



# Agilent U1253A True RMS OLED Multimeter Quick Start Guide



The following items are included with your multimeter:

- ✓ Silicone test leads and alligator clips
- ✓ Printed Quick Start Guide
- ✓ CD containing the User's and Service Guide, application software, and instrument drivers
- ✓ Rechargeable 7.2 V battery
- ✓ Power cord and AC adapter
- ✓ Certificate of Calibration

If anything is missing or damaged, please contact the nearest Agilent Sales Office.

## **WARNING**

**Ensure the terminal connections are correct for that particular measurement selection before starting any measurement. To avoid damage to the device, do not exceed the input limit.**

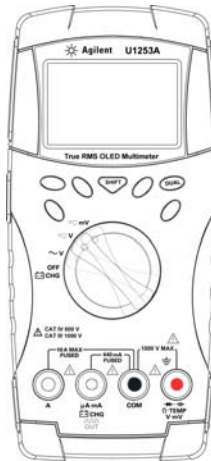


**Agilent Technologies**

# Performing Voltage Measurements

## Measuring AC voltage

- 1 Set the rotary switch to  $\sim V$ . For  $\sim V$  and  $\sim mV$  mode, press **SHIFT** to ensure  $\sim$  is shown on the display.
- 2 Connect the red and black test leads to input terminals **V, mV (red)** and **COM (black)** respectively.
- 3 Probe the test points and read the display.
- 4 Press **DUAL** to display dual measurements. Parameter can be switched consecutively.



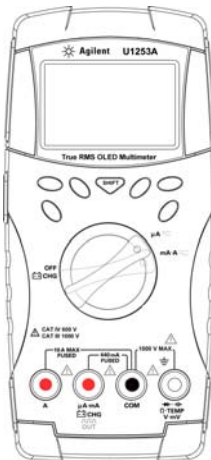
## Measuring DC voltage

- 1 Set the rotary switch to  $\sim V$  or  $\sim mV$ . Ensure that  $\sim$  is shown on the display.
- 2 Connect the red and black test leads to input terminals **V, mV (red)** and **COM (black)** respectively.
- 3 Probe the test points and read the display.
- 4 Press **DUAL** to display dual measurements. Parameter can be switched consecutively.

# Performing Current Measurements

## Measuring AC current

- 1 Set the rotary switch to  $\mu A$  or  $mA$ . Press **SHIFT** to ensure  $\sim$  is shown on the display.
- 2 Connect the red and black test leads to input terminals  **$\mu A, mA$  (red)** and **COM (black)** or **A (red)** and **COM (black)** respectively.
- 3 Probe the test points in series with the circuit and read the display.



## Measuring DC current

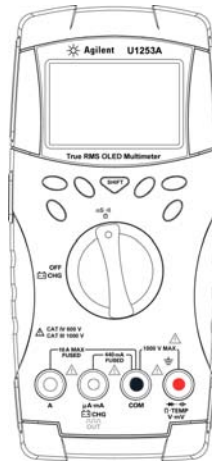
- 1 Set the rotary switch to  $\mu A$  or  $mA$ . Ensure that  $\sim$  is shown on the display.
- 2 Connect the red and black test leads to input terminals  **$\mu A, mA$  (red)** and **COM (black)** or **A (red)** and **COM (black)** respectively.
- 3 Probe the test points in series with the circuit and read the display.

### CAUTION

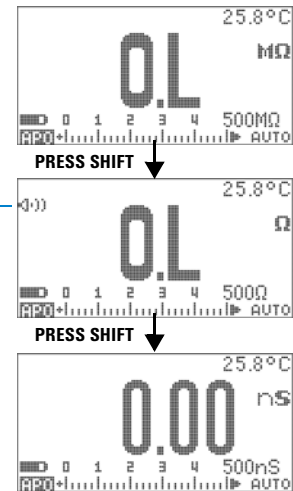
- If the current is  $\leq 440$  mA, connect the red and black test leads to input terminals  **$\mu A, mA$  (red)** and **COM (black)**.
- If the current is  $> 440$  mA, connect the red and black test leads to input terminals **A (red)** and **COM (black)**.

# Performing Resistance, Conductance, and Continuity Measurements

- 1 Set the rotary switch to **nS**.
- 2 Connect the red and black test leads to input terminals **Ω (red)** and **COM (black)** respectively.
- 3 Probe the test points (by shunting the resistor) and read the display.
- 4 Press **SHIFT** to scroll through audible continuity (**di/d**), conductance (**nS**), and resistance tests (**Ω**, **kΩ**, or **MΩ**) as shown.



Audible continuity



# Performing Capacitance and Temperature Measurements

## Capacitance

- 1 Set the rotary switch to **TEMP**.
- 2 Connect the red and black test leads to input terminals **→|← (red)** and **COM (black)** respectively.
- 3 Connect the red test lead to the positive terminal of the capacitor, and the black test lead to the negative terminal.
- 4 Read the display.




## Temperature






- 1 Set the rotary switch to **TEMP**. Press **SHIFT** to select temperature measurement.
- 2 Connect the red and black test leads to input terminals **→|← (red)** and **COM (black)** respectively.
- 3 Plug the thermocouple adapter (with the thermocouple probe connected to it) into input terminals **TEMP (red)** and **COM (black)**.
- 4 Touch the measurement surface with the thermocouple probe.
- 5 Read the display.

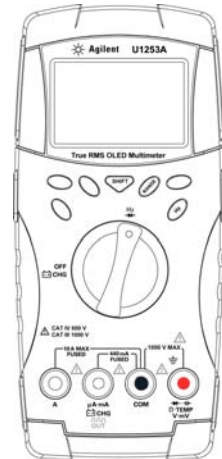
# Frequency and Frequency Counter Measurements

## Frequency Measurement

During AC/DC voltage or AC/DC current measurements, you can measure the signal frequency by pressing  at any time.

## Frequency Counter Measurement







- 1 Set the rotary switch to .
- 2 Press  to select the frequency counter () function. The default input signal frequency is divided by 1. This allows signals up to a maximum frequency of 985 kHz to be measured.
- 3 Connect the red and black test leads to input terminals **V (red)** and **COM (black)** respectively.
- 4 Probe the test points and read the display.
- 5 If the reading is unstable or zero, press  to select division of input signal frequency by 100 ( will be shown on the display). This accommodates a higher frequency range of up to 20 MHz.
- 6 The signal is out of the U1253A frequency measurement range of 20 MHz if the reading is still unstable after [Step 5](#).

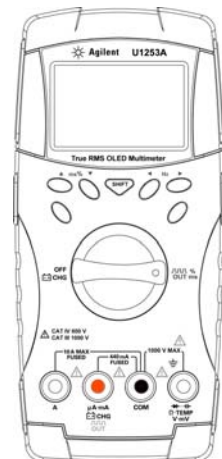


## WARNING












Use the frequency counter for low voltage applications. Never use the frequency counter on AC power line systems.

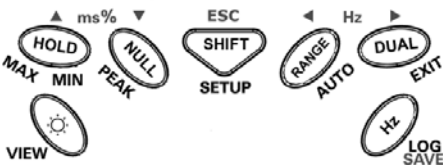
## Square Wave Output

- 1 Turn the rotary switch to .
- 2 Press  to select duty cycle (%) on the primary display.
- 3 The default square wave frequency is 600 Hz as shown by the secondary display, with a 50% duty cycle as shown by the primary display.
- 4 Press  or  to scroll through the available frequencies (there are 28 frequencies to choose from).
- 5 Press  or  to adjust the duty cycle. The duty cycle can be set from 0.390625% to 99.609375%, in steps of 0.390625%. The displayed duty cycle has a resolution of 0.001%.




# Functions and Features

Action	Steps
Changes the OLED brightness	Press  .
Freezes the measured value	Press  .
Starts MIN MAX AVG NOW recording	Press and hold  for > 1 s.
Offsets the measured value	Press  .
Changes the measurement range	Press  .
Turns on auto range	Press and hold  for > 1 s.
Turns on dual display	Press  .
Starts manual data logging	Press and hold  for > 1 s.
Views the logged data	Press  for > 1 s, press ▲ or ▼ to scroll through the logged data.
Clears the logged data	Press  for > 1 s, press  for > 1 s.




# Input Terminals and Overload Protection

Measurement Functions	Input Terminal		Overload Protection
Voltage	 Ω·TEMP V·mV	COM	1000 Vrms
Diode			1000 Vrms < 0.3 A short circuit current
Resistance			
Capacitance			
Temperature			
Current (μA and mA)	μA.mA	COM	440 mA/1000 V 30 kA/fast-acting fuse
Current (A)	A	COM	11 A/1000 V 30 kA/fast-acting fuse

## When Charging the Battery...

### CAUTION



- Do not rotate the rotary switch from  **OFF** **CHG** position when charging the battery.
  - Perform battery charging **only** with 7.2 V or 8.4 V NiMH rechargeable battery, 9 V size.
  - Disconnect test leads from all the terminals when charging the battery.
  - Ensure proper insertion of battery in the multimeter, and follow the correct polarity.
  - A new rechargeable battery comes in a discharged condition and must be charged before use (refer to the *U1253A User's and Service Guide* for charging instructions). Upon initial use (or after a prolonged storage period) the rechargeable battery may require three to four charge/discharge cycles before achieving maximum capacity. To discharge, simply run the multimeter under the rechargeable battery's power until it shuts down or low battery warning appears.
  - The multimeter may indicate that charging is complete after a few ten minutes when charging a new rechargeable battery. This is a normal phenomenon with rechargeable batteries. Remove the rechargeable battery from the device, reinsert it and repeat the charging procedure.
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## Safety Information

This meter is safety-certified in compliance with EN/IEC 61010-1:2001, UL 61010-1 Second Edition and CAN/CSA 22.2 61010-1 Second Edition, Category III 1000 V/Category IV 600 V, Pollution Degree II. Use with standard or compatible test probes.

### Safety Notices

#### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

#### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

### Safety Symbols

CAT III  
1000 V

Category III 1000 V overvoltage protection

CAT IV  
600 V

Category IV 600 V overvoltage protection



Double insulation



Earth ground



Caution, risk of danger



Caution, risk of electric shock

For further safety information details, refer to the *Agilent U1253A True RMS OLED Multimeter User's and Service Guide*.