KEYSIGHT TECHNOLOGIES (AGILENT HP)

# 3457A

The HP 3457A (later Agilent 3457A) is a high-performance, 6.5-digit to 7.5-digit system digital multimeter designed for both high-speed automated systems and precise bench applications. It supports comprehensive measurement capabilities including DC/AC voltage, DC/AC current, 2-wire and 4-wire resistance, frequency, and period. Known for its versatile slot-in scanner card options and rapid reading rates to internal memory, the 3457A offers exceptional flexibility and precision.

## SPECIFICATIONS

### General

| | |
|---|---|
| Interfaces | HP-IB (IEEE-488) |
| Display | 12-character alphanumeric Liquid Crystal Display (LCD) |
| Memory Expansion Option | Option 001 adds 10,000 readings of non-volatile memory |

### Physical

| | |
|---|---|
| Operating Temperature | 0 to 55 °C °C |
| Dimensions (W×H×D) | 425.5 mm × 88.9 mm × 292.1 mm mm |
| Weight | 5.05 kg kg |

### Resolution and Display

| | |
|---|---|
| Digits of Resolution | 3.5 to 6.5 digits (up to 7.5 digits via HP-IB software filtering) |
| Maximum Count | 3,000,000 (at 6.5 digits on 3 V range) |
| Dual Display Support | No |

### DC Voltage

| | |
|---|---|
| DCV Ranges | 30 mV, 300 mV, 3 V, 30 V, 300 V |
| DCV Best 1-Year Accuracy | 0.0017% of reading (on 3 V range) |
| DCV Input Impedance | >10 GΩ (30 mV to 3 V ranges), 10 MΩ ±1% (30 V to 300 V ranges) |
| Maximum DCV Input Voltage (HI to LO) | ±450 V peak |
| HI or LO Terminal to Earth Ground Voltage | ±450 V peak |

### AC Voltage

| | |
|---|---|
| ACV Measurement Type | AC-coupled True RMS or AC+DC-coupled True RMS |
| ACV Ranges | 30 mV, 300 mV, 3 V, 30 V, 300 V |
| ACV Frequency Range | 20 Hz to 1 MHz |
| ACV Input Impedance | 1 MΩ ±1% in parallel with <90 pF |

### DC Current

| | |
|---|---|
| DCI Ranges | 300 µA, 3 mA, 30 mA, 300 mA, 1.5 A |
| DCI Input Protection | Fuse protected, 1.5 A maximum from 250 V source |

### AC Current

| | |
|---|---|
| ACI Measurement Type | AC-coupled True RMS or AC+DC-coupled True RMS |

### Resistance

| | |
|---|---|
| Resistance Measurement Configurations | 2-wire and 4-wire ohms |
| Resistance Ranges | 30 Ω to 3 GΩ |
| HI or LO Ohms SENSE to LO INPUT Voltage | ±350 V peak |
| Offset Compensation | Yes (selectable) |

### Frequency and Period

| | |
|---|---|
| Frequency Range | 10 Hz to 1.5 MHz |
| Period Range | 667 ns to 100 ms (10 Hz to 1.5 MHz) |

### System Speed and Performance

| | |
|---|---|
| Integration Time Options (NPLC) | 0.0005, 0.005, 0.05, 0.5, 1, 10, 100 NPLC |
| Maximum Reading Rate to Memory | 1350 readings/second (at 3.5 digits) |
| Internal Storage Capacity | Up to 1050 readings (at 4.5 digits) |

### Triggering and Math Functions

| | |
|---|---|
| Trigger Sources | Internal, External, HP-IB, Hold, Manual |
| Built-in Math Functions | Null, Scale, Percent Difference, Filter, dB, dBm, RMS, Statistics, Limit testing |
| Statistical Analysis Functions | Mean, Standard Deviation, Minimum, Maximum, Reading Count |

### Interfaces and Connectivity

| | |
|---|---|
| External Trigger Input | Yes (BNC) |
| Voltmeter Complete (VMC) Output | Yes (BNC) |
| Scanner Card Slots | 1 rear-panel slot |
| Supported Scanner Cards | HP 44491A (8-channel armature multiplexer) / HP 44492A (10-channel reed multiplexer) |
| Front/Rear Terminals Input Switch | No |
| Front to Rear Terminals Isolation Voltage | ±450 V peak |

### Physical Characteristics

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|---|---|
| Rack Unit Height | 2U |

### Power and Environmental

| | |
|---|---|
| Warm-up Time | 1 hour |

### Performance

| | |
|---|---|
| A/D Converter Technology | Multi-slope VI |
| Maximum Digit Resolution | 7.5 digits (via HP-IB control with 100 NPLC) |
| Input Bias Current | < 3 pA at 25 °C |
| Normal Mode Rejection Ratio (NMRR) | > 80 dB at 50/60 Hz (for NPLC >= 10) |
| Common Mode Rejection Ratio (CMRR) | > 140 dB at DC (with 1 kOhm LO unbalance, NPLC >= 10) |
| ACI Ranges | 30 mA, 3 A |
| Maximum DC Current Input | 3 A |

### Environmental

| | |
|---|---|
| Storage Temperature | -40 °C to +75 °C |
| Operating Humidity Range | Up to 95% RH (non-condensing) at 40 °C |

## TECHNOLOGY

Analog-to-Digital Dual Slope Integration

## APPLICATIONS

System and Benchtop Precision Measurement

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.