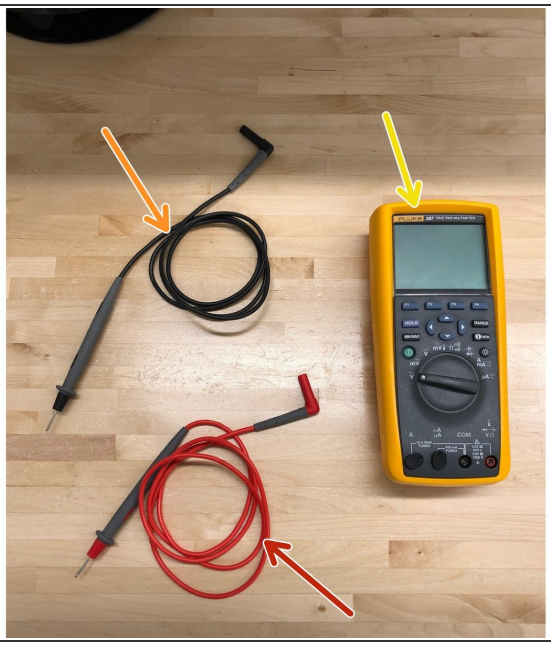
Fluke 287 True RMS Multimeter SOP

This guide will show you all possible settings and modes that you can use for this type of Fluke Multimeter.

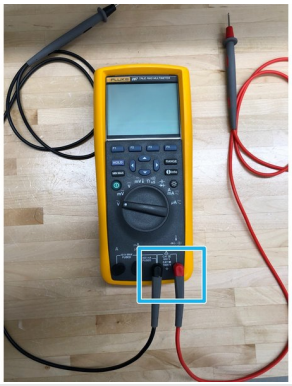
Written By: Austin Elko

Step 1 — Layout



- Here is the layout for what you will be using. There are three components:
- Positive Test Lead (Red probe)
- Negative Test Lead (Black probe)
- Fluke 287 Multimeter

Step 2 — Setting up



- The multimeter knob is used to change what the probes will read. We will talk about each setting soon!
- The power button turns it on and off
- The arrows are used to navigate the menus of the multimeter
- These are the different settings you can place the probes in. Where you will plug them in will depend on the desired units you want to be measured
- Remember, black probe goes into black. Red probe goes into red

Step 3 — Different Probe Settings

- The red probe can be plugged into three different ports:
- Measures in Amperes (A)
- Measures in mill- and microAmperes (mA, uA)
- Measures voltage, resistance, capacitance, and induction

Step 4 — Reading the Rotary Switch

Table 4. Rotary Switch Positions

Switch Position	Function
LoZ V	AC voltage measurement using a low input impedance (model 289 only)
V	AC voltage measurements
mV	AC millivolt measurements
V	DC and ac+dc voltage measurements
mV	DC millivolts, ac+dc millivolt, and temperature measurements
Ω nS	Resistance, continuity, and conductance measurements
	Diode test and capacitance measurements
A mA	AC, dc and ac+dc amps and milliamps measurements
μA	AC, dc and ac+dc microampere measurements up to 5,000 μA
50Ω	Resistance measurements with 50Ω range (model 289 only)

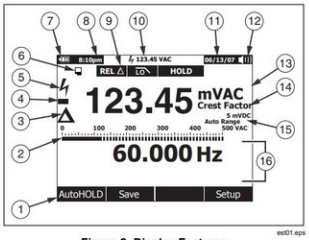
- There are several symbols on the rotary switch for different measurements
- The chart goes into detail about each symbol on this model multi-meter
  - ⓘ The Chart has extra symbols not included on this multimeter
- The wave symbolizes AC (Alternating Current)
- The solid line and dashed line symbolizes DC (Direct Current)

This document was generated on 2022-02-18 07:37:31 AM (MST).

Step 5 — Reading the Display

Understanding the Display

Display features shown in Figure 2 are described in Table 3 and the following sections.



est01.eps

Figure 2. Display Features

Table 3. Display Features

Item	Function	Indication
①	Softkey labels	Indicates the function of the button just below the displayed label.
②	Bar graph	Analog display of the input signal (See the "Bar Graph" section for more information).
③	Relative	Indicates the displayed value is relative to a reference value.
④	Minus sign	Indicates a negative reading.
⑤	Lightning bolt	Indicates hazardous voltage present at the Meter's input.
⑥	Remote communication	Indicates activity over the communication link.
⑦	Battery level	Indicates the charge level of the six AA batteries.
⑧	Time	Indicates the time set in the internal clock.
⑨	Mode annunciators	Indicates the Meter's mode.

Table 3. Display Features (cont.)

Item	Function	Indication
⑩	Mini-measurement	Displays the lightning bolt (when necessary) and the input value when the primary and secondary displays are covered by a menu or pop-up message.
⑪	Date	Indicates the date set in the internal clock.
⑫	Beeper	Indicates the Meter's beeper is enabled (not associated with the continuity beeper).
⑬	Units	Indicates the units of measure.
⑭	Auxiliary Units	Indicates unitless measurements like Crest Factor.
⑮	Range indicator	Indicates the range the Meter is in and the ranging mode (auto or manual).
⑯	Secondary display	Displays secondary measurement information about the input signal.

- This table goes through the display of the 287 by briefly talking about each component
- To read about each feature in more detail you can find it in the Fluke 287 User manual: http://assets.fluke.com/manuals/287_289_...

Step 6 — Understanding the Push Buttons

Table 2. Push Buttons

Button	Function
⏻	Turns the Meter on or off.
F1 F2 F3 F4	Selects sub-functions and modes related to the rotary switch function.
◀ ▲ ▼ ▶	Cursor buttons select an item in a menu, adjust display contrast, scroll through information, and perform data entry.
HOLD	Freezes the present reading in the display and allows the display to be saved. Also accesses AutoHold.
RANGE	Switches the Meter range mode to manual and then cycles through all ranges. To return to autoranging, press the button for 1 second.
MIN MAX	Starts and stops MIN MAX recording.
info	Displays information about the present function or items on the display at the moment the info button is pressed.
☼	Switches the display backlight between off, low, and high.

- The table shown goes into each push button feature on the 287

Step 7 — Measuring DC Voltage

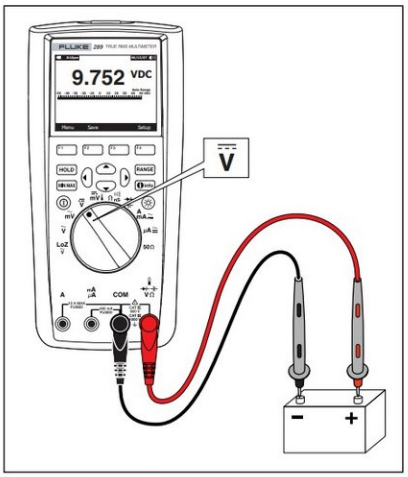
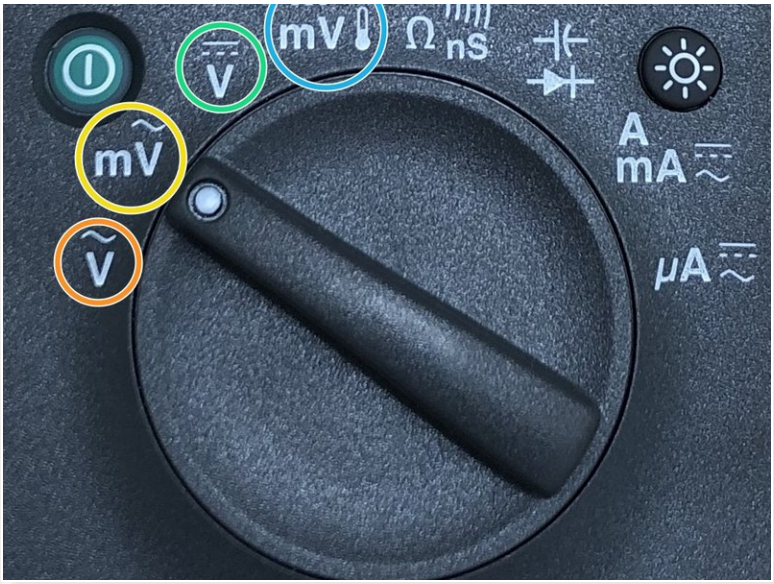
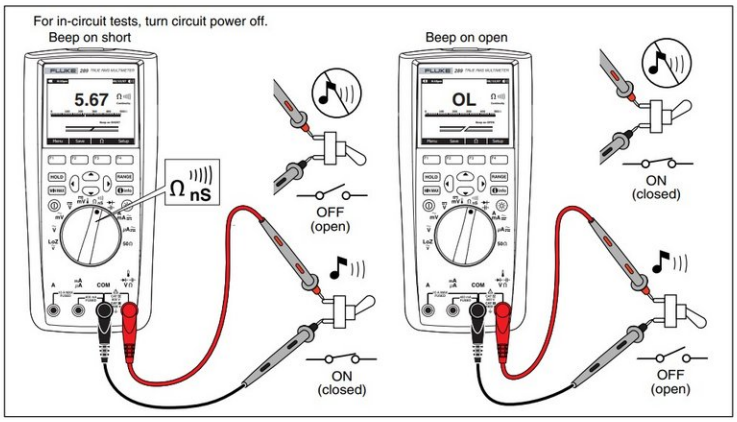


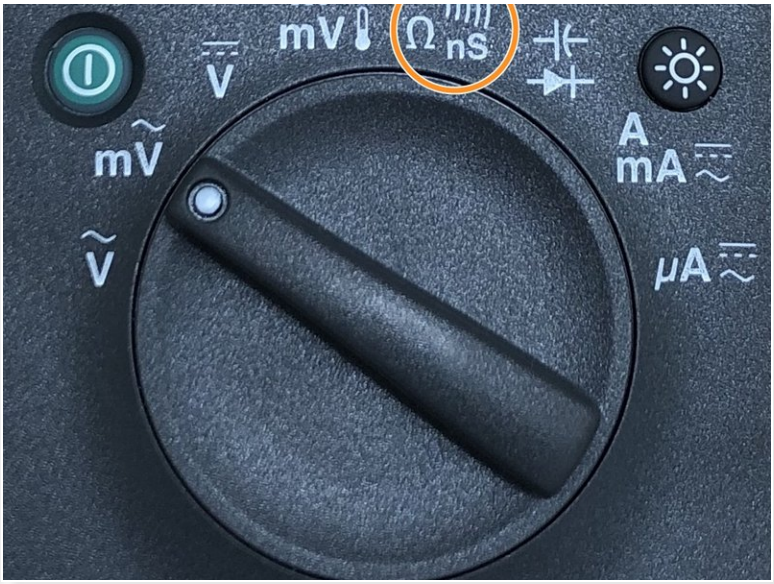
Figure 12. DC Voltage Measurements



- The meter displays DC voltage as well as their polarity. The bar graph displayed is zero-centered and will fill to the right for positive readings and fill to the left for negative readings
- The softkey labeled "menu" can be used to modify the basic DC voltage measurement
- AC Voltage Position
- AC Millivoltage position
- DC Voltage position
- DC Millivoltage position

Step 8 — Continuity Testing

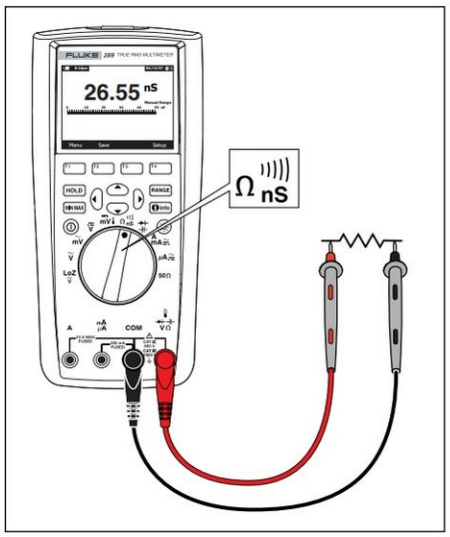


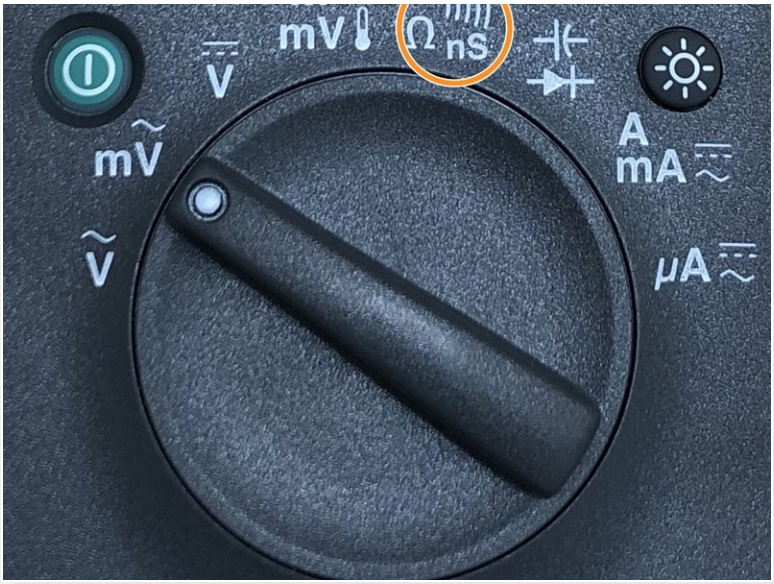


⚠ To avoid possible damage to the meter or to the equipment being tested, disconnect circuit power and discharge all high-voltage capacitors before testing continuity

- The meter uses three indicators for the absence and presence of continuity: a resistance reading, an open/short indicator, and a beeper
- Continuity (waves) position

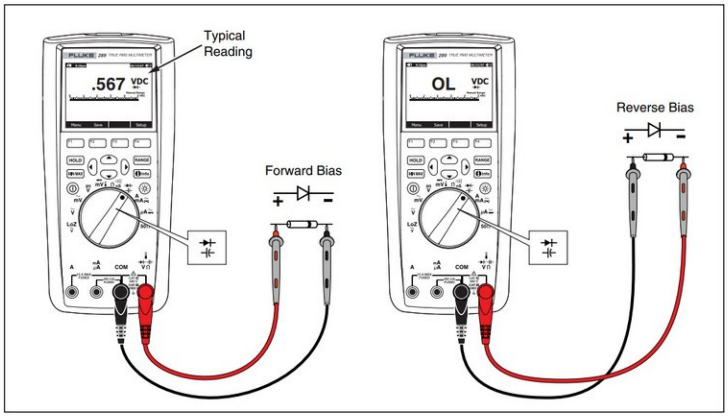
Step 9 — Measuring Resistance or Conductance





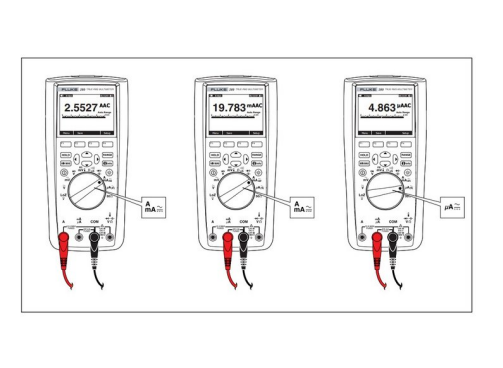
- Conductance is the inverse of resistance, and is the ability of a circuit to pass current. High values of conductance correspond to low values of resistance
- To measure conductance, position the rotary switch to the symbols shown in the image. Press the softkey labeled "nS"
- To measure resistance press the softkey labeled "Ohms" (Omega symbol)
- Resistance (Omega symbol) position

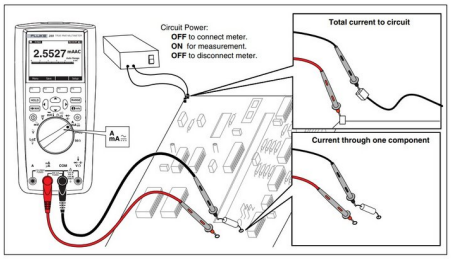
Step 10 — Diode Testing

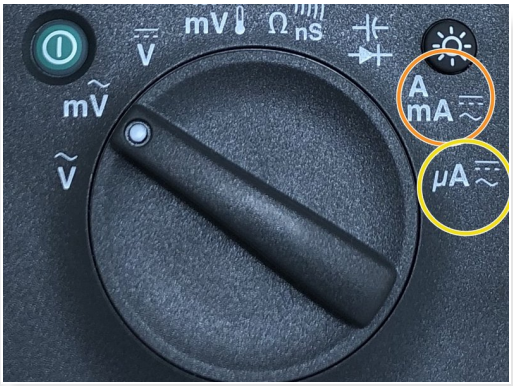


- Use the diode test to check diodes, transistors, silicon controlled rectifiers (SCRs), and other semiconductor devices. The test sends a current through a semiconductor junction, and then measures the junction's voltage drop
- To test a diode out of a circuit, position the rotary switch to the symbol show in the image. Position the two leads as shown in the image
- If the display doesn't already indicate the meter is in the diode test function, press the softkey labeled "menu". Next, move the menu selector to the menu item labeled "Diode,Cap" and press the softkey labeled "Diode"
- Diode/cathode position

Step 11 — Measuring Current





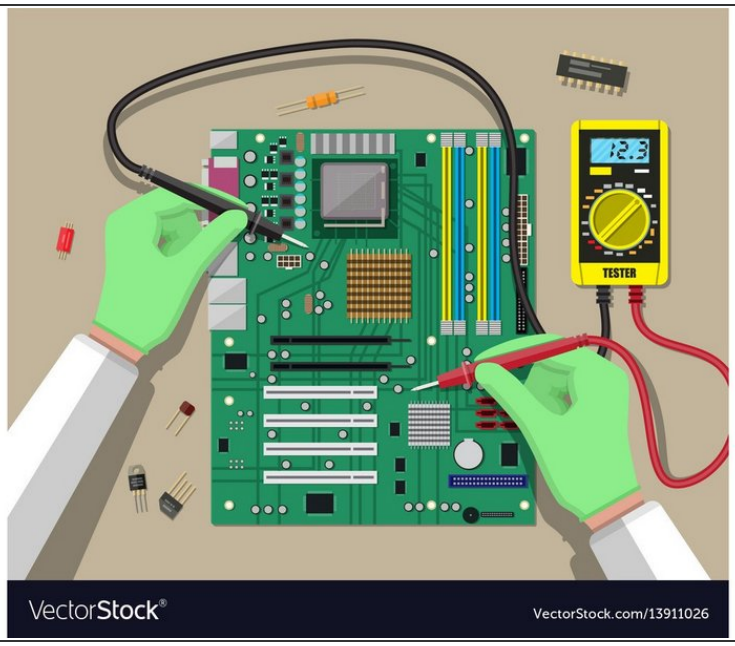


- Current is the flow of electrons through a conductor. To measure current, you must open the circuit under test, then place the meter in series with the circuit

⚠ To avoid blowing the meter's 440 mA fuse, use the mA/uA terminal only if you are sure the current is less than 400 mA

- Depending on the expected current from the circuit you are measuring, insert the leads as shown in the second image
- AC/DC Amp and Miliamp position
- AC/DC Microamp position

Step 12 — Finished!



- The guide is finished! If you have any questions do not hesitate to ask Terrapin Works staff before performing measurement
- Images and guides were taken and edited from the Official Fluke 287 Multimeter Manual: http://assets.fluke.com/manuals/287_289_...