

# Keysight Technologies Handheld Test Tools



# Introduction

## Retool Your Expectations

For more than 70 years, Keysight Technologies, Inc. has been creating innovative measurement solutions. In recent years, we've been applying our tradition of innovation to handheld tools for electrical and electronics testing. Today, these tools are ready for the real-world conditions you face every day—and many offer unique functions such as:

- Clear readouts from a high contrast OLED display
- Continuity checks with audible and flashing alerts
- Low-light troubleshooting with a built-in flashlight

We're always looking for ways to simplify your day-to-day work. As we continue to develop innovative handhelds, you may start to feel like we do: It's a good time to retool your expectations.



## Keysight Remote Link Solution

Measure further, easier and faster. By simply attaching the U1177A/U1117A IR-to-Bluetooth® adapter to the IR port of an Keysight handheld meter, you'll get instant wireless Bluetooth connection setup. The new U1117A IR-to-Bluetooth adapter and U1115A remote logging display allow you to safely measure, view and log test measurements with an extended range of up to 100 meters. What's more, you can now log and monitor data on more display devices such as the U1115A remote logging display, iOS/Android smart devices or on a Windows PC.

### Features

- Extended measurement distance of up to 100 meters
- View readings of up to four handheld meters simultaneously
- Compatible across all existing Keysight U1200 series handheld meters
- 60,000 points interval logging\*
- Download logged data to a PC via Bluetooth connection\*
- Micro USB external power port\*
- Indoor and outdoor viewing modes\*

\* U1115A



For the U1177A IR-to-Bluetooth Adapter



## THERMAL IMAGER



NEW

### The Keysight U5855A TrueIR Thermal Imager

See more with your U5855A TrueIR thermal imager. Get four times more detail with 320x240 Fine Resolution, from 160x120 pixels detector. And with 4x digital zoom capability, the U5855A can magnify the thermal image of a far-away object to quickly spot problems and reveal even finer details. Now you are able to carry out more in-camera measurements and analysis with the in-camera monitoring capability for quality or diagnostic checks with good 0.07 °C sensitivity. What's more, the TrueIR thermal imager was designed with ergonomics in mind, so you can take more images without straining your hands.

#### Features

- Four times more pixels with Fine Resolution capability
- View finer object details with 4x digital zoom
- Quick access buttons to easily change settings or functions
- Long product warranty – three years
- Ergonomically designed with evenly distributed weight
- In-camera monitoring for temperature trending
- Ability to focus on objects, as close as 10 cm away

## INSULATION RESISTANCE TESTER



NEW

### The Keysight U1450A/60A Series Insulation Resistance Tester

Accomplish more in a day's work with the Keysight U1450A/U1460A series insulation resistance testers. By adding *Bluetooth* connectivity to these handhelds, you are able to perform tests remotely using a Windows PC or on iOS/ Android smart devices. Also, get test reports generated automatically with the insulation resistance testers' complimentary reporting software. All five models are certified to IP 67 and tested to withstand drops of up to three meters (10 feet), letting you carry out tests with full confidence even in harsh working conditions. What's more, you can perform various measurements with the built-in digital multimeter and adjust test voltages from 10 V to 1.1 kV with 1 V step on selected models to test unique applications.

#### Features

- Wireless insulation resistance testing via PC and smart phone/tablet applications
- Automatic test report generation
- 50 V / 100 V / 250 V / 500 V / 1000 V test voltages
- Measure up to 260 GΩ
- Timed / PI / DAR test
- Adjustable test output voltage from 10 V to 1.1 kV<sup>1</sup>
- 4.5 digit DMM with OLED display, basic<sup>2</sup> and full featured<sup>3</sup>
- IP 67 certified, three meter (10 feet) drop proof
- CAT III 1000 V / CAT IV 600 V

1. U1453A/U1461A
2. U1453A
3. U1461A



CAT III 1000 V  
CAT IV 600 V

# HANDHELD DIGITAL MULTIMETER

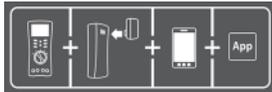


## The U1230 Series handheld digital multimeters

Whether it's dark, noisy or even dangerous, the U1230 Series handheld digital multimeters keep you equipped with features that anticipate worst-case scenarios. The ergonomic shaped handheld allows you to single-handedly illuminate the test area with a built-in flashlight while making measurements. You can select measurement function using the easily accessible rotary dial. Vsense performs non-contact voltage detection while continuity detection is made easy with the audible beeper alert and flashing backlight display. With the U1230 Series, you work better in the conditions you are in.

### Features

- Built-in LED torchlight to illuminate test area
- Flashing backlight as additional visual alert during continuity tests in noisy areas
- Vsense to perform non-contact voltage detection (only in U1233A)
- Data logging capability (stores up to 10 readings)
- IR-to-USB connectivity to transfer data to PC for record
- *Bluetooth* wireless connectivity (optional U1177A Infrared (IR)-to-*Bluetooth* Adapter required)



## The Keysight U1240 Series digital multimeters

Installation and maintenance of machinery, electrical systems and more often require numerous quick checks and fixes, sometimes under hazardous conditions. Whether you need to quickly inspect power supplies for harmonics, detect glitches in switch systems or monitor differential temperature, the U1240 Series of handheld digital multimeters (DMMs) is up to the task. With all you need in one portable instrument, you can travel light and finish the day's work with ease. Plus, you'll be glad to know it's easy to own one, even with the DMM's rich capabilities.

### Features

- Low micro-amp and high Mega-ohm ranges
- Switch/Relay counter for glitch detection
- Harmonic ratio measurement in AC supplies
- Dual and differential temperature measurements
- Data logging to instrument on the go
- Includes additional 4-mm tip probes and Certification of Calibration
- *Bluetooth* wireless connectivity (optional U1177A Infrared (IR)-to-*Bluetooth* Adapter required)



# HANDHELD DIGITAL MULTIMETER (continued)



A testament to innovation and credibility, 2006



Best Value Portable Test Equipment, 2006



General-purpose instruments category, 2009



Category Winner, EC&M Product of the Year competition, 2009



CAT III 1000 V  
CAT IV 600 V

## The Keysight U1250 Series digital multimeters

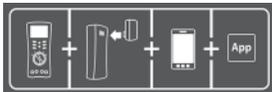
The process of isolating faults is always unpredictable—so it's good to be equipped with a versatile DMM that simplifies analysis, accelerates glitch detection and makes it easier to probe hard-to-reach points. Optimize electronics troubleshooting with the accuracy, capabilities, and accessories you need to get started in no time.

### Features

- High contrast ratio of 2000:1 and wide viewing angle of 160° \*
- 50,000 counts high resolution and up to 0.025% low error rate
- Built-in square-wave generator and frequency counter
- Includes all essential accessories for electronics troubleshooting
- Smoothing function to stabilize erratic readings\*
- Includes additional 4-mm tip probes and Certification of Calibration
- Data logging to instrument and PC
- **Bluetooth** wireless connectivity (optional U1177A Infrared (IR)-to-Bluetooth Adapter required)

\* with U1253B

Imagine razor-sharp readings with the U1253B OLED handheld DMM



CAT III 1000 V  
CAT IV 600 V

## The Keysight U1270 Series handheld digital multimeters

The U1273AX, the latest addition to the U1270 Series is capable of operating down to -40 °C in temperature. Even in extremely cold conditions, the U1273AX handheld DMM delivers immediate and accurate results—no warm-up time required. All models are ergonomically-built providing useful functions such as  $Z_{Low}$ , which eliminates stray voltages, and Smart Ohm that minimizes false readings from residual voltage induced by leakage current. All of this is designed into a case that fulfills the needs of today's industrial handheld users.

### Features

- OLED display with 2000:1 contrast ratio and 160 degree viewing angle<sup>1,2</sup>
- 30,000 counts resolution
- Measure up to 1000 V AC/ DC and 10 A (20 A for 30 s)
- Resistance, diode test, temperature, capacitance
- Low Impedance mode<sup>1,2,3</sup> and Low Pass Filter
- -40 to 55 °C operating temperature<sup>2</sup>
- Data logging to instrument and PC
- Water and dust resistance (IP 54)
- CAT III 1000 V / CAT IV 600 V safety rating
- **Bluetooth** wireless connectivity (optional U1177A/U1117A Infrared (IR)-to-Bluetooth Adapter required)

1. U1273A
2. U1273AX
3. U1272A

## HANDHELD CLAMP METERS



CAT III 600 V  
CAT IV 300 V

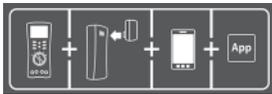
### The Keysight U1190 Series handheld clamp meters

Keysight's U1190 Series clamp meters are packed with a wealth of features to help you work more efficiently and more safely. Housed in robust cases, each model comes with an innovative wire separator that helps you isolate and measure individual wires in a bundle. The built-in LED flashlight illuminates your test area and Vsense performs non-contact voltage detection. The clamp meters are also CAT III 600 V and CAT IV 300 V rated to cover wider measurement categories.

#### Features

- Unique wire separator to separate wires in a bundle
- Vsense<sup>1</sup> performs non-contact voltage detection
- Built-in LED flashlight<sup>1</sup> to illuminate test area
- Visual (backlight alert) and audible continuity indication in noisy environments
- Current measurement up to 600 A<sup>2</sup>
- Digital multimeter (DMM) with Resistance, Capacitance<sup>1</sup>, Continuity, Diode test, DCV, ACV, DCA<sup>3</sup>, ACA, DCμA<sup>3</sup> and ACμA<sup>3</sup> measurement capabilities
- CAT III 600 V / CAT IV 300 V safety rating

1. U1192A, U1193A, U1194A only
2. U1193A and U1194A only
3. U1194A only



CAT III 1000 V  
CAT IV 600 V

### The Keysight U1210 Series handheld clamp meters

Measurements of electrical distribution cables can be challenging and risky. For cables up to two inches in diameter, the **Keysight U1210 Series handheld clamp meters** enable high-current measurements without breaking the circuit. Unlike most clamp meters, they also include DMM capabilities—resistance, capacitance, frequency and temperature—to simplify troubleshooting during installation and maintenance. Best of all, they provide an extra layer of protection with CAT IV 600 V and CAT III 1000 V safety ratings.

#### Features

- Large clamp opening of 52 mm or 2 inches
- High measurement capability of up to 1000 A for AC, DC or AC+DC
- CAT III 1000 V/CAT IV 600 V safety rating
- Includes full-featured DMM with resistance, capacitance, frequency and temperature functions
- *Bluetooth* wireless connectivity (optional U1177A/U1117A Infrared (IR)-to-*Bluetooth* Adapter required)

## HANDHELD MULTI-FUNCTION CALIBRATOR/METER



### The Keysight U1401B multi-function calibrator/meter

More often than not, the calibration of process control parts requires simultaneous measurements with a DMM. Carry two tools in one—and calibrate while you measure—with the Keysight U1401B handheld multi-function calibrator/meter. Now you can travel light, whether you're doing calibration for validation, troubleshooting, or service and maintenance. Slip the robust U1401B in its sturdy carrying case and you're ready to go.

#### Features

- Simultaneous source and measure capabilities
- Bipolar voltage and current, square-wave, auto scan and ramp outputs
- Full-span DMM measurement and recording functions

## HANDHELD DIGITAL OSCILLOSCOPES



No. 1 Product of the Year  
as voted by readers—2006

### The Keysight U1600 Series digital oscilloscopes

A scope with a color waveform display. A DMM for basic measurements. A data logger to record DMM readings to a PC. All three capabilities are in one instrument—the U1600 Series of handheld digital oscilloscopes. Designed to address the portability needs of various installation and maintenance applications, these scopes enable clear waveform viewing, easy waveform analysis and quick isolation of signal glitches. With high-performance features loaded into one robust package, mobile troubleshooting is a breeze.

#### Features

- Built-in DMM and data logger
- Large 4.5-inch color display
- 200 MSa/s high sampling rate and deep memory
- Built-in Quick Help, available in multiple languages
- Data logging to instrument and PC
- Convenient data download to USB flash drive\*

\* with Option 001

### The NEW Keysight U1610A/U1620A digital oscilloscope



World's first VGA display handheld oscilloscope with  
two isolated channels

The U1610A/U1620A is the world's first handheld oscilloscope with a VGA display. This 100/200 MHz handheld oscilloscope offers a floating measurement capability with two CAT III 600 V isolated channels. With up to 2 GSa/s sampling rate and 2 Mpts memory depth, it captures more waveforms from signals such as pulse width modulated circuit, in-rush, transient, and motor start up sequences. Engineered with a benchtop-like display and dual window zoom function, it easily identifies problem areas and zoom in for more detailed analysis. With these, you can now view signals in detail and detect glitches easily.

#### Features

- 100/200 MHz bandwidth with isolated channels
- 5.7-inch VGA TFT LCD display with 3 selectable viewing modes (indoor, outdoor and night vision)
- Up to 2 Mpts memory depth and 2 GSa/s sampling rate
- 10,000-count resolution on DMM display
- Channel-to-channel isolation with CAT III 600 V safety ratings
- Data logging capability and USB connectivity
- Convenient data/screen image download via USB thumb drive
- Up to 10 selectable languages on the User Interface (UI)

## HANDHELD CAPACITANCE AND LCR METERS



### The Keysight U1700 Series capacitance/LCR meters

The U1730C Series handheld LCR meters now extends the measurement frequencies up to 100 kHz—a capability which is typically found only in benchtop meters. The meters offer auto identification, *Ai* capability which conveniently displays component type. You can also get measurements done faster and more efficiently with more detailed component analysis functions such as Z, ESR and DCR.

#### Features

- 20,000 counts resolution
- 0.2% basic accuracy
- Wide LCR ranges with 3 to 5 selectable test frequencies (Up to 100 kHz for U1733C)
- Auto identification (*Ai*) which automatically determines and displays component type and measurements
- Detailed component analysis with DCR, ESR, Z, D, Q,  $\theta$  functions
- Battery life of 16 hours/AC-powered
- IR-to-USB connectivity for data logging to PC

Product	Model number	Description
Thermal imager	U5855A	thermal imager
Insulation resistance tester	U1451A	Insulation resistance tester, 250 V to 1 kV
	U1452A	Insulation resistance tester, 50 V to 1 kV
	U1452AT	Telecommunications insulation resistance tester, 50 V to 100 V
	U1453A	Insulation resistance tester, OLED display, 50 V to 1 kV
	U1461A	Insulation multimeter, OLED display, 50 V to 1 kV
Digital multimeters	U1231A	Basic True RMS 6,000 count handheld DMM
	U1232A	True RMS 6,000 count handheld DMM
	U1233A	True RMS 6,000 count handheld DMM with non-contact voltage detector
	U1241B	True RMS 10,000 count handheld DMM
	U1242B	True RMS 10,000 count handheld DMM with data logging
	U1251B	50,000 count handheld DMM
	U1252B	50,000 count handheld DMM with frequency counter, logic output and data logging
	U1253B	50,000 count handheld DMM with OLED display
	U1271A	True RMS 30,000 count handheld DMM
	U1272A	True RMS 30,000 count handheld DMM with low impedance mode
	U1273A	True RMS 30,000 count handheld DMM with OLED display
	U1273AX	True RMS 30,000 count handheld DMM with OLED display, -40 to 55 °C operating temperature
	Clamp meters	U1191A
U1192A		Average responding 400 A handheld clamp meter with capacitance measurement
U1193A		True RMS 600 A handheld clamp meter
U1194A		True RMS 600 A handheld clamp meter with AC/DC $\mu$ A current measurement
U1211A		True RMS 1,000 A handheld clamp meter
U1212A		True RMS 1,000 A handheld clamp meter with DC current measurement
U1213A		True RMS AC+DC 1,000 A handheld clamp meter with DC current measurement
Oscilloscopes	U1602B	20 MHz handheld digital oscilloscope
	U1604B	40 MHz handheld digital oscilloscope
	U1610A	100 MHz handheld digital oscilloscope
	U1620A	200 MHz handheld digital oscilloscope
LCR meters	U1701B	11,000 count dual display handheld capacitance meter
	U1731C	20,000 count dual display handheld LCR meter, 100 Hz/120 Hz/1 kHz
	U1732C	20,000 count dual display handheld LCR meter, 100 Hz/120 Hz/1 kHz/10 kHz
	U1733C	20,000 count dual display handheld LCR meter, 100 Hz/120 Hz/1 kHz/10 kHz/100 kHz
Calibrator/meter	U1401B	Handheld multi-function calibrator/meter
Remote link solution	U1177A	Infrared (IR)-to-Bluetooth Class 2 (10-meter) adapter
	U1117A	Infrared (IR)-to-Bluetooth Class 1 (100-meter) adapter
	U1115A	Remote logging display

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