

KEYSIGHT TECHNOLOGIES (AGILENT HP)

34470A

The Keysight 34470A is a 7.5-digit Truevolt digital multimeter (DMM) designed for extreme accuracy, high resolution, and low measurement noise. It offers a 4.3-inch color graphical display, built-in math and statistical functions, and high-speed digitizing capabilities, making it an ideal instrument for demanding benchtop and automated test system applications.

SPECIFICATIONS

General

Interfaces	USB 2.0 (host/device), LAN (LXI Core compliant), GPIB (optional)
Display	4.3-inch color TFT-LCD with bar meter, trend chart, histogram, and numeric formats
Real-Time Clock	Yes (with battery backup)
Active Input Terminal Indicators	No
Maximum Voltage LO to Earth	500 V peak
Warm-up Time	60 minutes

Physical

Power Supply	100 V / 120 V / 220 V / 240 V $\pm 10\%$, 45 Hz to 66 Hz and 360 Hz to 440 Hz; 30 VA typical (75 VA peak)
Operating Temperature	0 °C to 55 °C °C
Dimensions (W×H×D)	261.2 mm × 103.8 mm × 303.2 mm (with bumpers and handle) mm
Weight	3.76 kg

Resolution and Display

Digits of Resolution	7.5 digits
Maximum Count	12,000,000

DC Voltage

DCV Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
DCV Best 1-Year Accuracy	0.0016% of reading + 0.0005% of range (10 V range)
DCV Maximum Resolution	10 nV (on 100 mV range)
DCV Input Impedance	> 10 G Ω (100 mV, 1 V, 10 V ranges); 10 M Ω $\pm$ 1% (100 V, 1000 V ranges)
ADC Linearity	0.5 ppm of reading + 0.05 ppm of range (10 V range)
Input Bias Current	< 30 pA at 25 °C
DC Common Mode Rejection Ratio (CMRR)	140 dB (for 1 k Ω LO lead unbalance)
Normal Mode Rejection Ratio (NMRR)	60 dB at 50/60 Hz (for NPLC $\geq$ 1)
Maximum Input Voltage (DCV)	1000 V on all ranges

AC Voltage

ACV Measurement Type	True RMS (AC-coupled)
ACV Ranges	100 mV, 1 V, 10 V, 100 V, 750 V
ACV Frequency Range	3 Hz to 300 kHz
ACV Best 1-Year Accuracy	0.06% of reading + 0.03% of range (10 Hz to 20 kHz)
ACV Maximum Resolution	100 nV (on 100 mV range)
AC Common Mode Rejection Ratio (CMRR)	70 dB (for 1 k Ω LO lead unbalance, 50/60 Hz)
Maximum Input Voltage (ACV)	750 V RMS (1000 V peak) on all ranges

DC Current

DCI Ranges	1 μ A, 10 μ A, 100 μ A, 1 mA, 10 mA, 100 mA, 1 A, 3 A, 10 A
DCI Best 1-Year Accuracy	0.015% of reading + 0.002% of range (10 mA range)
DCI Maximum Resolution	100 fA (on 1 μ A range)

AC Current

ACI Measurement Type	True RMS (AC-coupled)
ACI Ranges	100 μ A, 1 mA, 10 mA, 100 mA, 1 A, 3 A, 10 A
ACI Frequency Range	3 Hz to 10 kHz
ACI Best 1-Year Accuracy	0.1% of reading + 0.04% of range (10 mA to 3 A ranges)

Resistance

Resistance Measurement Configurations	2-wire and 4-wire resistance
Resistance Ranges	100 Ω , 1 k Ω , 10 k Ω , 100 k Ω , 1 M Ω , 10 M Ω , 100 M Ω , 1 G Ω
Resistance Best 1-Year Accuracy	0.004% of reading + 0.0005% of range (10 k Ω range)
Resistance Maximum Resolution	10 $\mu\Omega$ (on 100 Ω range)

Frequency and Period

Frequency Range	3 Hz to 300 kHz
Period Range	333 ms to 3.3 μ s

Secondary and Specialized Measurements

Capacitance Ranges	1 nF, 10 nF, 100 nF, 1 μ F, 10 μ F, 100 μ F
Capacitance Best 1-Year Accuracy	1% of reading + 0.5% of range
Temperature Sensor Support	RTD, Thermistor, Thermocouple
Diode Test Voltage / Current	5 V test voltage; 10 μ A, 100 μ A, or 1 mA test current
Continuity Threshold	Adjustable from 1 Ω to 1000 Ω

System Speed and Performance

Aperture Time Range	20 μ s to 2 s
Integration Time Options (NPLC)	0.02, 0.2, 1, 10, 100 NPLC (down to 0.001 NPLC with high-speed digitizing option)
Reading Rate to Internal Memory	5,000 readings/s (standard); 50,000 readings/s (with DIG option)
Maximum Internal Storage Capacity	50,000 readings (standard); 2,000,000 readings (with MEM option)

Triggering and Math Functions

Built-in Math Functions	Null, Min/Max/Average, dB, dBm, Limit Test, Scaling
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Interfaces and Connectivity

External Trigger Input	BNC input, TTL compatible
Voltmeter Complete (VMC) Output	BNC output, TTL compatible

Power and Environmental

Storage Temperature Range	-40 $^{\circ}$ C to 70 $^{\circ}$ C
Operating Humidity Range	Up to 80% RH at 40 $^{\circ}$ C (non-condensing)
Calibration Interval	1 year or 2 years (user choice)
Safety Standards	EN 61010-1:2010, CAN/CSA-C22.2 No. 61010-1-12, UL Std. No. 61010-1
Measurement Category (CAT) Rating	CAT II 300 V

Physical Characteristics

Rack Unit Height	2U (half-rack width)
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Programming

Emulation Languages	Keysight 34401A, Keysight 34410A/34411A
LXI Compliance	LXI Consortium LXI Device Specification 2011, Version 1.4

AC Performance

Maximum Crest Factor	3:1 at full scale
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Environmental

Operating Altitude	Up to 3,000 m
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Safety & Compliance

Pollution Degree	Pollution Degree 2
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Performance

Digitizing Rate	Up to 50,000 samples/s (with Option DIG)
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Frequency

Frequency Measurement Method	Reciprocal counting
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User Interface

Display Views	Numeric, Bar Meter, Trend Chart, Histogram
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TECHNOLOGY

Truevolt technology

APPLICATIONS

High-precision electronic design, metrology, manufacturing test, and research & development

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