

FLUKE

PM 6306/02n

The Fluke PM 6306/02n is a high-precision benchtop RCL meter featuring a test frequency range of 50 Hz to 1 MHz and a basic measurement accuracy of 0.1%. Designed for comprehensive passive component testing, this model is equipped with a standard GPIB (IEEE-488) interface, allowing for seamless integration into automated test environments. It features 4-wire Kelvin front-panel test posts, continuously adjustable AC/DC test signals, and built-in contact checking to ensure optimal connection and measurement reliability.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488)
Display	Backlit LCD with dual 5-digit parameter readouts and a 3-digit frequency/level readout
Warm-Up Time	30 minutes
Recommended Calibration Interval	1 year

Physical

Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	315 mm × 105 mm × 405 mm mm

Measurement Functions & Parameters

Primary Measurement Parameters	L, C, R, Z
Secondary Measurement Parameters	D, Q, Phase Angle (θ), Rs, Rp, Cp, Cs, Lp, Ls
Equivalent Circuit Modes	Series, Parallel (Auto/Manual selection)
Automatic Parameter Selection	Supported
Test Signal Frequency Range	50 Hz to 1 MHz
Test Frequency Resolution	3-digit resolution (over 8,000 steps)
Test Frequency Accuracy	$\pm 0.01\%$
AC Test Signal Voltage Range	50 mV to 2 V rms
AC Test Signal Voltage Resolution	10 mV
Output Impedance	100 Ω
Internal DC Bias Voltage Range	0 to 10 V (continuously adjustable in 10 mV steps)
External DC Bias Voltage Input Range	0 to 40 V
External DC Bias Current Input Range	Up to 250 mA

Measurement Range & Accuracy

Basic Impedance Accuracy	0.1%
Inductance (L) Measurement Range	0.00 μ H to 31.8 kH
Capacitance (C) Measurement Range	0.00 pF to 318 mF
Resistance / Impedance (R/Z) Measurement Range	0.0000 Ω to 200 M Ω
Dissipation Factor (D) Measurement Range	0.0002 to 500
Quality Factor (Q) Measurement Range	0.002 to 500
Phase Angle Range	-90.0° to +90.0°
Measurement Speed Modes	Fast, Medium, Slow (up to 10 measurements/second)
Averaging Function Range	2 to 99 measurements
Zero Trim Function	Automatic open and short circuit calibration

Display & User Interface

Primary Parameter Display Range	5 digits (up to 99999 counts)
Secondary Parameter Display Range	5 digits (up to 99999 counts)
Deviation / Percent Deviation Mode	Supported (shows differences from a stored reference value)
Internal Setup Memory Capacity	9 front panel setups
Actual Component Test Voltage/Current Readback	Supported (real-time display of V and I levels applied to the DUT)

Interfaces & Connectivity

Guard Terminal	Standard front panel chassis guard terminal
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Power Specifications

Line Frequency Range	50 Hz to 60 Hz
Power Consumption	20 VA

Physical Characteristics

Form Factor	Benchtop with tilt stand
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Environmental & Safety Compliance

Storage Temperature Range	-40 to +70 °C
Relative Humidity Operating Limit	Up to 90% RH (non-condensing)
Safety Standards Compliance	IEC 1010-1 / EN 61010-1 Class I
EMC / RFI Standards	EN 55011 / EN 50082-1

Performance

Measurement Principle	4-wire auto-balancing bridge
Fast Measurement Time	250 ms (at test frequencies $\geq$ 1 kHz)
Medium Measurement Time	450 ms (at test frequencies $\geq$ 1 kHz)
Slow Measurement Time	900 ms (at test frequencies $\geq$ 1 kHz)

Test Signal

AC Test Current Range	10 μ A to 20 mA
AC Test Signal Voltage Accuracy	$\pm(5\% + 10 \text{ mV})$ for 200 mV to 2 V, $\pm(10\% + 5 \text{ mV})$ for 50 mV to 200 mV

Interfaces

GPIO Interface	IEEE-488.2 (standard on PM 6306/02 and PM 6306/02n)
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Power Supply

Power Supply Voltage Settings	100 V / 120 V / 220 V / 240 V AC ($\pm 10\%$)
Mains Fuse Rating	T 200 mA / 250 V (for 220 V / 240 V), T 400 mA / 250 V (for 100 V / 120 V)

Environmental

Operating Altitude Limit	Up to 2000 m
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DC Bias

Internal DC Bias Voltage Resolution	10 mV (0.00 V to 2.00 V)
Internal DC Bias Voltage Accuracy	$\pm(3\% + 10 \text{ mV})$
External DC Bias Voltage Maximum Limit	40 V DC

Measurement Control

Trigger Modes	Continuous (Internal), Manual, External (via interface)
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Measurement Ranges

DC Resistance (R_{dc}) Measurement Range	0.0001 Ω to 20 M Ω
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Binning

Binning Tolerance Limits	-99.9% to +99.9%
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TECHNOLOGY

Analog-to-digital converter with phase-coherent detection

APPLICATIONS

Precision passive component impedance testing, quality control, and production line automation

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