

KEITHLEY

6487

The Keithley 6487 is a 5.5-digit picoammeter and voltage source, designed for high-resolution low-current measurements and high-resistance applications. It combines the capabilities of an electrometer-grade ammeter with a built-in ± 500 V voltage source, making it ideal for characterizing high-resistance materials, leakage currents, and insulation resistance. It features measurement ranges from 2 nA to 20 mA with up to 10 fA resolution, low burden voltage, and rapid reading rates.

SPECIFICATIONS

General

Interfaces	IEEE-488 (GPIB), RS-232, Trigger Link
Display	5.5-digit Vacuum Fluorescent Display (VFD)
Display Resolution	5½ digits

Physical

Power Supply	100-120 V / 220-240 V, 50/60/400 Hz, 50 VA max
Operating Temperature	0 to 50 °C
Dimensions (W×H×D)	89 × 213 × 370 mm
Weight	4.7 kg kg

Current Measurement Specifications

Current Ranges	2 nA, 20 nA, 200 nA, 2 μ A, 20 μ A, 200 μ A, 2 mA, 20 mA
Current Resolution	10 fA (on 2 nA range) to 100 nA (on 20 mA range)
Current Accuracy (1 Year)	$\pm(0.3\% + 400 \text{ fA})$ on 2 nA range to $\pm(0.1\% + 1 \mu\text{A})$ on 20 mA range
Burden Voltage	< 200 μ V (2 nA to 20 μ A ranges); < 1 mV (200 μ A to 20 mA ranges)
Input Bias Current	< 3 fA at 23 °C

Voltage Source Specifications

Voltage Ranges	± 10 V, ± 50 V, ± 500 V
Voltage Resolution	1 mV (10 V range), 5 mV (50 V range), 50 mV (500 V range)
Voltage Accuracy (1 Year)	$\pm(0.1\% + 1 \text{ mV})$ on 10 V range; $\pm(0.1\% + 4 \text{ mV})$ on 50 V range; $\pm(0.1\% + 40 \text{ mV})$ on 500 V range
Maximum Output Current	25 mA (10 V range), 2.5 mA (500 V range)

Resistance Measurement Specifications

Resistance Measurement Method	Alternating Voltage Method (supported via voltage source synchronization)
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Measurement Speed and Timing

Maximum Reading Rate	Up to 1000 readings/s
Buffer Size / Memory Capacity	3000 readings

Connectivity and Interfaces

Input Connector Type	3-lug Triax (Current Input)
Analog Output	0 to ± 2 V for full scale input; 1 k Ω output impedance

Environmental and Compliance

Storage Temperature	-25 °C to 65 °C
Warm-up Time	1 hour
Calibration Cycle	1 year

Physical and Power

Rack Mount Compatibility	Standard half-rack width
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Performance

Resistance Measurement Range	Up to $5 \times 10^{14} \Omega$
Overrange	105% of range on all ranges

Protection & Isolation

Ammeter Input Protection	505V DC
Isolation (LO to Earth)	500V peak maximum

Environmental

Operating Altitude	Maximum 2000 m
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Compliance

Safety Compliance	Conforms to European Union Low Voltage Directive
EMC Compliance	Conforms to European Union EMC Directive

Measurement Features

Analog Damping	Selectable On / Off
Alternating Voltage Method	Yes (cancels background current errors for high resistance measurements)

Safety / Protection

Hardware Interlock	Yes, rear panel connection (required to enable voltage source)
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Inputs & Outputs

Triggering	Keithley Trigger Link
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TECHNOLOGY

Picoammeter

APPLICATIONS

Low Current Measurement, High Resistance Measurement, Insulation Testing, Leakage Current Testing

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