

KEYSIGHT TECHNOLOGIES (AGILENT HP)

3458A

The Keysight (Agilent/HP) 3458A is an industry-standard 8½-digit precision benchtop digital multimeter, renowned for its exceptional accuracy, speed, and flexibility. Used extensively in calibration laboratories and high-throughput production test environments, it offers measurement speeds up to 100,000 readings per second (at 4.5 digits) and an outstanding DC voltage transfer accuracy of 0.05 ppm.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488)
Warm-up Time	4 hours (to meet full specifications)

Physical

Power Supply	100 / 120 / 220 / 240 V AC $\pm 10\%$, 48-66 Hz or 360-420 Hz
Operating Temperature	0 to 55 °C
Dimensions (W×H×D)	425.5 × 88.9 × 502.9 mm
Weight	12 kg

General Performance

Maximum Resolution	8 ½ digits
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DC Voltage Specifications

DC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
Input Resistance	> 10 G Ω (0.1 V to 10 V ranges), 10 M Ω $\pm 1\%$ (100 V to 1000 V ranges)
Transfer Accuracy	0.1 ppm
1-Year Accuracy	8 ppm (4 ppm with option 002)

AC Voltage Specifications

AC Voltage Ranges	10 mV, 100 mV, 1 V, 10 V, 100 V, 1000 V
Frequency Bandwidth	1 Hz to 10 MHz
Measurement Technique	Analog RMS, Synchronous Sub-sampled, Random Sampled

DC Current Specifications

DC Current Ranges	100 nA, 1 μ A, 10 μ A, 100 μ A, 1 mA, 10 mA, 100 mA, 1 A
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AC Current Specifications

AC Current Ranges	100 μ A, 1 mA, 10 mA, 100 mA, 1 A
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Resistance Specifications

Resistance Ranges	10 Ω , 100 Ω , 1 k Ω , 10 k Ω , 100 k Ω , 1 M Ω , 10 M Ω , 100 M Ω , 1 G Ω
Measurement Configurations	2-Wire, 4-Wire
Offset Compensation Capability	Yes

Frequency and Period Specifications

Frequency Range	1 Hz to 10 MHz
Period Range	100 ns to 1 s

Measurement Speeds and Characteristics

Maximum Readings per Second	100,000 readings/sec (at 4 ½ digits)
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Triggering and Memory

Standard Reading Memory	20 KB
Optional Reading Memory Expansion	148 KB (Option 001)

Math and Advanced Functions

Supported Math Functions	Null, Scale, Offset, Filter, Statistics (Min/Max/Avg/StdDev), Limit Testing
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Environmental and Calibration

Auto-Calibration (ACAL) Capability	Yes (Internal comprehensive calibration for DCV, Ohms, and AC)
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Connectivity and Interfaces

Front/Rear Terminal Switch	Yes
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Physical and Mechanical

Rack Mount Compatibility	2U Full-Rack
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Performance

High Stability Reference	Option 002 (4 ppm/year)
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Environmental

Storage Temperature	-40 °C to +75 °C
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Inputs & Protection

Maximum Input Voltage	1000 V (DC or peak AC)
Maximum Input Current	1 A (DC or AC rms)

Interference Rejection

Common Mode Rejection (CMR)	140 dB (DC, with 1 k Ω unbalance in LO lead)
Normal Mode Rejection (NMR)	> 80 dB (at 50/60 Hz $\pm$ 0.1%)

AC Voltage & Current

Maximum Crest Factor	5:1 at full scale
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Power

Power Line Frequency	48 - 66 Hz or 360 - 420 Hz
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TECHNOLOGY

Digital Multimeter

APPLICATIONS

Calibration, R&D, Automated Test Equipment (ATE)

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