

**PURKEYS**

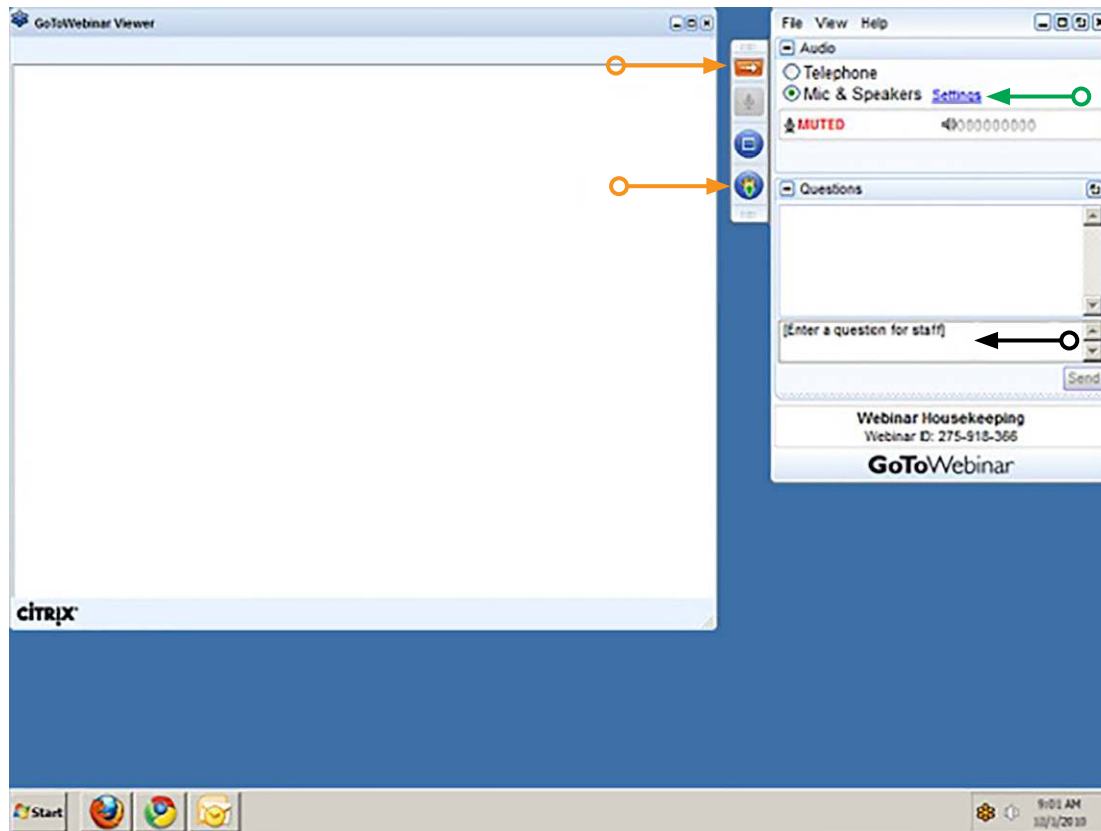
# Multimeters 101: A Great Tool for the Trade

Thur., Feb. 12, 2015

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# House Cleaning

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This Webinar is being Recorded  
Please Turn Off Cell Phones



# About the Presenter



## Larry Rambeaux | Southern Region Sales & Service Engineer

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Larry has over 20 years' experience working with heavy duty fleets. He is an outstanding trainer and uses his extensive experience to help his customers make the best choices for their electrical needs.

He has been awarded the prestigious Recognized Associate Award from the Technology & Maintenance Council. Larry's knowledge of electrical systems enables him to help his customers identify and remedy a fleets' electrical issues.

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# What is a Multimeter?

A Multimeter is a device that can measure many different electrical units.



# Pre-Check

## Battery:

- Battery indicator
- Periodic replacement



# Pre-Check

## Test Leads

- Use Ohm feature
- Check resistance



# Pre-Check

- Paperclip Trick
- Tests Meter



Paperclip

# Pre-Check

## Test Leads Individually

- Test red lead
- Test black lead





# Pre-Check

## Auto Ranging

- Automatically moves the decimal to find the most accurate readings



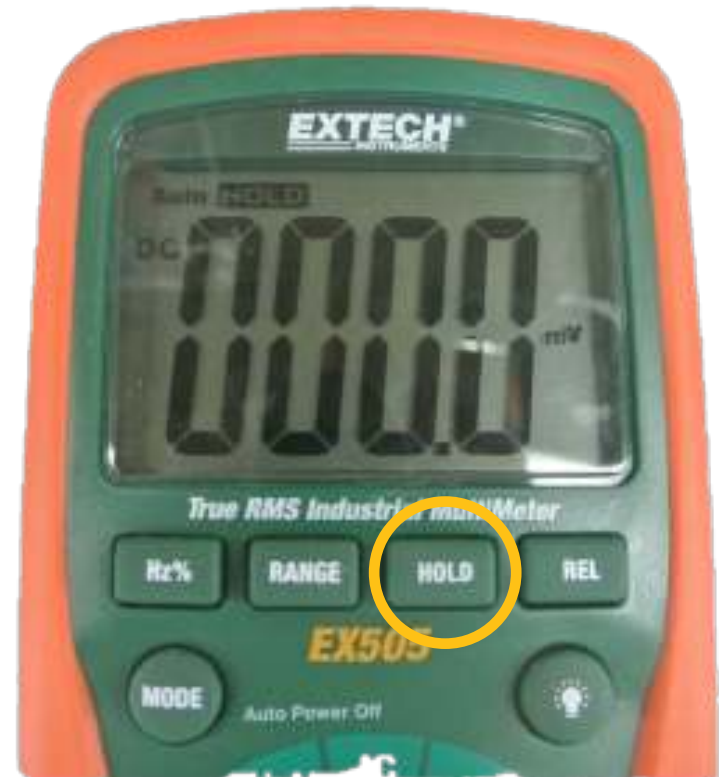
# Pre-Check

Turn auto-ranging off  
may be needed on  
certain tests



# Pre-Check

Data Hold allows the meter to store readings



# The Mode Button

The Mode button allows you to toggle between different functions.



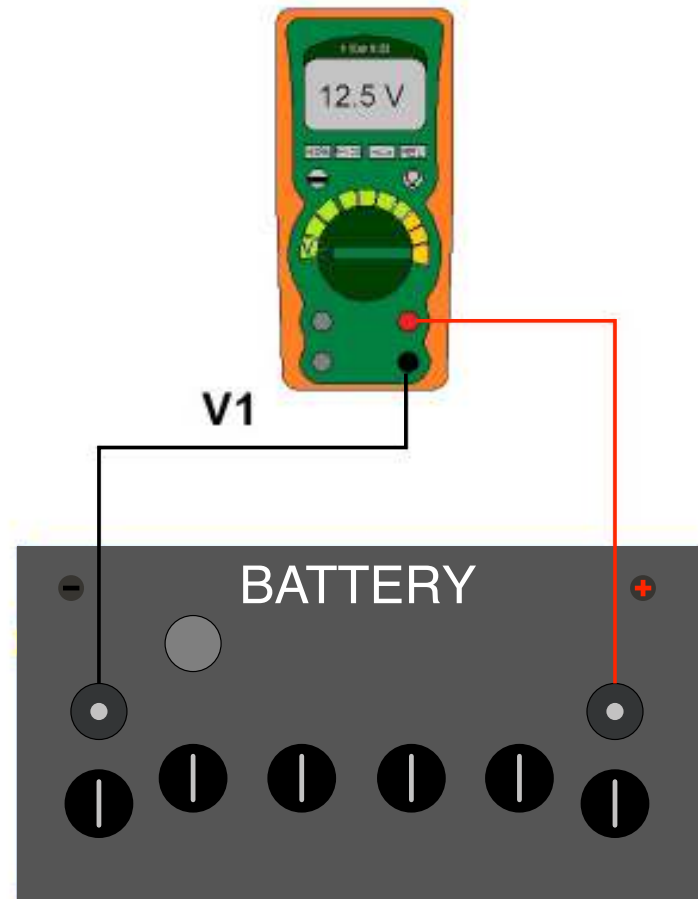
# What a Volt Meter Does

The volt meter reads the voltage difference between 2 points.

Red Lead = 12.5

Black Lead = 0

Equals: 12.5



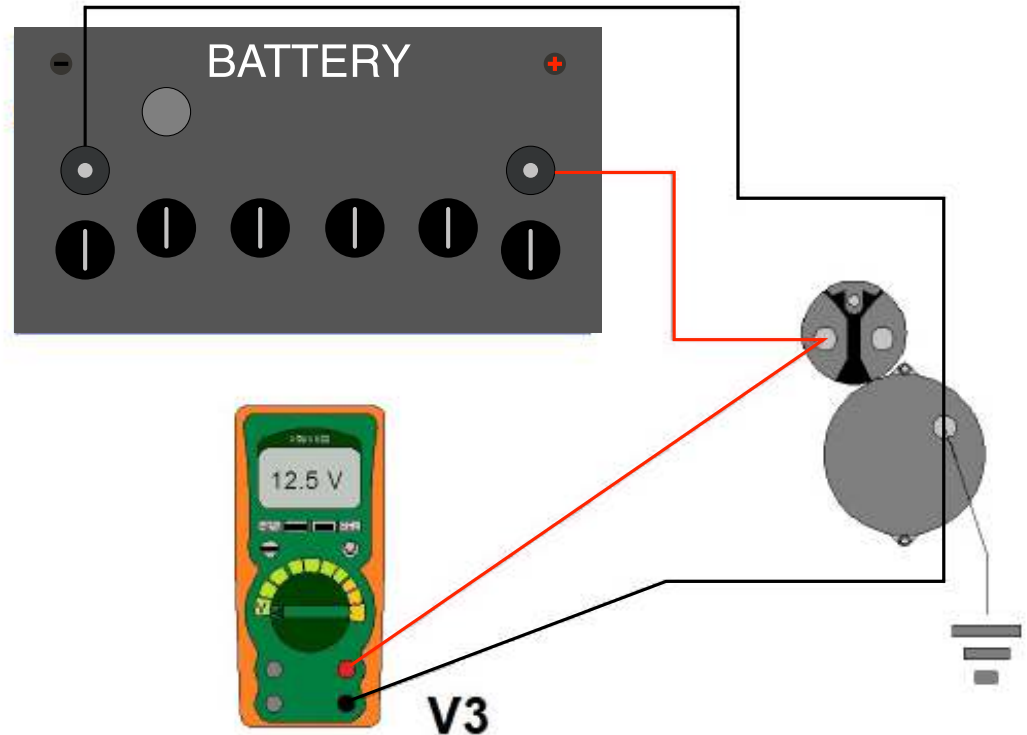
# What a Volt Meter Does

Always reading voltage, anywhere in the circuit.

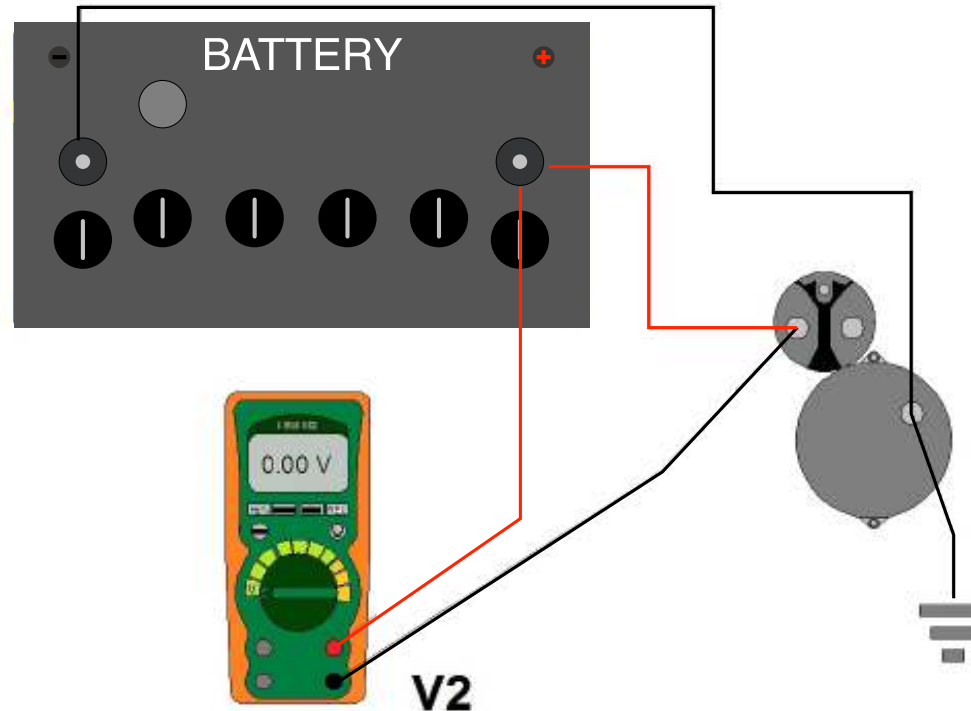
Red Lead = 12.5

Black Lead = 0

Equals: 12.5



# What a Volt Meter Does



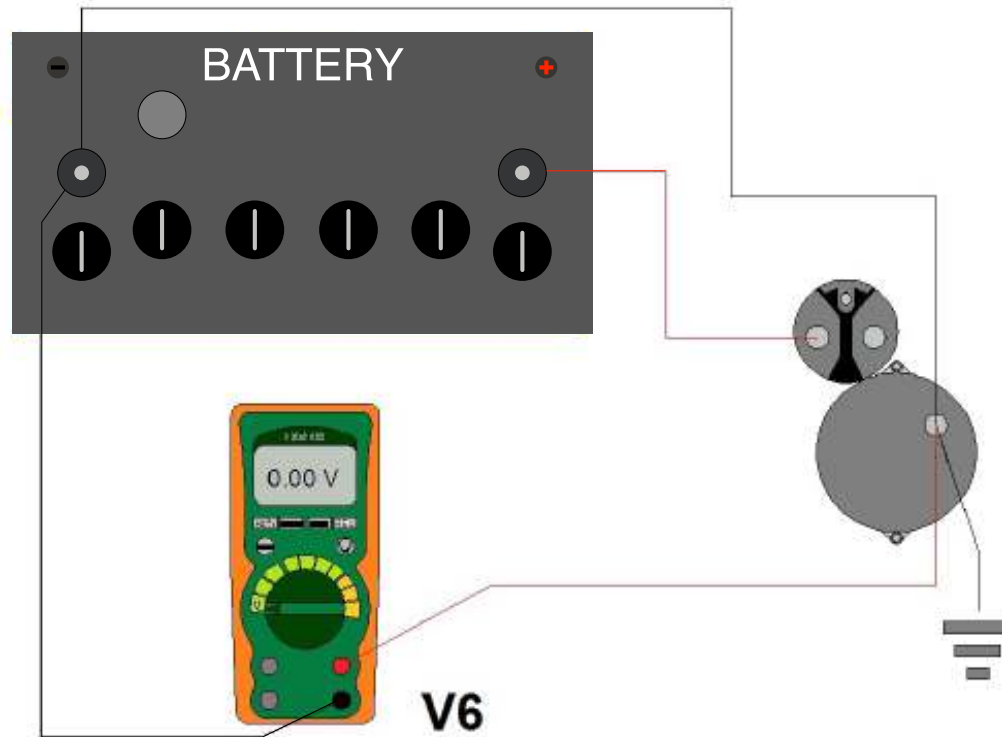
Meters can be used on both ends of the circuit.

Red Lead = 12.5

Black Lead = 12.5

Equals: 0

# What a Volt Meter Does



An example of using 2 meters to test voltage drop.

Red Lead = 0

Black Lead = 0

Equals: 0



# What a Volt Meter Does

An example of testing each leg of a circuit for voltage drop.

Meter 1:

Red Lead = 8.5

Black Lead = 0

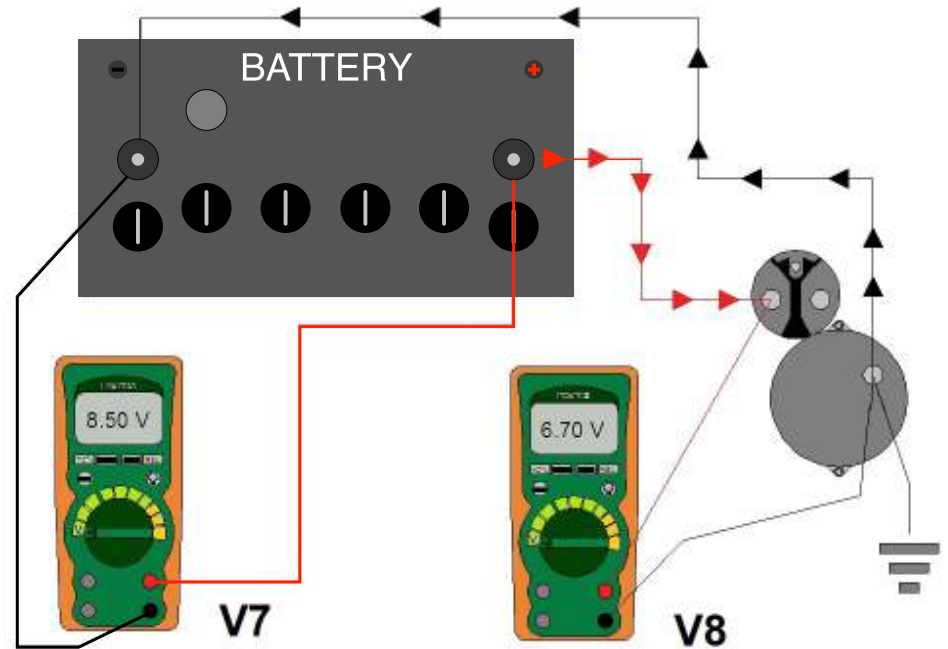
Equals: 8.5

Meter 2:

Red Lead = 7.0

Black Lead = 0.3

Equals: 6.7



# How to Use an Ammeter

## Pre-Check

- Check the internal fuses
- Replace if needed



10 Amp



400 milliamp



.300mA fuse

10A fuse

# How to Use an Ammeter

An example of checking for a parasitic draw



# How to Use an Ammeter

If the ammeter reads between 0 - .2 then the range might be too high. Protect the meter from surges.



# How to Use an Ammeter

An example of milliamps:  
1 mA = .001 Amps  
300 mA = .3 Amps



# How to Use an Ammeter

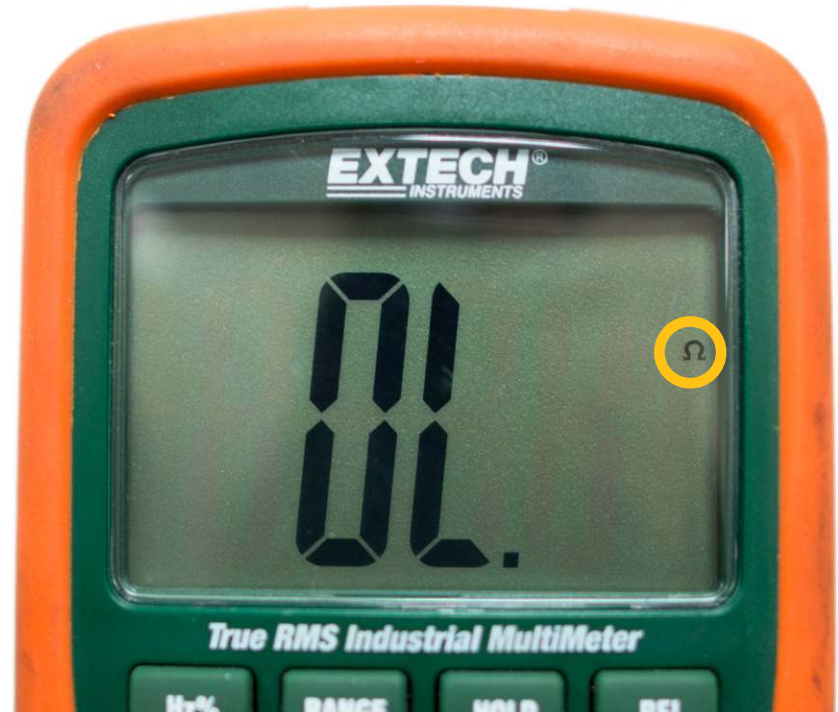
When on milliamp setting DO NOT exceed a load over .3 Amps because it will blow the 300 mA fuse.





# How to Use an Ohmmeter

An Ohmmeter measures the resistance in a circuit in Ohms.



# How to Use an Ohmmeter

The K scale, or Kilohms, equals 10 to the 3 power.





# How to Use an Ohmmeter

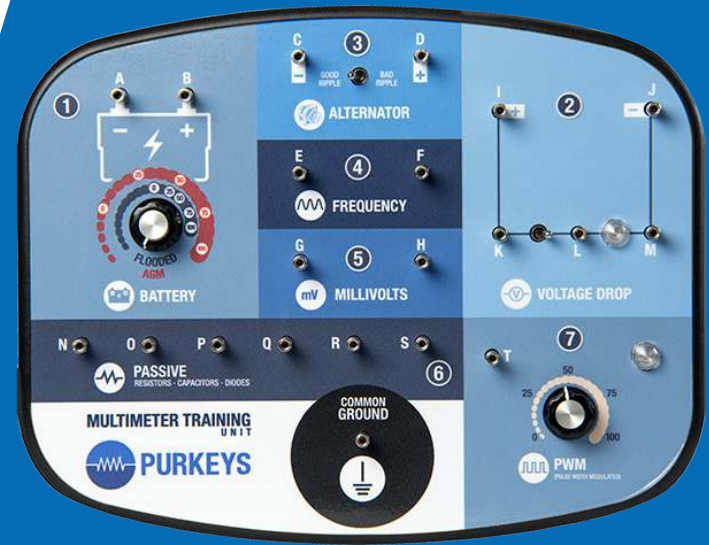
The M scale, or Megaohms, equals 10 to the 6 power.



# Questions & Answers

# Thank You!

For More Information  
on Purkeys Electrical  
Training Programs  
Visit [Purkeys.net](http://Purkeys.net)



## Coming Soon! Purkeys' Multimeter Training Unit!