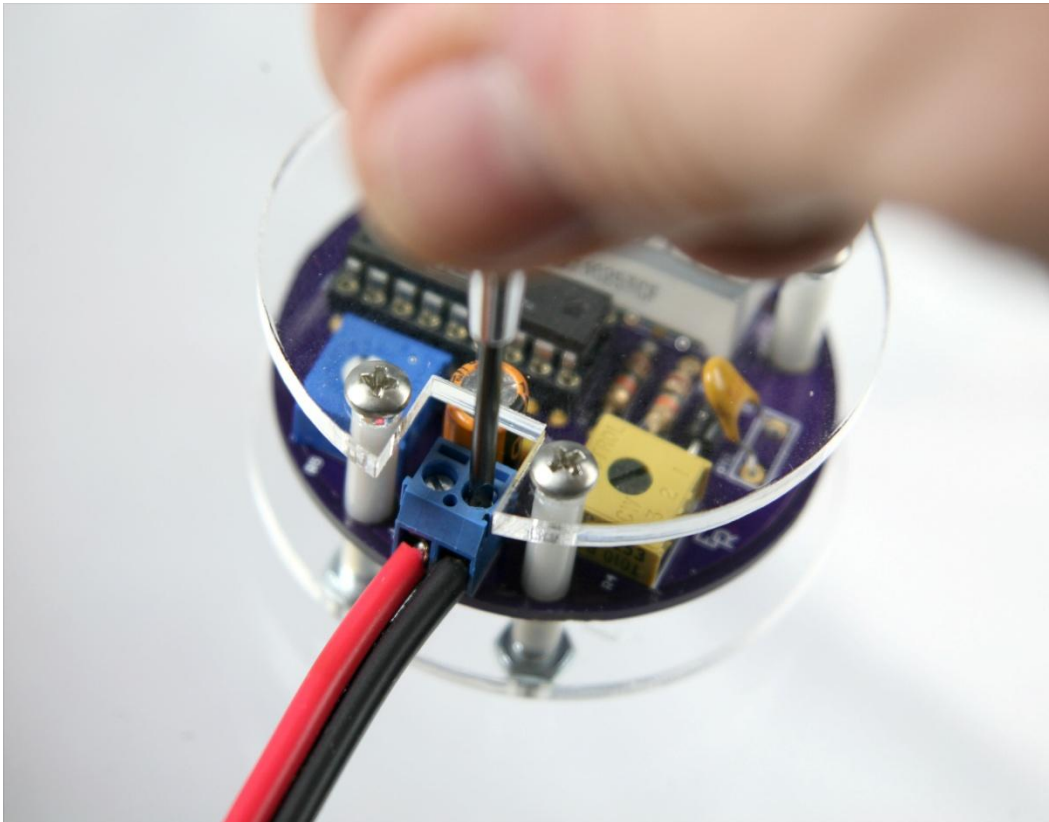


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Initial Setup

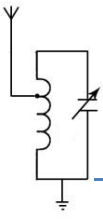
To start making voltage readings the meter needs to be connected to a power source. Using a cable pair, preferably red/black in color, make connections to the + and GND connections on the meter, as shown in Picture #2. The positive (+) connection is on the left side and the PCB is marked with a '+' sign to help you. Make sure the screw terminals are snugged down and the wires are not touching each other.

Picture # 2 – Attaching cables



The other end of the cable pair can be terminated to suit your desired connection, using a car adapter, Anderson[®] Power Pole or alligator clips. These will make connecting the meter to your power source much easier than twisted bare wire.

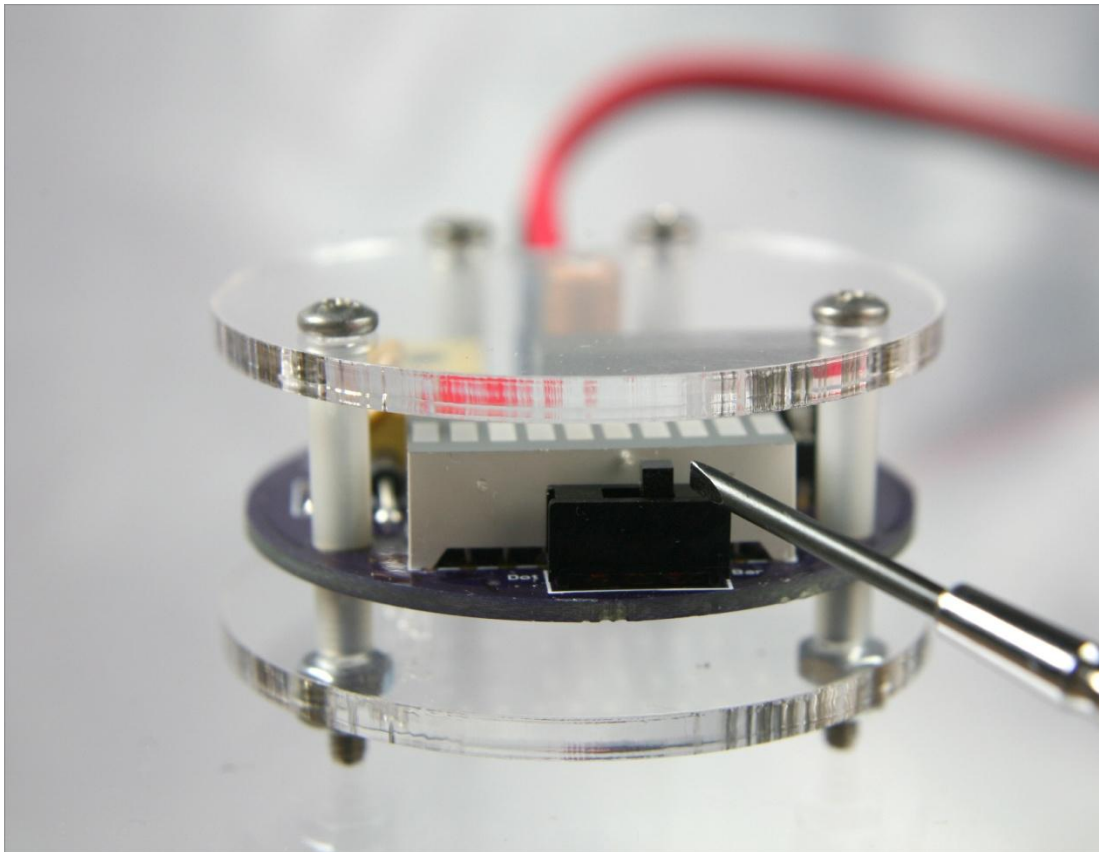
The other step to take before using the meter is to decide on the display format desired. A small slide switch is provided behind the led display, to allow a dot or bar display. In the dot position only one led is lit at any one time, while in the bar position the led's light cumulatively



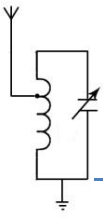
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until all the led's are on. While the bar mode consumes more power, it is the generally preferred display option. Refer to Picture #3 for this step. Using a small screwdriver or other slim tool gently move the slide switch toggle to either the DOT or BAR position as marked on the pcb. The switch is easily damaged so take care with this step.

Picture #3 – The dot/bar switch



With the completion of this step, the meter is ready to use.



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The Meter in use

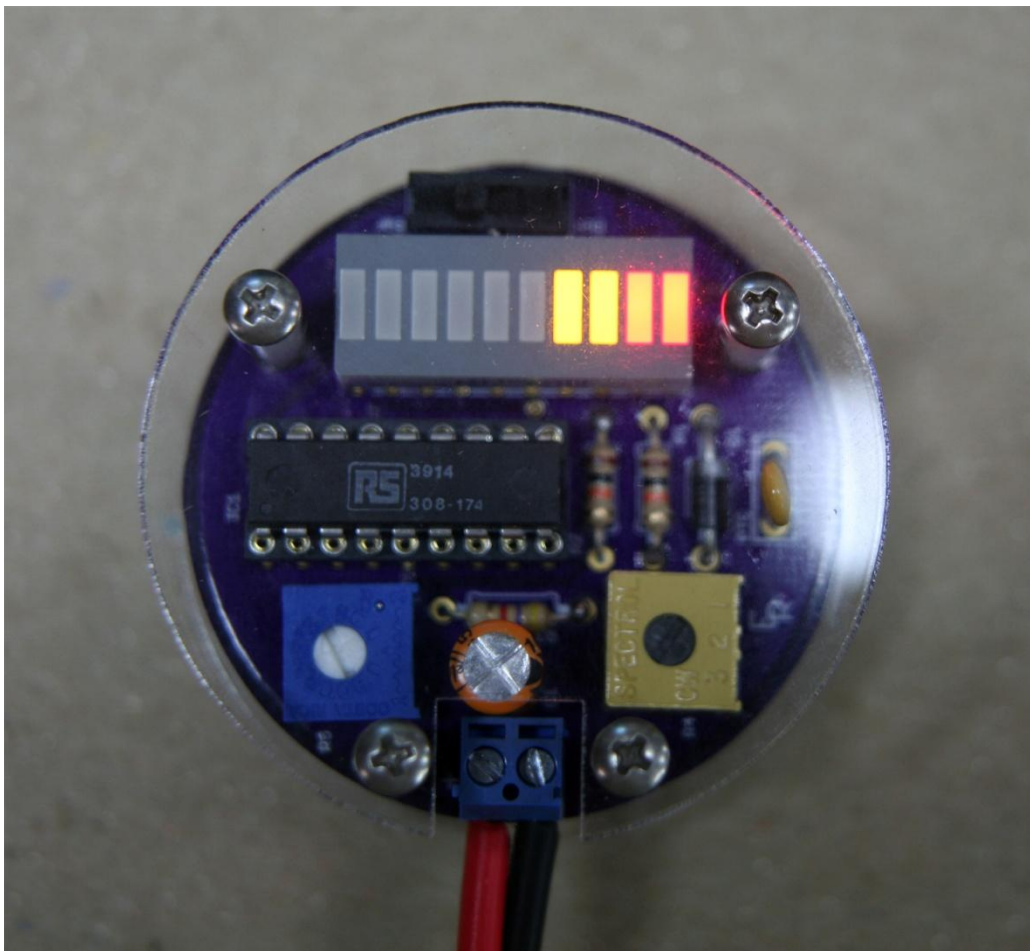
The meter has been calibrated at manufacture for a voltage range of approx. 10.5 v dc to 14.5 v dc

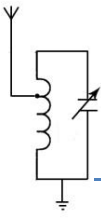
For the first time in use it is recommended that the meter is connected to a known power source, in order to check calibration, this would typically be a 12 v dc source.

The meter has a voltage measurement range of approx. 10 v dc to 14.5 v dc, with each led representing a 0.5 v dc step.

The first led should light between 10.0 and 10.5 v dc, so for a 12 volt supply 4 led's from the right hand side should be lit, this would show as 2 red and 2 amber led's lit, see Picture #4;

Picture #4 – 12 Volts being measured





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As long as the above test passes OK, you are ready to monitor your power source, remember that the meter is designed to measure between the limits set out above; exceeding the upper limit will damage the meter.

In use the meter is an excellent way to keep an eye on a power source, and monitor the discharge, by watching the led's change over time/discharge.

Always exercise caution when operating with deep cycle batteries (car batteries etc.) as they can deliver a potent shock. Monitor children and do not allow them to play with the meter, it is not suitable for young children.

Notes

Disassembly

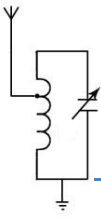
Should the need arise to disassemble the unit; the following steps should be followed.

1. Ensure the meter is not connected to the power source before starting
2. Loosen the 4 bolts on the bottom disk.
3. Release each nut and retain.
4. Gently pry the bottom disk away from the four bolts, set aside and remove the small spacers, set these aside.
5. Gently (very) remove the PCB from the 4 bolts and set aside.
6. The top plate, remaining spacers and bolts are best left as one unit.

Calibration

Should the unit require re-calibration (unlikely, but possible) follow these steps.

1. Disassemble as above to remove the pcb
2. Connect the pcb to a good quality bench supply set to 12 volts DC
3. Using a multimeter on the volts range, connected to gnd and pin 7 of the chip, adjust the yellow trimmer for a voltage reading on the multimeter of 6.75 volts.
4. Using the multimeter between gnd and pin 4 of the chip, adjust the blue trimmer for a voltage reading on the meter of 4.57 volts.
5. The trimmers are delicate and adjustments should be made with care and slowly as the closer you can get to the above readings the better the final calibration.



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Finally ... The standard small print

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A person who constructs or works on electronic equipment may be exposed to hazards, including physical injury, the risk of electric shock or electrocution.

These hazards can result in health problems, injury, or death. Only qualified persons who understand and are willing to bear these risks themselves should attempt the construction or use of electronic equipment. By purchasing this item, the buyer acknowledges these risks.

There is a risk of electric shock, electrocution, burns, or fires that is inherent in the construction and use of electronic equipment. By purchasing this item, the buyer acknowledges these risks.

IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE including, but not limited to, property damage, personal injury, death or legal expenses. Buyer's recovery from Seller for any claim shall not exceed the purchase price paid by Buyer for the goods, irrespective of the nature of the claim, whether in warrant, contract or otherwise.

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