

Agilent Technologies U1253A True RMS OLED Multimeter



Agilent Technologies U1253A True RMS OLED Multimeter User Guide

[Home](#) » [Agilent Technologies](#) » Agilent Technologies U1253A True RMS OLED Multimeter User Guide 

Contents

- 1 Agilent Technologies U1253A True RMS OLED Multimeter
- 2 Product Information
- 3 Product Usage Instructions
- 4 Performing Voltage Measurements
- 5 Frequency and Frequency Counter Measurements
- 6 Functions and Features
- 7 Input Terminals and Overload Protection
- 8 When Charging the Battery
- 9 Safety Information
- 10 Safety Symbols
- 11 Documents / Resources
 - 11.1 References
- 12 Related Posts



Agilent Technologies

Agilent Technologies U1253A True RMS OLED Multimeter



Product Information

Specifications

- **Model:** U1253A
- **Type:** True RMS OLED Multimeter
- **Power:** Rechargeable 7.2 V battery or AC adapter
- **Included Accessories:** Silicone test leads, alligator clips, printed Quick Start Guide, CD containing User's and Service Guide, application software, instrument drivers, power cord, AC adapter, Certificate of Calibration

Product Usage Instructions

Performing Voltage Measurements Measuring AC voltage

1. Set the rotary switch to the AC voltage mode.
2. Connect the red test lead to the V. mV input terminal (red) and the black test lead to the COM input terminal (black).
3. Probe the test points and read the display.
4. Press the dual measurements button to display dual measurements. The parameter can be switched consecutively.

Measuring DC voltage

1. Set the rotary switch to the DC voltage mode.
2. Connect the red test lead to the V. mV input terminal (red) and the black test lead to the COM input terminal (black).
3. Probe the test points and read the display.
4. Press the dual measurements button to display dual measurements. The parameter can be switched consecutively.

Performing Current Measurements Measuring AC

1. Set the rotary switch to the AC mode.
2. Press the button to ensure the AC mode is shown on the display.
3. Probe the test points in series with the circuit and read the display.

Measuring DC

1. Set the rotary switch to the DC mode.
2. Ensure that the DC mode is shown on the display.
3. Probe the test points in series with the circuit and read the display.

Performing Resistance, Conductance, and Continuity Measurements

1. Set the rotary switch to the resistance mode.
2. Connect the red test lead to the input terminal (red) and the black test lead to the COM input terminal (black).
3. Probe the test points (by shunting the resistor) and read the display.
4. Press the button to scroll through audible continuity (/), conductance (), and resistance tests (, or) as shown.

Performing Capacitance and Temperature Measurements

1. Set the rotary switch to the capacitance mode.
2. Connect the red test lead to the input terminal (red) and the black test lead to the COM input terminal (black).
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 the temperature mode.
2. Press the button to select temperature measurement.
3. Connect the red test lead to the input terminal (red) and the black test lead to the COM input terminal (black).
4. Plug the thermocouple adapter (with the thermocouple probe connected to it) into the TEMP input terminals (red) and COM (black).
5. Touch the measurement surface with the thermocouple probe.

6. Read the display.

Frequency and Frequency Counter Measurements

- During AC/DC voltage or AC/DC measurements, you can measure the signal frequency by pressing the corresponding button.

FAQ

Q: What should I do if something is missing or damaged?

- **A:** If anything is missing or damaged, please contact the nearest Agilent Sales Office.

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.

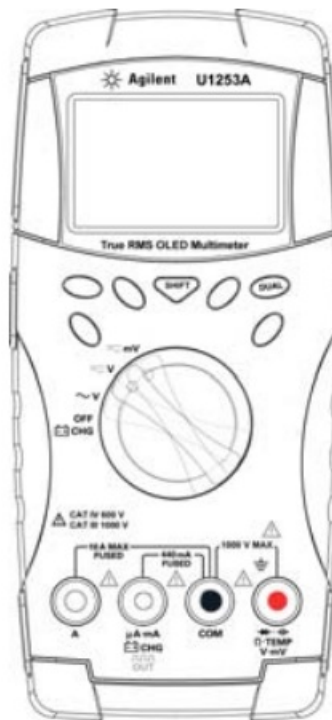
Performing Voltage Measurements

Measuring AC voltage

1. Set the rotary switch to  V.

- For  V and  mV mode, press to  ensure  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  to display dual measurements. The parameter can be switched consecutively.



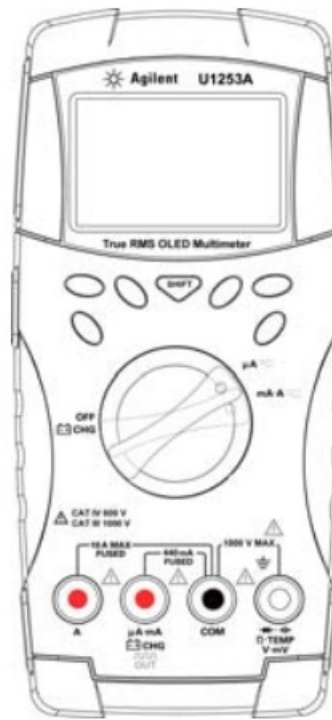
Measuring DC voltage

1. Set the rotary switch to V or mV . Ensure that ----- 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. The parameter can be switched consecutively.

Performing Current Measurements

Measuring AC

1. Set the rotary switch to μA or mA . Press SHIFT to ensure ~ is shown on the display.
2. Connect the red and black test leads to input terminals $\mu\text{A.mA}$ (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

1. Set the rotary switch to μA or mA . Ensure that is shown on the display.
2. Connect the red and black test leads to input terminals $\mu\text{A.mA}$ (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

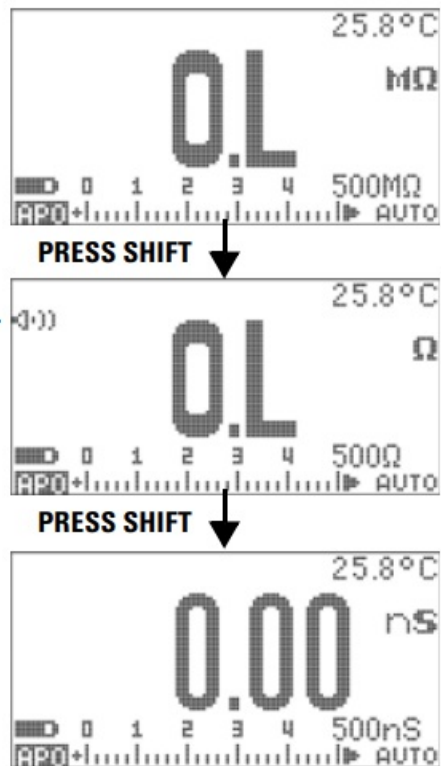
- If the current is $\leq 440 \text{ mA}$, connect the red and black test leads to input terminals $\mu\text{A.mA}$ (red) and COM (black).
- If the current is $> 440 \text{ mA}$, connect the red and black test leads to input terminals A (red) and COM (black).

Performing Resistance, Conductance, and Continuity Measurements

1. Set the rotary switch to Ω .
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 (diode symbol), conductance (nS) and resistance tests (Ω , $\text{k}\Omega$ or $\text{M}\Omega$) as shown.





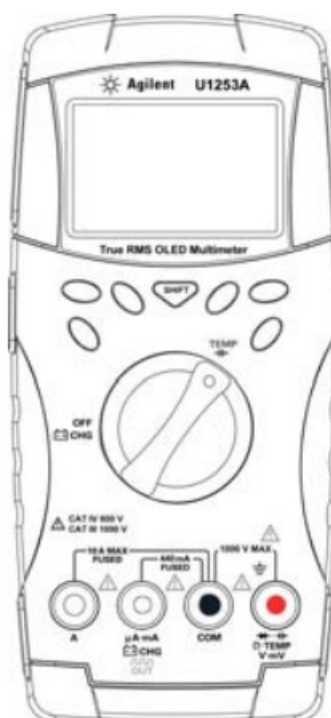
Audible continuity






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 
 - Press  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.

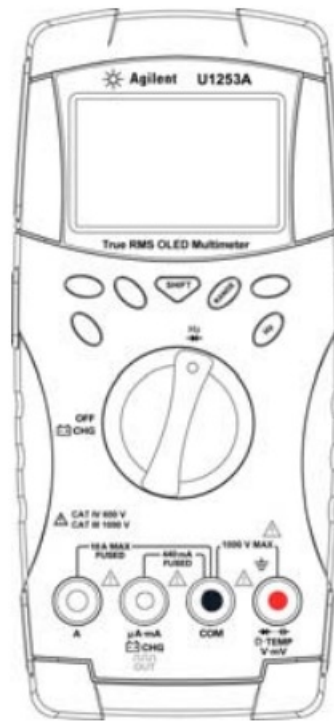
Frequency and Frequency Counter Measurements

Frequency Measurement

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







Frequency Counter Measurement

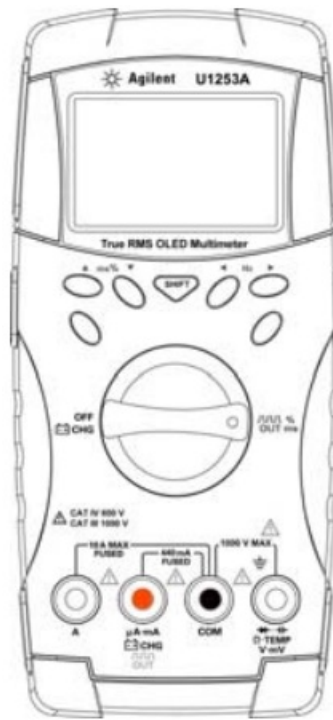
1. Set the rotary switch to .
2. Press  to select the frequency counter  function. The default input signal frequency is divided by 1. This allows signals up to a maximum frequency of 985 kHz to be measured.
3. Connect the red and black test leads to input terminals V (red) and COM (black) respectively.
4. Probe the test points and read the display.
5. If the reading is unstable or zero, press  to select the 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.

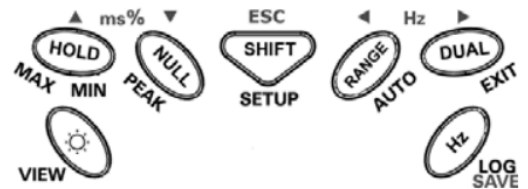
Square Wave Output

1. Turn the rotary switch to  **OUT ms**
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  scroll through the available frequencies (there are 28 frequencies to choose from).
5. Press  or  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.

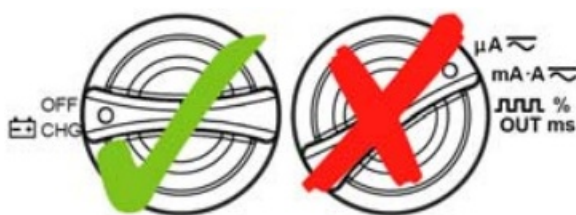



Input Terminals and Overload Protection

Measurement Functions	Input Terminal		Overload Protection
Voltage		COM	1000 Vrms
Diode			1000 Vrms < 0.3 A short circuit current
Resistance			
Capacitance			
Temperature			
Current (mA 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** 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.

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** 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** 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.
- © Agilent Technologies, Inc., 2008 – 2011
- Fourth Edition, November 2011
- U1253-90011

Documents / Resources

	<p>Agilent Technologies U1253A True RMS OLED Multimeter [pdf] User Guide U1253A True RMS OLED Multimeter, U1253A, True RMS OLED Multimeter, RMS OLED Multimeter, OLED Multimeter, Multimeter</p>
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References

-  [Manual-Hub.com - Free PDF manuals!](#)
- [User Manual](#)