U1250 Series Handheld Digital Multimeters

Test more – more safely

Introduction

The Keysight Technologies, Inc. U1250 Series handheld digital multimeters (DMMs) exceed your expectations by delivering powerful features and performance that meet your toughest requirements and applications. The series latest multimeters, the offering capabilities and functions you need.



KEYSIGHT

Key benefits

- Superior contrast from organic LED (OLED) display [1]
- 50,000-count dual display
- Up to 0.025% basic DCV accuracy
- True-RMS AC and AC+DC2 measurements
- K-type and J-type2 temperature measurements
- Manual and automated (interval) data logging; internally to DMM and externally to PC
- CAT III 1000 V and CAT IV 600 V safety protection
- Built-in 20-MHz frequency counter [2]
- Built-in programmable square-wave generator [2]

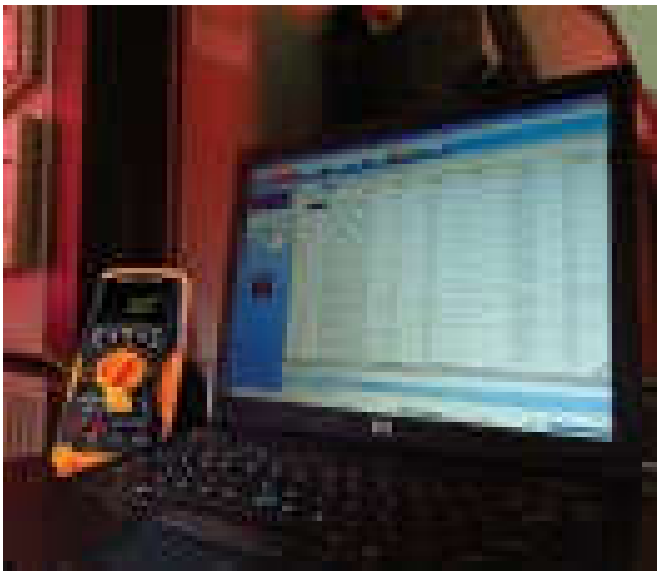


Figure 1. Automate recording of measurements with bundled GUI data-logging software.

1. U1253B model
2. U1252B/U1253B models

Do more with just one instrument

The basic model, U1251B, expands your capabilities beyond typical DMM measure-ments to include data logging. The U1252B starts with the same foundation, and then adds a 20-MHz frequency counter and programmable square-wave generator—so you'd be able to perform more tests conveniently with one tool. What's more: both models come bundled with a complete set of accessories to equip you right from the start at no extra cost.

Offering the same functionality as the U1252B, the U1253B is the world's first OLED handheld DMM. You won't have to squint to be sure you're reading it right: On the go or on the bench, you'll get crystal-clear viewing indoors, even in dark, off-angle situations.

Find problems quickly

Troubleshooting can be tricky, especially when you're dealing with elusive problems. With the U1250 Series'data logging capability, you can ensure that every reading gets recorded manually or at intervals you specify. Better yet: you can have virtually unlimited data logging saves when you connect any of the U1250 Series DMM to a PC with the optional IR-to-USB cable.

In addition, the U1250 Series lets you achieve greater confidence in your measurements with accurate true-RMS AC measurements, low DCV error rate of up to 0.025% and high-resolution display of 50,000 counts.

Uncompromising ruggedness and safety

The U1250 Series DMMs are housed in robust overmold enclosures, rated at CAT III 1000 V

and CAT IV 600 V and operate over a wide temperature range of –20 °C to +55 °C. Each DMM also include a 30 kA high energy fuse to further protect you against violent fuse failures during high-current measurements. Built tough and certified to stringent industrial standards, the U1250 DMM is what you need to face the demands of everyday tasks.

Take a closer look



OLED display with approximately 160° viewing angle, and high contrast ratio of 2000:1 for crystal-clear viewing [1]



50,000 count dual display with true-RMS reading capability



S SHIFT key and one-stop function keys for easy access

Broad range of measurement functions, including temperature and capacitance

Built-in battery charging for optimum capacitance

20 MHz frequency counter [2]

Data logging to internal

Programmable square-wave generator for stimulation of digital circuits [2]

CAT III 1000 V and CAT IV 600 V overvoltage protection for assurance of your safety while you go about your task

(Note: OLED is made of organic materials and it has its lifespan.)

DC specifications

Function	Range	Resolution	Test current/burden voltage	Accuracy ± (% of reading + no. of least significant digit)	
				U1251B	U1252B/U1253B
Voltage [1]	50.000 mV	0.001 mV	-	0.05 + 50 [2]	0.05 + 50
	500.00 mV	0.01 mV	-	0.03 + 5	0.025 + 5
	1000.0 mV	0.1 mV	-		
	5.0000 V	0.0001 V	-		
	50.000 V	0.001 V	-		
	500.00 V	0.01 V	-		0.03 + 5
	1000.0 V	0.1 V	-		
Resistance [3]	500.00 Ω [4]	0.01 Ω	1.04 mA	0.08 +10	0.05 + 10
	5.0000 kΩ [4]	0.0001 kΩ	416 µA	0.08 + 5	0.05 + 5
	50.000 kΩ	0.001 kΩ	41.2 µA		
	500.00 kΩ	0.01 kΩ	4.12 µA		
	5.0000 MΩ	0.0001 MΩ	375 nA	0.2 + 5	0.15 + 5
	50.000 MΩ [5]	0.001 MΩ	187 nA	1 + 10	1 + 5
	500.00 MΩ [5]	0.01 MΩ	187 nA	N/A	3+10 < 200 MΩ/8+10 > 200 MΩ
	500.00 nS [6]	0.01 nS	187 nA	1 + 20	1 + 10
Current	500.00 µA	0.01 µA	0.06 V (100 Ω)	0.1 + 5 [7]	0.05 + 5 [7]
	5000.0 µA	0.1 µA	0.6 V (100 Ω)		
	50.000 mA	0.001 mA	0.09 V (1 Ω)	0.2 + 5 [7]	0.15 + 5 [7]
	440.00 mA	0.01 mA	0.9 V (1 Ω)		
	5.0000 A	0.0001 A	0.2 V (0.01 Ω)	0.3 + 10	0.3 + 10
	10.000 A [8]	0.001 A	0.4 V (0.01 Ω)		0.3 + 5
Diode test [8]	-	0.1 mV	1.04 mA	0.05 + 5	

1. Input impedance: Refer to Table A on page 10.
2. The accuracy could be improved to 0.05%+10 for U1251B or 0.05%+5 for U1252B and U1253B by using the Null function to zero out the thermal effect before measuring the signal.
3. These specifications are defined for 2-wire ohms using Math Null. Without Math Null, add 0.2 ohm additional error.
4. The accuracy of 500 Ω and 5 kΩ is specified after NULL function, which is used to subtract the test lead resistance and the thermal effect.
5. For the range of 50 MΩ and 500 MΩ, the R.H. is specified for < 60%.
6. The accuracy is specified for < 50 nS and after NULL function with open test lead.
7. Always use the NULL function to zero out thermal effect with open test lead before measuring the signal. If the NULL function is not used, an additional 20 counts needs to be added to the DC current accuracy. Thermal effect could occur due to the following:
   - Wrong operation to measure the high voltage of 50 V ~ 1000 V for resistance, diode, and mV measurements.
   - After battery-charging has completed.
   - After measuring a current greater than 440 mA, it is suggested that the meter be left to cool down for twice the measuring time used.
8. Current can be measured up to 10 A continuously. An additional 0.5% needs to be added to the specified accuracy if the signal measured is in the range of 10 A~20 A for 30 seconds maximum. After measuring a current of > 10 A, leave the meter to cool down for twice the measuring time used before application of low current measurement.

U1251B AC voltage specifications

Function	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)			
			Frequency			
			30 Hz ~ 45 Hz	45 Hz ~ 1 kHz	1 kHz ~ 5 kHz	5 kHz ~ 30 kHz
True RMS Ac voltage [1, 2, 3]	50.000 mV	0.001 mV	1.0+60	0.6+40	1.0+40	1.6+60
	500.00 mV	0.01 mV		0.6+25		
	1000.0 mV	0.1 mV			1.0+25	3.5+120
	5.0000 V	0.0001 V				
	50.000 V	0.001 V				
	500.00 V	0.01 V				N/A
	1000.0 V	0.1 V		0.6+40	1.0+40	N/A

U1251B AC current specifications

Function	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)		
			Frequency		
			30 Hz ~ 45 Hz	45 Hz ~ 2 kHz	2 kHz ~ 20 kHz [4]
AC current [2, 3]	500.00 µA [5]	0.01 µA	1.5+50	0.8+20	3.0+80
	5000.0 µA	0.1 µA	1.5+40		
	50.000 mA	0.001 mA			3.0+60
	440.00 mA	0.01 mA			
	5.0000 A	0.0001 A	2.0+40 [6]		
	10.000 A [7]	0.001 A			3+60, < 3 A/5 kHz

U1252B/U1253B AC voltage specifications

Function	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)				
			Frequency				
			20 Hz ~ 45 Hz	45 Hz ~ 1 kHz	1 kHz ~ 5 kHz	5 kHz ~ 15 kHz	15 kHz ~ 100 kHz [8]
True RMS AC voltage [1, 2, 3]	50.000 mV	0.001 mV	1.5+60	0.4+40	0.7+40	0.75+40	3.5+120
	500.00 mV	0.01 mV		0.75+40	0.4+25		
	1000.0 mV	0.1 mV					
	5.0000 V	0.0001 V			0.6+25	1.5+40	
	50.000 V	0.001 V			0.4+25		
	500.00 V	0.01 V				N/A	N/A
	1000.0 V	0.1 V		0.4+40	0.4+40	N/A	N/A

1. Input impedance: Refer to Table A on page 10.
2. ACV measurement is AC coupled; while ACmV and AC µA/mA/A measurement are DC coupled. All specifications are valid from 5% to 100% of range.
3. Crest factor ≤ 5 at half-scale, ≤ 3 at full-scale, and decrease reciprocally for overange as 3 * Full Scale / Input; except for 1000 mV and 1000 V ranges, where this ranges have crest factor ≤ 3 at half-scale, ≤ 1.5 at full scale, and decrease reciprocally for overange as 1.5 * Full Scale / Input. For non-sinusoidal waveform, add 0.1 % of reading ±0.3 % of range.
4. These specifications are for typical performance.
5. Input current > 35 µARMS.
6. Input current < 3 ARMS.
7. Current can be measured from 2.5 A up to 10 A continuously. An additional 0.5% needs to be added to the specified accuracy if the signal measured is in the range of 10 A ~ 20 A for 30 seconds maximum. After measuring a current of > 10 A, leave the meter to cool down for twice the measuring time used before application of low current measurement.
8. Additional error to be added for frequency > 15 kHz and signal input < 10 % of range: 3 counts of LSD per kHz.

U1252B/U1253B AC current specifications

Function	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)			
			Frequency			
			20 Hz ~ 45 Hz	45 Hz ~ 1 Khz	1 Khz ~ 20 Khz [1]	20 Khz~100 Khz [1, 2]
True RMS AC current [3, 4]	500.00 µA [5]	0.01 µA	1.0+20	0.7+20	0.75+20	5.0+80
	5000.0 µA	0.1 µA				
	50.000 mA	0.001 mA				
	440.00 mA	0.01 mA			1.5+20	
	5.0000 A	0.0001 A	1.5+20 [6]		3+60, < 3 A/5 kHz	N/A
	10.000 A [7]	0.001 A				

U1252B/U1253B AC+DC voltage specifications

Function	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)				
			Frequency				
			30 Hz ~ 45 Hz	45 Hz ~ 1 kHz	1 kHz ~ 5 kHz	5 kHz ~ 15 kHz	15 kHz ~ 100 kHz [2]
True RMS AC voltage [3, 8, 9]	50.000 mv	0.001 mv	1.5+80	0.4+60	0.7+60	0.8+60	3.5+220
	500.00 mV	0.01 mV	1.5+65	0.4+30	0.4+30	0.8+45	3.5+125
	1000.0 mV	0.1 mV					
	5.0000 V	0.0001 V			0.6+30	1.5+45	
	50.000 V	0.001 V			0.4+30		
	500.00 V	0.01 V				N/A	N/A
	1000.00 V	0.1 V		0.4+45	0.4+45	N/A	N/A

1. These specifications are for typical performance.
2. Additional error to be added for frequency > 15 kHz and signal input < 10 % of range: 3 counts of LSD per kHz.
3. ACV measurement is AC coupled; while ACmV and AC µA/mA/A measurement are DC coupled. All specifications are valid from 5% to 100% of range.
4. Crest factor ≤ 5 at half-scale, ≤ 3 at full-scale, and decrease reciprocally for overange as 3 * Full Scale / Input; except for 1000 mV and 1000 V ranges, where this ranges have crest factor ≤ 3 at half-scale, ≤ 1.5 at full scale, and decrease reciprocally for overange as 1.5 * Full Scale / Input. For non-sinusoidal waveform, add 0.1 % of reading ±0.3 % of range.
5. Input current > 35 µARMS.
6. Input current < 3 ARMS.
7. Current can be measured from 2.5 A up to 10 A continuously. An additional 0.5% needs to be added to the specified accuracy if the signal measured is in the range of 10 A ~ 20 A for 30 seconds maximum. After measuring a current of > 10 A, leave the meter to cool down for twice the measuring time used before application of low current measurement.
8. Input impedance: Refer to Table A on page 10.
9. The maximum displayable counts is 51000, except for 1000.0 mV, 1000.0 V and 10 A ranges, where the maximum displayable counts is 15000. “0.L” will be shown for any resultant AC+DC voltage/current that exceeds the maximum displayable counts in manual range. Subject to operate within the product specifications.

U1252B/U1253B AC+DC current specifications

Function	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)		
			Frequency		
			30 Hz ~ 45 Hz	45 Hz ~ 1 kHz [1]	1 kHz ~ 20 kHz [1]
True RMS AC current [2]	500.00 µA [3]	0.01 µA	1.1+25	0.8+25	0.8+25
	5000.0 µA	0.1 µA			
	50.000 mA	0.001 mA	1.2+25	0.9+25	0.9+25
	440.00 mA	0.01 mA			
	5.0000 A	0.0001 A	1.8+30 [4]	0.9+30	3.3+70, < 3 A/5 kHz
	10.000 A [5]	0.001 A		0.9+25	

U1251B/U1252B temperature specifications [6, 7, 8]

Thermocouple type	Range		Resolution	Accuracy	
	°C	°F		°C	°F
K	–200 ~ 1372 °C	–328 ~ 2502 °F	0.1 °C/0.1 °F	0.3% + 3 °C	0.3% + 6 °F
J (for U1252A/U1252B)	–210 ~ 1200 °C	–346 ~ 2192 °F	0.1 °C/0.1 °F	0.3% + 3 °C	0.3% + 6 °F

U1253B temperature specifications [6, 7, 8]

Thermocouple type	Range		Resolution	Accuracy	
	°C	°F		°C	°F
K	–200 ~ –40 °C	–104 ~ –40 °F	0.1 °C/0.1 °F	1% + 3 °C	1% + 5.4 °F
	–40 ~1372 °C	–40 ~ 2502 °F	0.1 °C /0.1 °F	1% + 1 °C	1% + 1.8 °F
J	–210 ~ –40 °C	–346 ~ –40 °F	0.1 °C /0.1 °F	1% + 3 °C	1% + 5.4 °F
	–40 ~ 1200 °C	–40 ~ 2192 °F	0.1 °C /0.1 °F	1% + 1 °C	1% + 1.8 °F

1. These specifications are for typical performance.
2. The maximum displayable counts is 51000, except for 1000.0 mV, 1000.0 V and 10 A ranges, where the maximum displayable counts is 15000. "0.L" will be shown for any resultant AC+DC voltage/current that exceeds the maximum displayable counts in manual range. Subject to operate within the product specifications.
3. Input current > 35 µARMS.
4. Input current < 3 ARMS.
5. Current can be measured from 2.5 A up to 10 A continuously. An additional 0.5% needs to be added to the specified accuracy if the signal measured is in the range of 10 A ~ 20 A for 30 seconds maximum. After measuring a current of > 10 A, leave the meter to cool down for twice the measuring time used before application of low current measurement.
6. The accuracy does not include the tolerance of the thermocouple probe. The thermal sensor plugged into the meter should be placed in the operating environment for at least an hour.
7. Use the Null function to reduce the thermal effect. Before using the Null function, set the meter to no ambient compensation (0C) mode and keep the thermocouple probe as close to the meter as possible, avoiding contact with any surface that has a different temperature from the ambient temperature.
8. When measuring temperature with respect to any temperature calibrator, try to set both the calibrator and the meter with an external reference (without internal ambient compensation). If both the calibrator and the meter are set with internal reference (with internal ambient compensation), deviation may show between the readings of the calibrator and the meter, due to differences in ambient compensation between the calibrator and the meter.

Capacitance specifications

Range	Resolution	Accuracy	Measuring rate at full scale	Maximum display
10.000 nF	0.001 nF	1% + 8	4 times/sec.	11000 counts
100.00 nF	0.01 nF	1% + 5		
1000.0 nF	0.1 nF			
10.000 µF	0.001 µF			
100.00 µF	0.01 µF			
1000.0 µF	0.1 µF		1 time/sec.	
10.000 mF	0.001 mF		0.1 times/sec.	
100.00 mF	0.01 mF	3% + 10	0.01 times/sec	

Frequency specifications

Range	Resolution	Accuracy		Min. input frequency [1]
		U1251B/2B	U1253B	
99.999 Hz	0.001 Hz	0.02%+3	0.02%+3	1 Hz
999.99 Hz	0.01 Hz	0.02%+3, < 600 kHz	0.02%+3, < 600 kHz	
9.9999 kHz	0.0001 kHz			
99.999 kHz	0.001 kHz			
999.99 kHz	0.01 kHz			

U1251B frequency sensitivity during voltage measurement

Frequency sensitivity and trigger level

Input range [2]	Minimum sensitivity (R.M.S. Sine Wave)		Trigger level for DC coupling	
(Maximum input for specified accuracy = 10 x Range or 1000 V)	20 Hz - 100 kHz	> 100 kHz ~ 200 kHz	< 100 kHz	> 100 kHz ~ 200 kHz
50.000 mV	10 mV	15 mV	10 mV	15 mV
500.00 mV	25 mV	35 mV	60 mV	70 mV
1000.0 mV	40 mV	50 mV	100 mV	150 mV
5.0000 V	0.25 V	0.5 V	0.5 V / 1.25 V (< 100 Hz)	0.6 V
50.000 V	2.5 V	5 V	5 V	6 V
500.00 V	25 V	N/A	50 V	N/A
1000.0 V	50 V	N/A	300 V	N/A

1. The input signal is lower than the product of 20000000 V x Hz (product voltage and frequency); overload protection: 1000 V.
2. Maximum input for specified accuracy = 10 x range or 1000 V.

U1252B/U1253B frequency sensitivity during voltage measurement

Frequency sensitivity and trigger level

Input range [1]	Minimum sensitivity (R.M.S. Sine Wave)		Trigger level for DC coupling	
(Maximum input for specified accuracy = 10 x Range or 1000 V)	20 Hz - 100 kHz	> 200 kHz ~ 500 kHz	< 100 kHz	> 100 kHz ~ 500 kHz
50.000 mV	10 mV	25 mV	10 mV	25 mV
500.00 mV	70 mV	150 mV	70 mV	150 mV
1000.0 mV	120 mV	300 mV	120 mV	300 mV
5.0000 V	0.3 V	1.2 V	0.6 V	1.5 V
50.000 V	3 V	5 V	6 V	15 V
500.00 V	30 V < 100 kHz	N/A	60 V	N/A
1000.0 V	50 V < 100 kHz	N/A	120 V	N/A

Frequency sensitivity during current measurement

Input range	Minimum sensitivity (RMS sine wave) 20 Hz ~ 20 Khz
500.00 µA	100 µA
5000.0 µA	250 µA
50.000 mA	10 mA
440.00 mA	25 mA
5.0000 A	1 A
10.000 A	2.5 A

Peak hold

Signal width	Accuracy for DC mV/voltage/current
Single event > 1 ms	2% + 400 for all ranges
Repetitive > 250 µs	2% + 1000 for all ranges

Duty cycle and pulse width [2]

Function	Mode	Range	Accuracy at full scale
Duty cycle	DC Coupling	0.01% ~ 99.99%	0.3% per kHz + 0.3%
Pulse width	500 ms	0.01 ms	0.2% + 3
	2000 ms	0.1 ms	0.2% + 3

1. Maximum input for specified accuracy = 10 x range or 1000 V.
2. The positive or negative pulse width must be greater than 10 µs, and the duty cycle range should be considered. The pulse width range is determined by the frequency of the signal.

U1252B/U1253B frequency counter specifications

Division	Range	Resolution	Accuracy ± (% of reading + no. of least significant digit)		Sensitivity	Min. input frequency	Maximum measurement level
			U1252B	U1253B			
1 (secondary display "-1-")	99.999 Hz	0.001 Hz	0.02% + 3 [1]	0.02% + 3 [1]	300 mV R.M.S.	0.5 Hz	< 30 Vpp
	999.99 Hz	0.01 Hz	0.002% + 5, < 985 kHz	0.002% + 5, < 985 kHz	100 mV R.M.S.		
	9.9999 kHz	0.0001 kHz					
	99.999 kHz	0.001 kHz					
	999.99 kHz	0.01 kHz			600 mV R.M.S.		
	9.9999 MHz	0.0001 MHz	0.002% + 5, < 1 MHz				
100 (secondary display "-100-")	9.9999 MHz	0.0001 MHz	0.002% + 5, < 20 MHz	0.002% + 5, < 20 MHz	600 mV R.M.S.	1 MHz	
	99.999 MHz	0.001 MHz			600 mV R.M.S.		

U1252B/U1253B square wave output

Output [2]	Range	Resolution	Accuracy
Frequency	0.5, 1, 2, 5, 6 6, 10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 120, 150, 200, 240, 300, 400, 480, 600, 800, 1200, 1600, 2400, 48000 Hz	0.01 Hz	0.005% + 2
Duty cycle [3]	0.39% ~ 99.60%	0.390625%	0.4% of full scale [4]
Pulse width [4]	1/frequency	Range/256	0.2 ms + range/256
Amplitude	Fixed 0 ~ +2.8 V	0.1 V	0.2 V

Display rate

Function	Times/second
ACV	7
ACV + dB	7
DCV	7
AC + DC V	2
Ω/nS	14
Diode	14
Capacitance	4 (< 100 µF)
DCI	7
ACI	7
AC + DC I	2
Temperature	6
Frequency	1 (>10 Hz)
Duty cycle/pulse width	0.5 (>10 Hz)

1. All frequency counters are susceptible to errors. Shielding inputs from external noise pickup is critical to minimize measurement errors. For non-square wave signals, add 5 counts.
2. Output impedance: 3.5 kΩ maximum.
3. The positive or negative pulse width must be greater than 50 µs for adjustment of the duty cycle or pulse width under different frequencies. Otherwise, the accuracy and range will be different from the specifications defined.
4. For signal frequencies greater than 1 kHz, an addition of 0.1% per kHz is added to the accuracy.

Manual and interval data logging

Logging type	Maximum data points [1]		
	U1251B	U1252B	U1253B
Manual	100	100	100
Interval	200	200	1000

Decibel (Db) calculation

dB Base	Reference	Default reference
1 mΩ (dBm)	1-9999 Ω	50 Ω
1 V (dBV)	1 V	1 V

Input impedance

Table A

Function	Range	U1251B	U1252B/U1253B
DC voltage	50 mV to 1000 mV	10 MΩ	10 MΩ
	5 V to 1000 V	10 MΩ (nominal), with 10 MΩ in parallel at dual display	10 MΩ (nominal), with 10 MΩ in parallel at dual display
AC voltage	50 mV to 1000 mV	10 MΩ in parallel with < 100 pF	10 MΩ in parallel with < 100 pF
	5 V to 1000 V		
AC + DC voltage	50 mV to 1000 mV	N/A	10 MΩ
	5 V to 1000 V		10 MΩ (nominal) in parallel with 10 MΩ, < 100 pF

1. For data logging to PC, maximum number of data points is dependent on available hard disk space.

General specifications

Display

Both primary and secondary displays are 5-digit on the LCD display.
Both the primary and secondary displays offer a maximum resolution of 50,000 counts.
Automatic polarity indication.

Connectivity

IR to USB

Power consumption

105 mVA/420 mVA (with backlight) maximum (U1251B)
165 mVA/480 mVA (with backlight) maximum (U1252B)
420 mVA maximum (U1253B)

Battery type

9 V alkaline battery (ANSI/NEDA 1604A or IEC 6LR61)
9 V carbon-zinc battery (ANSI/NEDA 1604D or IEC6F22)
7.2 V or 8.4 V Ni-MH rechargeable battery

Battery life

U1251B: 72 hours typical
U1252B: 36 hours typical
U1253B: 8 hours typical

Operating environment

- Full accuracy at –20 °C to 55 °C; and to 80% RH for temperatures up to 35 °C, decreasing linearly to 50% RH at 55 °C
- 0 to 2000 m altitude per IEC 61010-1 2nd Edition CAT III, 1000 V/CAT IV, 600 V

Storage compliance

–40 °C to 70 °C with battery removed

Measurement category

CAT III 1000 V / CAT IV 600 V

Regulatory

Refer to Declaration of Conformity for the latest revisions of regulatory compliance at:
http://www.keysight.com/go/conformity

Common mode rejection ratio (CMRR)

U1251B/U1252B: > 90 dB at DC, 50/60 Hz ±0.1% (1 kW unbalanced)
U1253B: > 100 dB at DC, 50/60 Hz ±0.1% (1 kW unbalanced)

Normal mode rejection ratio (NMRR)

U1251B/U1252B: > 60 dB at DC, 50/60 Hz ±0.1%
U1253B: > 90 dB at DC, 50/60 Hz ±0.1%

Temperature coefficient

0.15 * (specified accuracy)/°C (from -20 °C to 18 °C or 28 °C to 55 °C)

Shock and vibration

Tested to IEC/EN 60068-2

Dimensions (HxWxD)

203.5 mm x 94.4 mm x 59.0 mm

Weight

U1251B: 504±5 g with battery
U1252B/U1253B: 527±5 g with battery

Ordering Information



U1251B



U1252B



U1253B

Optional Accessories

Measuring accessories (non-temperature)

Model number	Description	Description
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, CAT IV 600 V, 15 A • Medium sized alligator clips: CAT III 1000 V, CAT IV 600 V, 15 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 Keysight standard test leads • Rated CAT III 1000 V, CAT IV 600 V, 15 A
U1163A SMT grabbers 		• One pair of fine-tip test probes (red and black). Recommended for use with Keysight 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 (19mm tip): CAT II 1000 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 1000V, CAT IV 600 V, 15 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

Model number	Description	Description
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

Measuring accessories (temperature)

Model number	Description	Description
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
U1183A air temperature probe 		• Type-K T/C for use in air and non-caustic gas • Measurement range: –50 ºC to 800 ºC • Includes adapter U1184A for connection to DMM
U1181A immersion temperature probe 		• Type-K T/C for use in oil and other liquids • Measurement range: –50 °C to 700 ºC • Includes adapter U1184A for connection to DMM

Model number	Description
U1182A industrial surface temperature probe 	• Type-K T/C for use on still surfaces • Measurement range: –50 ºC to 400 ºC • 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
Cable U1173A IR-to-USB cable 	• For remote control and data logging to PC • Max. baud rate: 19,200 bits per second

Model number	Description	Description
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.	
AC adaptor U1170A AC adaptor 	Includes AC power cord based on country.	

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