Agilent U1231A/U1232A/U1233A Handheld Multimeter

Quick Start Guide

Verify that you received the following items in the shipment of your multimeter:

- ✔ One pair of red and black test leads
- ✔ Four 1.5 V AAA alkaline battery
- ✔ Printed copy of the U1231A/U1232A/U1233A Quick Start Guide

If any item is missing or damaged, keep the shipping materials and contact the nearest Agilent Sales Office.

NOTE

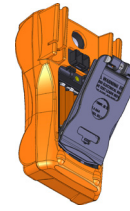
The descriptions and instructions in this guide apply to the U1231A, U1232A, and U1233A handheld multimeters.

The model U1233A appears in all illustrations.

All related documents and software are available for download at www.agilent.com/find/hhTechLib.

Install the Batteries

Your multimeter is powered by four 1.5 V AAA alkaline batteries (included with the shipment).

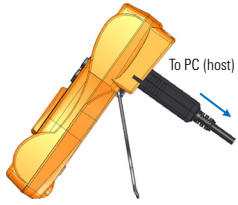


1. Turn the multimeter OFF and remove the test leads from the terminals.
2. Loosen the screw on the battery cover with a suitable Phillips screwdriver.
3. Remove the battery cover and observe the polarity markings.
4. Insert the batteries and replace the battery cover and screw.

Turn On the Multimeter

To power ON your multimeter, turn the rotary switch to any other position.

Controlling the Multimeter Remotely

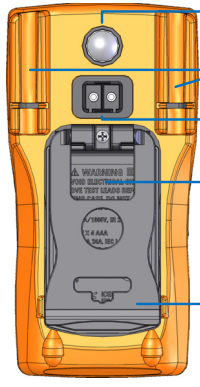


Your multimeter is capable of remote data logging.

To use this feature, you will need a PC running a Windows operating system, an IR-USB cable (U1173A, purchased separately), and the Agilent GUI Data Logger Software.

The Agilent GUI Data Logger software is downloadable for free from www.agilent.com/find/hhTechLib.

The Multimeter at a Glance



Understanding the Rotary Switch

NOTE Some rotary switch positions have a *shifted* function printed in **orange**. Press Esc Shift to switch between the shifted and regular function.

Legend	Functions shown in the primary display
VZLow	Low input impedance — VZ_{LOW} Auto (AC or DC)/ VZ_{LOW} DC V/VZ_{LOW} AC V for eliminating ghost voltages
~V Hz	AC V/Frequency
⎓V	DC V
Ω	Resistance/Short continuity/Open continuity[1]
⊣▶⊢	Diode
⊣⊢	Capacitance/Temperature (U1233A only)
⊣⊢ AUX	Capacitance/Auxiliary Temperature (U1232A only)
⊣⊢	Capacitance (U1231A only)
⎓A ~ Hz	DC or AC A/Frequency
⎓µA ~ Hz	DC or AC µA/Frequency
~ ⎓ Hz AUX	Clamp-on AC or DC A/Frequency (U1231A only)
AUX	Auxiliary Temperature (U1231A only)

[1] Open continuity option must be enabled through the multimeter's Setup (oPnd > oPnE). Open continuity is disabled by default.

WARNING **Remove the test leads from the measuring source or target before changing the rotary switch position.**

Refer to the *U1231A/U1232A/U1233A User's Guide* for a complete list and description of all rotary switch labels for each separate multimeter model.

Understanding the Keypad

Legend	Key response when pressed for:	
	Less than 1 second	More than 1 second
Δ Null Recall	Sets the null/relative mode	Enters the Hold-Log Recall menu
Max Min	Starts the MaxMin recording	Stops the MaxMin recording
Range Auto	Sets a manual range	Enables autoranging
Trig Auto Hold Log	Freezes and stores the present reading in the display	Automatically freezes the present reading once the reading is stable
☼	Turns the LCD backlight on or off.	Turns the LED flashlight on or off.
Esc Shift	Switches between the regular and shifted (icons printed in **orange**) functions	**U1233A only**: Enables the non-contact voltage detector (Vsense).

Understanding the Input Terminals

Rotary position for U1232A and U1233A	Input terminals	Overload protection
~V Hz ⎓V		600 Vrms
VZLOW Ω •)) ⊣⊢ AUX ⎓µA ~Hz		600 Vrms for short circuit <0.3 A
⎓A ~Hz		11 A/1000 V, fast-acting fuse

Non-contact voltage detector (Vsense)

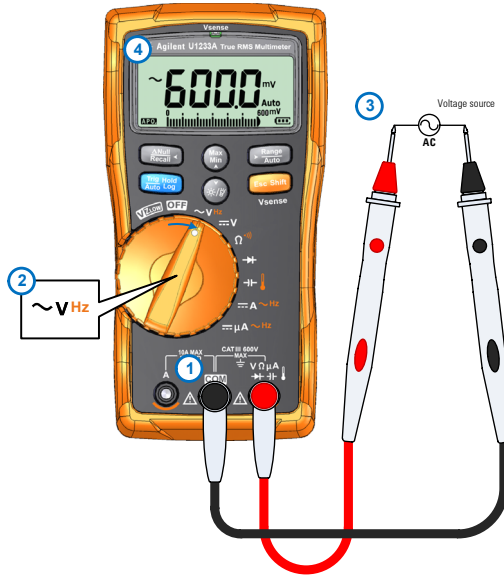
WARNING **Voltage could still be present even if there is no alert indication. Do not rely on the Vsense detector with shielded wire. Never touch live voltage or conductor without the necessary insulation protection.**

The Vsense detector may be affected by differences in socket design, insulation thickness, and insulation type.

NOTE Press Range Auto to change the Vsense detector's sensitivity from **Hi.SE** (high sensitivity) to **Lo.SE** (low sensitivity).

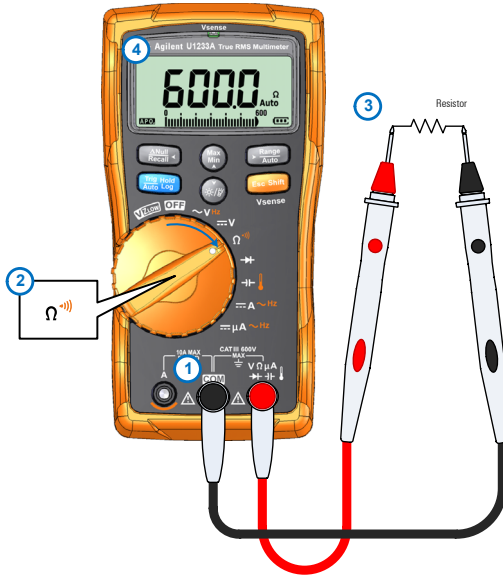
Performing Measurements

AC voltage measurements

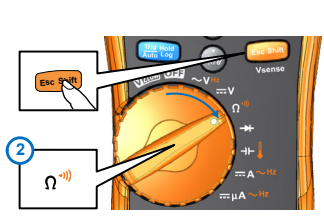


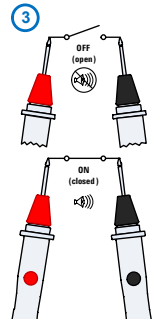
DC voltage measurement

Resistance measurement



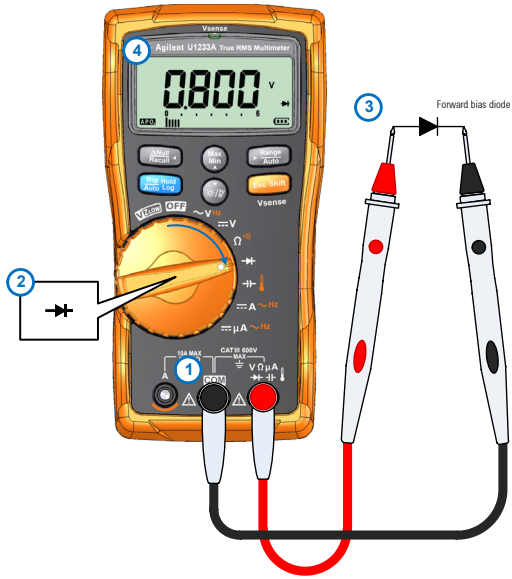
Continuity test



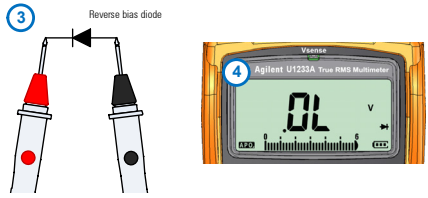


Press Esc Shift again to switch between testing for shorted (🔔) or open (🔔) contacts.

Forward bias diode test

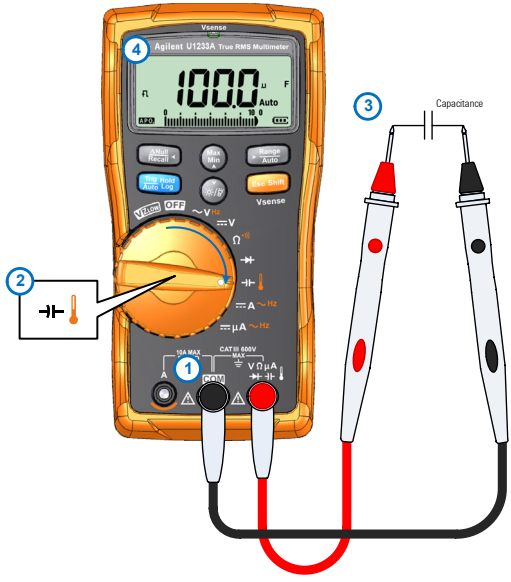


Reverse bias diode test



Capacitance measurement

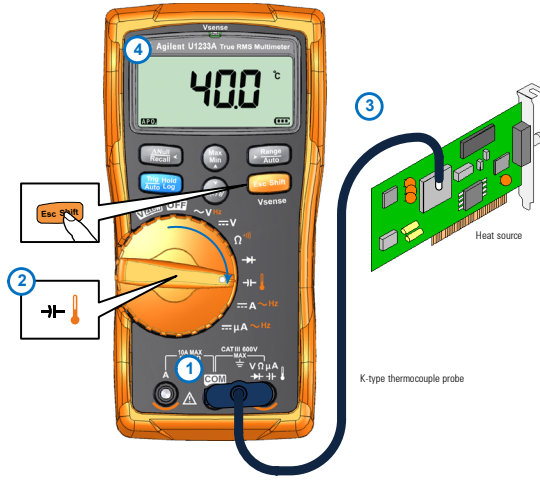
CAUTION To avoid possible damage to the multimeter or to the equipment under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance. Use the DC V function to confirm that the capacitor is fully discharged.



NOTE ⎍ is shown on the bottom left of the display when the capacitor is charging, and ⎎ is shown when the capacitor is discharging.

Temperature measurement

WARNING **Do not connect the thermocouple to electrically live circuits. Doing so will potentially cause fire or electric shock.**

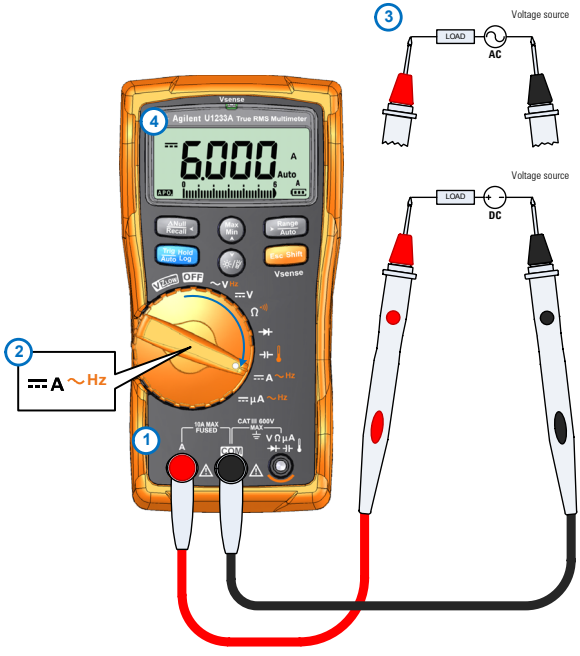


NOTE

- The multimeter uses a type-K thermocouple probe (U1186A, purchased separately) for measuring temperature.
- For auxiliary temperature measurement on the U1231A and U1232A, a temperature module such as the U1586B (purchased separately) is required.

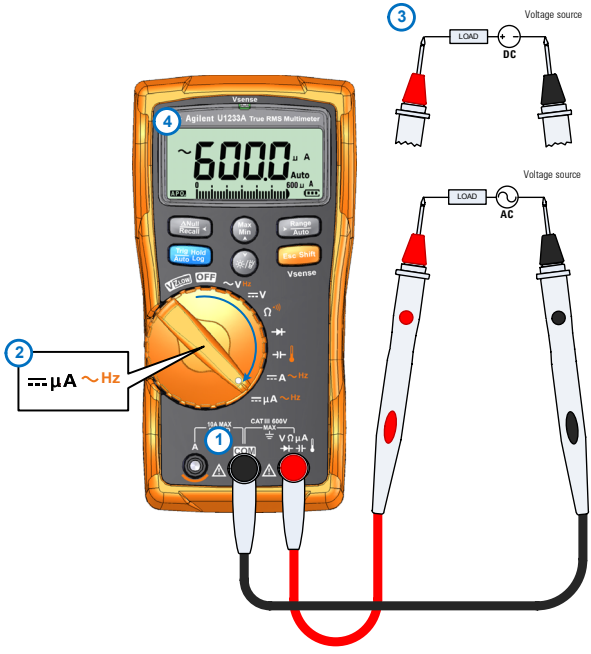
Current measurement (up to A)

WARNING **Always use the proper function. range, and terminals for current measurements. Set the positive input terminal to the A terminal for currents above 600 μA.**

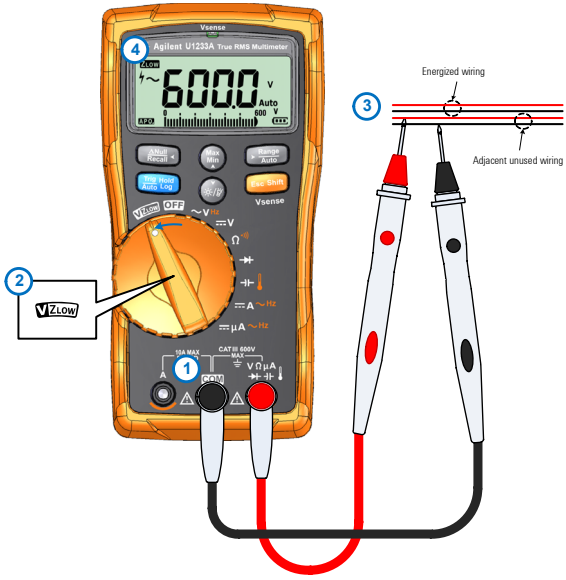


Current measurement (up to μA)

WARNING **Always use the proper function. range, and terminals for current measurements. Set the positive input terminal to the μA terminal for currents below 600 μA.**



VZ_{LOW} measurement



NOTE Ghost voltages can be caused by capacitive coupling between energized wiring and adjacent unused wiring. Use the VZ_{LOW} function to eliminate ghost or induced voltages in your measurements.

Contacting Agilent

To obtain service, warranty or technical assistance, contact us at the following phone numbers:

- United States Call Center: 800-829-4444
- Canada Call Center: 877-894-4414
- China Call Center: 800-810-0189
- Europe Call Center: 31-20-547-2111
- Japan Call Center: (81) 426-56-7832

For other countries, contact your country's Agilent support organization. A list of contact information for other countries is available on the Agilent Web site: www.agilent.com/find/assist

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 Information

This meter is safety-certified in compliance with EN 61010-1 (IEC 61010-1:2001) for CAT-III 600 V, Pollution Degree II Environment. EMC designed in compliance with EN61326-1. Use with standard or compatible test probes.

Safety Symbols

	Earth (ground) terminal
	Equipment protected throughout by double insulation or reinforced insulation
	Caution, risk of electric shock
	Caution, risk of danger (refer to the instrument manual for specific Warning or Caution information)
CAT III 600 V	Category III 600 V overvoltage protection

For further safety information details, refer to the
Agilent U1231A/U1232A/U1233A Handheld Multimeter User's Guide.

Printed in Malaysia

U1231-90024

Second Edition, December 31, 2013
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