

Key Features

Check more, fix more

- 10,000-count display
- 0.09% basic DCV accuracy
- True RMS AC measurement
- Basic functions ACV, DCV, ACI, DCI, resistance, frequency, diode, continuity tests
- Advanced functions Capacitance, temperature, MINMAX recording

Ease of use

- Adjustable backlighting - 2 intensity levels
- Manual data logging (U1242A/U1242B only)
- Built-in switch counter, harmonic ratio (U1242A/U1242B only), dual/differential temperature capabilities (U1242A/U1242B only)

Built to last

- · Overmold body casing
- CAT III 1000 V and CAT IV 600 V safety protection
- Certified to CE and CSA standards
- Operating temperature: -10 °C to 55 °C

Agilent U1240 Series Handheld Digital Multimeters

Data Sheet

Helping You Check and Fix More Installation and **Maintenance Bugs**

The Agilent U1240 Series handheld digital multimeters enable you to check more with wider measurement ranges. They feature true RMS readings on their 10,000-count displays. The adjustable backlighting allows you to complete your jobs even in subdued lighting conditions, or to simply prolong battery life. Your maintenance tasks are greatly simplified due to the built-in switch counter, harmonic ratio, dual and differential temperature capabilities, with just a press of the button. The meters have a high safety rating with CAT III 1000 V and CAT IV 600 V protection and are certified to CE and CSA standards. On top of that, the U1240 Series comes with a certificate of calibration and test report at no extra cost.

The latest multimeters in this series: the U1241B and U1242B, now come in vivid orange cases, offering capabilities and functions equivalent to the U1240A Series.

Functions and ranges at a glance





DC SPECIFICATIONS

FUNCTION	RANGE	RESOLUTION	TEST CURRENT/	ACCURACY \pm (% of Reading + No. of Least Significant Digit)	
			BURDEN VOLTAGE	U1241A/U1241B	U1242A/U1242B
	1000.0 mV	0.1 mV	-	0.09% + 5	
	10.000 V	0.001 V	-	0.09% + 2	
VULIAGE	100.00 V	0.01 V	-		
	1000.0 V	0.1 V	-	0.1	5% + 5
CURRENT	1000.0 μA	0.1 µA	< 0.06 V (50 Ω)	0.	% + 3
	10000 µA	1 μA	< 0.55 V (50 Ω)	0.1% + 3	
	100.00 mA	0.01 mA	< 0.18 V (0.5 Ω)	0.2% + 3	
	440.0 mA ^[2]	0.1 mA	< 0.8 V (0.5 Ω)	0.5% + 3	
	10.000 A ^[3]	0.001 A	< 0.4 V (0.01 Ω)	0.6% + 5	
	1000.0 Ω ^[5]	0.1 Ω	0.5 mA	0.3% + 3	
	10.000 kΩ ^[5]	0.001 kΩ	50 µA		
	100.00 kΩ	0.01 kΩ	4.91 μA		
RESISTANCE ¹¹	1000.0 kΩ	0.1 kΩ	447 nA		
	10.000 MΩ	0.001 MΩ	112 nA	0.8% + 3	
	100.00 MΩ ^[6]	0.01 MΩ	112 nA	1.5% + 3	
DIODE TEST ^[7]	1 V	0.001 V	approximately 0.5 mA	0.3	3% + 2

AC SPECIFICATIONS

FUNCTION	RANGE	RESOLUTION	ESOLUTION TEST CURRENT/		ACCURACY \pm (% of Reading + No. of Least Significant Digit)		
			BURDEN VOLTAGE	40 Hz to 500 Hz	500 Hz to 1 kHz	1 kHz to 2 kHz	
AC VOLTAGE ^{[8][12]} TRUE RMS	1000.0 mV	0.1 mV	-	1% + 5	2% + 5	-	
	10.000 V	0.001 V	-		1% + 5	00/	
	100.00 V	0.01 V	-			270 + 5	
	1000.0 V	0.1 V	-			-	
AC Current ^{[9][12]} TRUE RMS	1000.0 μA	0.1 μA	< 0.06 V (50 Ω)		1.5% + 5		
	10000 µA	1 μΑ	< 0.55 V (50 Ω)				
	100.00 mA	0.01 mA	< 0.18 V (0.5 Ω)	1% + 5		-	
	440.0 mA ^[10]	0.1 mA	< 0.8 V (0.5 Ω)				
	10.000 A ^[11]	0.001 A	< 0.4 V (0.01 Ω)				

[1] Input impedance: 10 M Ω (nominal).

- [2] Current can be measured up to 440 mA continuously. An additional 0.2% needs to be added to the specified accuracy if the signal measured is in the range of 440 mA to 1100 mA for 30 seconds maximum. After measuring a current of > 440 mA, leave the meter to cool down for twice the measuring time used before applying a low current measurement.
- [3] Current can be measured up to 10 A continuously with a maximum operating temperature of 50 °C. An additional 0.3% needs to be added to the specified accuracy if the signal measured is in the range of 10 A to 19.999 A for 15 seconds maximum. After measuring a current of > 10 A, leave the meter to cool down for 60 seconds before applying a low current measurement.
- [4] The maximum open voltage is < 2.8 V. For instant continuity, the built-in buzzer sounds when resistance is $< 10.0 \Omega$.
- [5] The accuracy of 1 k Ω and 10 k Ω is specified after Null function, which is used to substrate the test lead resistance and the thermal effect.
- [6] For the range of 100 M Ω , the R.H. is specified for < 60%. The temperature coefficient will be 0.15 times of specified accuracy as > 50 M Ω .
- [7] Overload protection: 1000 V RMS for circuits < 0.3 A short circuit current. The built-in buzzer sounds when reading is approximately below 50 mV and audible single tone for normal forward biased diode or semiconductor junction as 0.3 V ≤ Reading ≤ 0.8 V.
- [8] Input impedance: 10 M Ω (nominal) in parallel with <100 pF, with overload protection of 1000 V RMS
- [9] Crest factor ≤ 3. For non-sinusoidal waveforms with crest factor up to 3, add 2% reading + 2% full scale typical.
- [10] Current can be measured from 50 mA to 440 mA continuously. An additional 0.2% needs to be added to the specified accuracy if the signal measured is in the range of 440 mA to 1100 mA for 30 seconds maximum. After measuring a current of > 440 mA, leave the meter to cool down for twice the measuring time used before application of low current measurement.
- [11] Current can be measured from 0.5 A up to 10 A continuously with a maximum operating temperature of 50 °C. An additional 0.3% needs to be added to the specified accuracy if the signal measured is in the range of 10 A to 19.999 A for 15 seconds maximum. After measuring a current of >10 A, leave the meter to cool down for 60 seconds before applying a low current measurement.
- [12] AC voltage and AC current specifications are AC coupled. True R.M.S. Measurement is valid from 5 % of range to 100 % of range.

TEMPERATURE SPECIFICATIONS

THERMOCOUPLE TYPE	RANGE	RESOLUTION	ACCURACY ± (% of Reading + Offset Error)
K (for U1241A, U1241B,	-40 to 1000 °C/	0.1 °C/	1% + 1 °C/
U1242A and U1242B)	-48 to 1832 °F	0.1 °F	1% + 1.8 °F
J (for U1242A and	-40 to 1000 °C/	0.1 °C/	1% + 1 °C/
U1242B only)	-48 to 1832 °F	0.1 °F	1% + 1.8 °F

CAPACITANCE SPECIFICATIONS

RANGE	RESOLUTION	ACCURACY \pm (% of Reading + No. of Least Significant Digit)	
1000.0 nF	0.1 nF		
10.000 µF	0.001 µF	1.2% + 4	
100.00 µF	0.01 µF		
1000.0 μF	0.1 µF	- 2% + 4	
10.000 mF	0.001 mF		

HARMONIC RATIO SPECIFICATIONS

RANGE	FREQUENCY	VOLTAGE
0.0% to 99.9%	40 Hz to 500 Hz	100 mVAC to 1000 VAC

SWITCH COUNTER DEFINITION

SWITCH CONDITION ^{[1[2]}	CIRCUIT SWITCH	DISPLAY ^[3]	SWITCH THRESHOLD
Low Level	Normally Close	Lo	< 370 Ohms
Intermittent ^[4]	Close to Open	Number of switch count	Low to high transition
High Level	Normally Open	Hi	> 430 Ohms
Intermittent ^[5]	Open to Close	Number of switch count	High to low transition

[1] Detects intermittent Opens or Closes lasting for at least 250 µsec.

[2] Test current of 0.5 mA with maximum open circuit voltage of 2.8 V is used.

[3] Maximum count reading: 199.99 M (display "OL" when achieving 2 x 10⁸ and thereafter).

[4] Count only low to high transition for initial switch condition of Low.

[5] Count only high to low transition for initial switch condition of High.

FREQUENCY SPECIFICATIONS

RANGE	RESOLUTION	ACCURACY	MINIMUM INPUT FREQUENCY
100.00 Hz	0.01 Hz		
1000.0 Hz	0.1 Hz		
10.000 kHz	0.001 kHz	0.03%+3	1 Hz
100.00 kHz	0.01 kHz		
1000.0 kHz ^[1]	0.1 kHz		

[1] Effective frequency measurement of up to 200 kH; refer to frequency sensitivity table below for details.

FREQUENCY SENSITIVITY DURING VOLTAGE MEASUREMENT

INPUT RANGE	MINIMUM SENSITIVITY (RMS Sine Wave)		
(Maximum input for specified accuracy = 10 x Range or 1000 V)	20 Hz - 50 kHz	50 kHz to 200 kHz	
1000.0 mV	0.3 V	0.6 V	
10.000 V	0.5 V	1.8 V	
100.00 V	5 V	10 V (<100 kHz)	
1000.0 V	50 V	100 V (<100 kHz)	

FREQUENCY SENSITIVITY DURING CURRENT MEASUREMENT

INPUT RANGE	MINIMUM SENSITIVITY (RMS Sine Wave) 20 Hz to 20 kHz
1000.0 μA	100 µA
10000 μA	500 µA
100.00 mA	10 mA
440.00 mA	50 mA
10.000 A	1 A

MEASURING RATE

FUNCTION	TIMES/SECOND
ACV	7
DCV (V or mV)	7
Ω	14
Diode	14
Capacitance	4 (< 100 μF)
DCA (µA, mA, A)	7
ACA (µA, mA, A)	7
Temperature	7 (single)
Frequency	1 (> 10 Hz)

GENERAL SPECIFICATIONS

DISPLAY
Dual display (secondary display is intended for temperature function display only) consists of 4-digit liquid crystal display (LCD) with maximum reading of 11,000 counts. Automatic polarity indication.
POWER CONSUMPTION
0.22 VA maximum
BATTERY TYPE AND LIFE
4 single standard 1.5 V AAA batteries (Alkaline or Zinc Chloride type); 300 hours typical
OPERATING ENVIRONMENT
 Full accuracy at -10 °C to 55 °C; and to 80% RH for temperatures up to 30 °C, decreasing linearly to 50% RH at 55 °C 0 - 2000 meters per IEC 61010-1 2nd Edition CAT III, 1000 V / CAT IV, 600 V IEC 61010-1 2nd Edition
STORAGE COMPLIANCE
-20 °C to 70 °C
SAFETY COMPLIANCE • IEC 61010-1:2001 / EN61010-1:2001 • Canada: CSA C22.2 No. 61010-1:2004
MEASUREMENT CATEGORY CAT III 1000 V / CAT IV 600 V Overvoltage Protection, Pollution Degree 2
EMC COMPLIANCE • CISPR 11:1990/EN55011:1990 • Canada: ICES-001:2004 • Australia/New Zealand: AS/NZS CISPR11:2004
COMMON MODE REJECTION RATIO (CMRR) > 90 dB at DC, 50/60 Hz \pm 0.1% (1 k Ω unbalanced)
NORMAL MODE REJECTION RATIO (NMRR) > 60 dB at 50/60 Hz ± 0.1%
CREST FACTOR < 3.0
TEMPERATURE COEFFICIENT 0.1 × (specified accuracy) / °C (from -10 °C to 18 °C or 28 °C to 55 °C)
SHOCK and VIBRATION Tested to IEC/EN 60068-2
DIMENSIONS (HxWxD) 193.8 mm x 92.2 mm x 58.0 mm
WEIGHT 450 g with batteries 400 g without batteries
WARRANTY 3 years for main unit 3 months for standard shipped accessories

ORDERING INFORMATION



U1241A

U1241B

OPTIONAL ACCESSORIES

MEASURING ACCESSORIES (NON-TEMPERATURE)



U1160A Standard test lead kit

Includes two test leads (red and black), alligator clips, fine-tip test probes, SMT grabbers and mini grabber (black).

- Test leads: CAT III 1000 V, 15 A
- · Alligator clips: CAT III 1000 V, 10 A
- Fine-tip test probes: CAT II 300 V, 3 A
- SMT grabbers: CAT II 300 V, 3 A
- Mini grabber: CAT II 300 V, 3 A



U1163A SMT grabbers

- · One pair of SMT grabbers (red and black). Recommended for use with Agilent standard test leads.
- Rated CAT II 300 V, 3 A.



U1168A Standard test lead kit

Includes two test leads (red and black), 19-mm and 4-mm test probes, alligator clips, fine-tip test probes, SMT grabbers and mini grabber (black).

- Test leads: CAT III 1000 V, CAT IV 600 V, 15 A
- · Test probes (19-mm tip): CAT III 1000 V, CAT IV 600 V, 15 A
- Test probes (4-mm tip): CAT III 1000 V, CAT IV 600 V, 15 A (highly recommended for CAT IV environment)
- Alligator clips: CAT III 1000 V, 10 A
- Fine-tip test probes: CAT II 300 V, 3 A
- SMT grabber: CAT II 300 V, 3 A
- Mini grabber: CAT II 300 V, 3 A



U1161A Extended test lead kit

Includes two test leads (red and black), two test probes, medium-sized alligator clips and 4-mm banana plugs.

- Test leads: CAT III 1000 V. CAT IV 600 V. 15 A
- Test probes: CAT III 1000 V, 15 A
- Medium-sized alligator clips: CAT III 600 V, 10 A
- 4-mm banana plugs: CAT II 600 V, 10 A



U1162A Alligator clips

- One pair of insulated alligator clips (red and black). Recommended for use with Agilent standard test leads.
- · Rated CAT III 1000 V, 10 A.



U1164A Fine-tip test probes

- · One pair of fine-tip test probes (red and black). Recommended for use with Agilent standard test leads.
- · Rated CAT II 300 V, 3 A.



U1165A Test probe leads Rated CAT III 1000 V, 15 A



U1169A Test probe leads

Includes two test leads (red and black), and a pair each of 19-mm and 4-mm test probes.

- Test leads: CAT III 1000 V, CAT IV 600 V, 15 A
- · Test probes (19-mm tip): CAT III 1000 V, CAT IV 600 V. 15 A
- · Test probes (4-mm tip): CAT III 1000 V, CAT
- IV 600 V, 15 A (highly recommended for CAT IV environment)



U1583B AC current clamp

- · Dual range: 40 A and 400 A
- Rated CAT III 600 V
- BNC-to-banana-plug adapter provided for use with DMMs

STANDARD SHIPPED ITEMS

- Four 1.5 V AAA Alkaline Batteries
- Certificate of Calibration (CoC)
- Test Probe Leads (19-mm and 4-mm tips) •
- . Quick Start Guide

MEASURING ACCESSORIES (TEMPERATURE)



U1180A Thermocouple adapter+lead kit, J and K types

Includes thermocouple adapter, thermocouple bead J-type and thermocouple bead K-type.

- T/C adapter J/K-type
- T/C bead J-type: -20 °C to 200 °C
- T/C bead K-type: -20 °C to 200 °C



U1181A Immersion temperature probe

- Type-K T/C for use in oil and other liquids
- Measurement range: -50 °C to 700 °C
- Includes adapter U1184A for connection to DMM



U1182A Industrial surface temperature probe

- Type-K T/C for use on still surfaces
- Measurement range: -50 °C to 400 °C
 Includes adapter U1184A for connection to DMM



U1183A Air temperature probe

- Type-K T/C for use in air and non-caustic gas
- Measurement range: -50 °C to 800 °C
- Includes adapter U1184A for connection to DMM



U1184A Temperature probe adapter

· Mini-connector-to-banana-plug adapter for use with DMM



U1185A J-type thermocouple and adapter

- T/C adapter J/K-type
- T/C bead J-type: -20 °C to 200 °C



U1186A K-type thermocouple and adapter

- T/C adapter J/K-type
- T/C bead J-type: -20 °C to 200 °C

CARRYING CASE



U1172A Transit case (aluminium-clad)

The robust casing to transport your DMM and accessories

- Aluminum-clad, black panel construction
- Dimension: 18" (H) x 13" (W) x 6" (D)
- Weight: 4 kg



U1174A Soft carrying case The convenient way to carry your DMM and essential accessories

• Dimension: 9" (H) x 5" (W) x 3" (D)

HANGING KIT



U1171A Magnetic hanging kit For fastening of DMM to a steel surface so both hands are free.

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Agilent U1177A IR-to-Bluetooth Adapter

Data Sheet

Features

- Enables Bluetooth[®] connection to Agilent handheld digital multimeters
- Easy to install by attaching to Infrared (IR) port located at the back of Agilent handheld digital multimeters
- Compatible with Agilent U1230 series, U1240 series, U1250 series and U1270 series handheld digital multimeters
- Operated by two 1.5 V AAA batteries

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Anticipate ____Accelerate ____Achieve

Agilent U1177A Infrared (IR)-to-Bluetooth[®] adapter offers wireless remote connectivity solution via Bluetooth[®] connection simply by attaching the adapter to the IR port of an Agilent handheld digital multimeter. The wireless remote connectivity is set up when an Agilent handheld digital multimeter is connected to U1177A and an Android device (tablet or smart phone) with the installed software. Every U1177A also has a unique Media Access Control (MAC) address. User can quickly and easily scan for the right U1177A using their Android device and pair up with the U1177A.



Figure 1. Agilent wireless remote connectivity solution



Agilent Technologies



Take a closer look



Figure 2. The U1177A as illustrated

Perform data logging with multimeters - wirelessly!



Figure 3. Data logging with Agilent Mobile Logger software.

Data logging is an important function for industrial users to capture data streams or plotting trending graphs. These data and graphs are used for analysis to identify intermittent behavior or detect drifts. Agilent Mobile Logger is the free Android application software that logs data and provides trending graphs from Agilent handheld digital multimeters. Agilent Mobile Logger offers an array of extended functions such as sending e-mail or Short Message Service (SMS) automatically, and pan and zoom function via the Android device's touch screen. Alternatively, data logging and monitoring activities can also be performed at the comfort of one's Personal Computer (PC) via a downloadable Agilent GUI data logger software.

Notes:

- Agilent Mobile Meter and Agilent Mobile Logger can be downloaded from www.agilent.com/ find/hh-Android or from Android Market (https://market.android.com/)
- 2. Agilent GUI Data Logger Software can be www.agilent.com/find/hh-logger

Figure 4. Up to three multimeters measurements with the Agilent Mobile Meter

Perform up to three multimeter measurements at the same time with Agilent Mobile Meter

Agilent Mobile Meter is a free Android application software that allows an Android device to connect, control and perform up to 3 multimeter measurements. Without the need to be physically present at various points, users can now extend their reach to two or three places. This solution allows you to make measurements from a safe distance, eliminates the need to walk back-and-forth between measure target and control points, and monitors multiple measurements simultaneously. Achieve higher work productivity when you use the U1177A with your Agilent handheld digital multimeters.



Figure 5. Make measurements with the Agilent Mobile Meter via an Android smart phone

Specifications

Product characteristics	Description
Radio specification	 Frequency: 2402 MHz ~ 2480 MHz Antenna Power: 1 mW or less Number of Channels: 79 Modulation: GFSK / PSK
Operating environment	Operating temperature from –20 to 55 °C
Storage environment	Storage temperature from -40 to 70 °C
Relative humidity (R.H.)	Relative humidity up to 95% at 40 °C (non-condensing)
Power consumption	Maximum 130 mVA for two 1.5 V AAA batteries
Battery life	30 hours typical (based on continuous data transfer)
Battery type	Alkaline 24 A (ANSI/NEDA) and LR03 (IEC), or Zinc Chloride 24 D (ANSI/NEDA) and R03 (IEC)
Dimension (W x H x L)	39.0 × 71.0 × 37.0 mm
Weight	60 g with batteries
Warranty	Three months
Bluetooth	" Bluetooth " Version 2.1 + EDR compliant, SPP profile, Class 2 device (with 10 metres connection range)
Safety	 The U1177A complies with the requirements of the following safety and regulation standards: FCC Part15C (Certification) (15.209, 15.247) FCC ID: ZKMAGILENT-U1177A FCC Part15B (DoC) (15.109) RSS-210 Issue 8:2010 IC: 6310A–U1177A ICES-003 Issue 4:2004 EN 300 328 V1.7.1:2008 EN 301 489–1V1.8.1:2008/–17 V2.11:2009 EN 55022:2006+A1:2007/EN55024:1998+A1:2001+A2:2003 EN 50371:2002 EN 60950–1:2006/A11:2009/A1:2010 Complies with IDA Standards (DB 102425) India Equipment Type Approval (ETA) Certificate No: 1424/2011/WRL0 COFETEL Certificate No: RCPAGU111-1066, registered under Agilent Technologies Mexico S de RL de CV

"This telecommunication equipment conforms NTC technical requirement"



Standard shipped items:

• Two 1.5 V AAA batteries

Operating instructions

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