

KEYSIGHT TECHNOLOGIES (AGILENT HP)

34411A

The Keysight (Agilent) 34411A is a 6½ digit enhanced performance digital multimeter designed for high-speed, high-accuracy bench and system measurements. It sets a high standard for digital multimeter performance with up to 50,000 readings per second at 4½ digits, 1 million readings of volatile memory, and advanced analog level and pre/post-triggering capabilities. Standard interfaces include USB, LAN (LXI Class C), and GPIB, making it ideal for both R&D and automated test environments.

SPECIFICATIONS

General

Interfaces	USB 2.0, LAN (10/100Base-T, LXI Class C), GPIB (IEEE-488)
Display	Dual-line Vacuum Fluorescent Display (VFD)
Command Language Compatibility	Agilent 34401A

Physical

Power Supply	100 V / 120 V / 220 V / 240 V (±10%), 45 Hz to 66 Hz & 360 Hz to 440 Hz, 25 VA max
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	3.72 kg kg

Measurement Resolution and Accuracy

Digits of Resolution	6½ digits
DC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
DC Voltage 1-Year Accuracy	±(0.0030% of reading + 0.0005% of range) (10 V range)
DC Voltage Resolution	100 nV (on 100 mV range)
AC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 750 V
AC Voltage Frequency Range	3 Hz to 300 kHz
AC Voltage Resolution	100 nV (on 100 mV range)
DC Current Ranges	100 µA, 1 mA, 10 mA, 100 mA, 1 A, 3 A
DC Current Resolution	100 pA (on 100 µA range)
AC Current Ranges	100 µA, 1 mA, 10 mA, 100 mA, 1 A, 3 A
AC Current Frequency Range	3 Hz to 10 kHz
AC Current Resolution	100 pA (on 100 µA range)
Resistance Ranges (2-wire and 4-wire)	100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ, 100 MΩ, 1 GΩ
Resistance Resolution	100 µΩ (on 100 Ω range)
Frequency and Period Range	3 Hz to 300 kHz (voltage input)
Continuity Threshold	Adjustable from 1 Ω to 1000 Ω

Performance and Sampling Characteristics

Maximum Reading Rate (at 4.5 Digits)	50,000 readings/s
Maximum Reading Rate (at 5.5 Digits)	10,000 readings/s
Aperture Time Settings	20 µs to 1 s
Integration Time (NPLC) Range	0.001 NPLC (0.0012 NPLC @ 60 Hz) to 100 NPLC
Internal Reading Memory Capacity	1,000,000 readings (volatile)
Non-volatile Memory Capacity	50,000 readings
Pre-trigger and Post-trigger Buffering	Supported, with memory capacity up to 1,000,000 readings
Analog Level Triggering	Yes, with adjustable level and slope on input waveform

Input Specifications and Noise Rejection

Input Impedance (DCV)	> 10 GΩ (100 mV, 1 V, 10 V ranges); 10 MΩ ± 1% (100 V, 1000 V ranges)
Input Bias Current	< 30 pA at 25 °C
Maximum Input Voltage (Terminal to Terminal)	1000 VDC / 750 VAC
Maximum Input Voltage (LO to Earth)	500 Vpk
Common Mode Rejection Ratio (CMRR) DC	140 dB
Common Mode Rejection Ratio (CMRR) AC	70 dB (at 50/60 Hz with 1 kΩ unbalance in LO lead)
Normal Mode Rejection Ratio (NMRR) at 50/60Hz	60 dB (for integration times ≥ 1 NPLC)

System and Connectivity Interfaces

GPIO Interface	IEEE-488.2 compliant
USB Interface (Device Port)	USB 2.0 (USBTMC-USB488 protocol)
LAN/Ethernet Interface	10/100Base-T (LXI Class C compliant)
External Trigger Input	TTL compatible
Voltmeter Complete Output	TTL compatible
SCPI Command Compatibility	Yes, IEEE-488.2 standard SCPI
Data Logging	Built-in data logger with programmable sample interval

Physical and Environmental

Power Line Frequency Range	45 Hz to 66 Hz and 360 Hz to 440 Hz (automatic sensing)
Storage Temperature Range	-40 °C to 70 °C
Warm-up Time	1 hour
Rackmount Kit Compatibility	Yes, compatible with Agilent 34190A and 34191A

Standards, Compliance and Calibration

Safety Rating (IEC/EN 61010-1)	IEC 61010-1, EN 61010-1
Measurement Category (CAT Rating)	CAT I 1000 V, CAT II 300 V
Calibration Interval	1 year

DC Voltage

Input Resistance (100 mV to 10 V ranges)	Selectable > 10 GΩ or 10 MΩ ± 1%
Input Resistance (100 V and 1000 V ranges)	10 MΩ ± 1%

Resistance

Input Protection (Resistance)	1000 V on all ranges
Maximum 4-Wire Ohms Lead Resistance	10% of range (100 Ω and 1 kΩ ranges), 1 kΩ (all other ranges)

Diode/Continuity Test

Input Protection (Diode and Continuity)	1000 V
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Triggering

External Trigger Slope	Selectable rising or falling edge
External Trigger Input Level	TTL compatible
Voltmeter Complete Output Level	TTL compatible

Frequency and Period

Gate Time Settings	1 ms, 10 ms, 100 ms, 1 s
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Environmental

Operating Altitude	Up to 3,000 meters
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Interfaces

Built-in Web Server	Yes, LXI Class C compliant
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Acquisition & Triggering

Peak Detector Minimum Pulse Width	20 μs
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Safety & Compliance

Pollution Degree Rating	Pollution Degree 2
Electromagnetic Compatibility (EMC)	EN 61326-1, CISPR 11

TECHNOLOGY

6½ Digit Digital Multimeter

APPLICATIONS

Precision electrical measurement, R&D testing, and automated system testing

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