

# Analog Multimeter Basics and Measuring Resistance



# Analog Meter Precautions

- Do not Jar, manhandle, drop or pile tools or any thing else on your meter.
  - In both of these precautions, you do not want to jar the needle from it jeweled pivot!
- Do not place your multimeter in a place where you may accidentally knock it over or pull it to the floor.

- Do not let your multimeter get wet and never store it in a damp place.
  - If you do get it wet, open the case and let it set open until it is dry.
- Do not let your Ohm meter set on any of the resistance ranges when not in use or when in storage. Turn off etc...
  - This can cause the battery in the meter to run down.

- Don't let magnetized objects near your meter!
  - This may permanently decrease your meter's accuracy.
- Do not let depleted batteries remain in your meter.
  - The batteries are needed to operate your Ohm meter.
  - Bad batteries can leak and cause damage.

Touch the probes together multiple times to see the meter movement.

- You should see the needle rests on the left side in the infinity position and deflects to the zero position when the tips of the meter leads/probes are touching.

Look at the top of the scales where you see the Blue  $\Omega$  symbols on the meter face.



# Meter reads Infinity



# The first step when using the Ohm meter is to Zero the Meter

- This is accomplished by touching / holding the tips of the Red and Black meter leads together. Then you use the Zero Ohms ( $\Omega$ ) Adjust knob to adjust the needle if needed to read Zero Ohms.
- Look at the next picture to see Zero Ohms on the meter scale.



# Meter reads Zero Ohms



The times one scale lets you read the actual number without a multiplier.



The meter reading is most accurate if you adjust the selector switch for a reading / measurement which is mid range on the scale.

- In the next slide, you will see the selector switch and then you will see a measurement of 1.5 Ohms. Note: The selector switch must be in the X1 or times 1 position to read this value.

# Resistance (Times 1 or X1) Scale

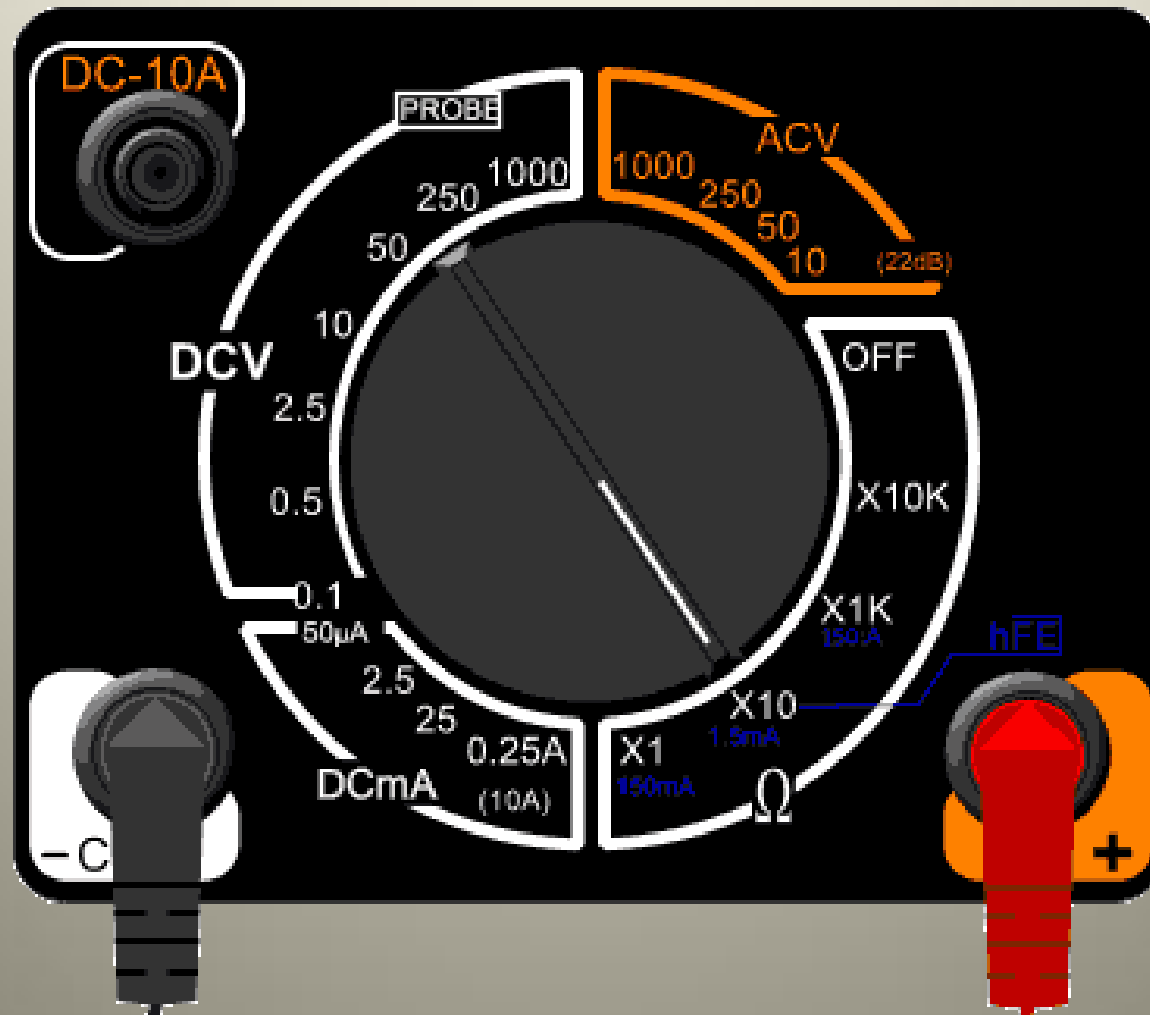


Meter reads about 1.5 Ohms



- In the next slide, you will see the selector switch in the X10 position and then you will see a measurement of 15 Ohms on the meter. What is the actual resistance which is being measured?  
Note: Remember; the selector switch is in the X10 or times 10 position.

# Resistance (Times 10 or X10) Scale



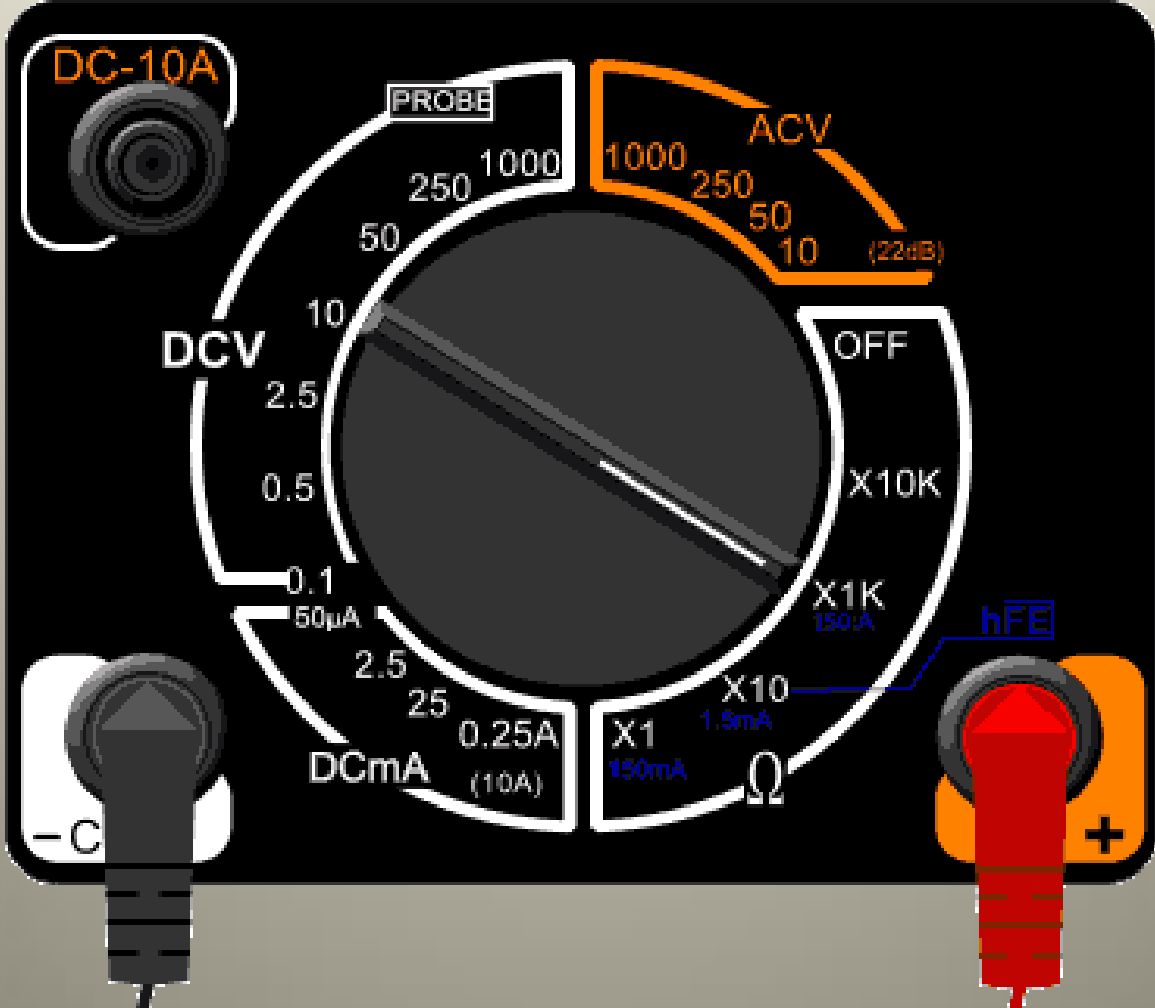
Meter shows about 15 Ohms but is actually reading about 150 Ohms.





- The selector switch is in the X1k or times 1000 position to measure this resistance.
- The meter will indicate a reading of approximately  $150\Omega$ . Do you know what the actual measurement is?

# Resistance (Times 1k or X1k) Scale

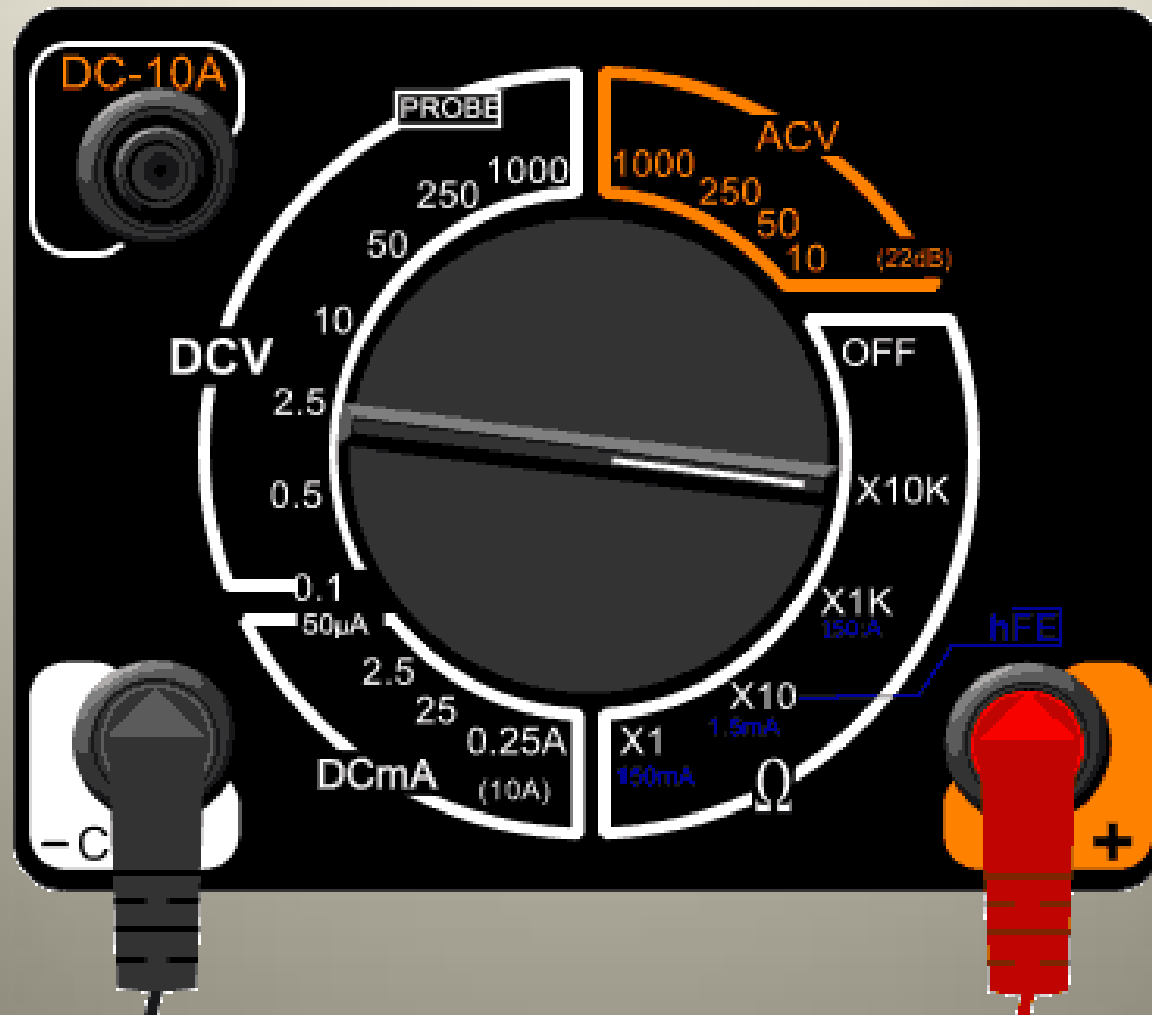


Meter reads about 150, multiply that by 1000 and you have 150K Ohms.



- The selector switch is in the X10k or times 10,000 position to measure this resistance.
- The meter will indicate a reading of approximately  $15\Omega$ . Do you know what the actual measurement is?

# Resistance (Times 10k or X10k) Scale



Meter reads about 15, multiply that by 10,000 and you have 150K Ohms.



Questions?



# The End

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