Digital Multimeter
Basic use and precautions
Basic Precautions

- Do not drop your meter
- Do not place your meter in a location where it may get knocked off the workbench.
- Do not get your meter wet or store in a damp location.
• Do not leave a battery in your meter unless you are using it.
  • Battery acid can damage it.
• Make sure the rules for meter lead placement / polarity are followed.
  • You can blow the current fuse if the polarity is backwards.
Measuring Resistance

- Measuring resistance is similar but much easier to get an accurate measurement than when using an Analog Meter.
- You still have to make sure power is disconnected from your circuit.
• You still do not have to worry about the polarity of the meter leads when measuring resistance.
• The selector scale is similar in use to other manual/mechanical selector switch meters.
• The selector range indicates the maximum resistance measurable.
We want to measure the resistance of R1, R2 and/or R5. What do we have to do first?
You must open either side of resistors R1, R2 and/or R5.
Remember; Test probe/lead polarity doesn’t matter when measuring resistance.
What Meter range would you use to measure the resistance of 4.7 KΩ?
The meter would display approximately 4700Ω with a zero tolerance resistor.
What would the component polarities be to measure the voltages throughout this circuit?
Where would we place the probes to measure $V_{R1}$ and $V_{R5}$?
Where you correct in the placement of the probes to measure $V_{R1}$ and $V_{R5}$?
Where would the selector switch have to be set to read 0.04836V?
The selector switch would be set to 2.
Where would the selector switch have to be set to read 48.36 on the display?
The selector switch would be set to 200m.
What is the actual value or Voltage?
The actual value or Voltage is 48.36mV.
Things to remember when measuring current.

• This is not a “Auto-ranging Digital Multimeter! Pay attention to the polarity of the circuit components and the test lead placement.
  – The Black Lead is the Negative Lead.
  – The Red Lead is the Positive Lead.
• Remember; Voltage is measured across a component, but current flows through a component.
  – You must break the circuit and place the meter in series with the circuit and/or component.
Place the probe of the negative lead to the side of the component which is nearest to the negative terminal of the power supply.
Where would the selector switch have to be set to read 25.416 µA on the display?
Let us say you know where would the selector switch has to be set to read 25.416 μA on the display. What do you believe the meter display will show?
Is this what you were expecting?
Where would the selector switch have to be set to read 4.836 \( \mu \text{A} \) on the display?
Let us say you know were would the selector switch has to be set to read 4.836 μA on the display. What do you believe the meter display will show?
Is this what you were expecting?

0.004836
Questions?
The End

Produced and Edited by:
Cleveland Institute of Electronics Instructors

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