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Data Sheet

August 13, 2026

HP / AGILENT

HP / Agilent 4278A 1 kHz/1 MHz Capacitance Meter

HP / Agilent 4278A 1 kHz / 1 MHz Capacitance Meter The HP/Agilent 4278A is a high-speed precision capacitance meter for production-line and QC inspection of low- to medium-value capacitors. It measures C with D, Q, ESR, or G at selectable 1 kHz and 1 MHz test frequencies with oscillator level from 0.1 V to 1 V in 0.1 V steps. A built-in 10-bin comparator, high-speed HP-IB, and optional handler interface support automated sorting and data acquisition covering ceramic and film capacitor ranges up to about 200 μ F. The HP/Agilent 4278A is a high-speed precision capacitance meter for production-line and QC inspection of low- to medium-value capacitors. It measures C with D, Q, ESR, or G at selectable 1 kHz and 1 MHz test frequencies with oscillator level from 0.1 V to 1 V in 0.1 V steps. A built-in 10-bin comparator, high-speed HP-IB, and optional handler interface support automated sorting and data acquisition covering ceramic and film capacitor ranges up to about 200 μ F.



MODEL

HP / Agilent 4278A

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

4278A

LISTING

<https://aumictechlabs.com/products/4278a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The HP/Agilent 4278A is a precision capacitance meter operating at 1 kHz and 1 MHz, engineered for high-speed component inspection and quality control in production and laboratory environments. It measures capacitance, dissipation factor, quality factor, equivalent series

resistance, and conductance with measurement speeds up to 153 measurements per second. The instrument incorporates an intelligent 10-bin comparator for automated sorting, zero adjustment for stray impedance compensation, and auto-calibration capability with external standards.

Technical Specifications

Measurement Frequencies: 1 kHz and 1 MHz

Measurement Parameters: Capacitance (C), Dissipation Factor (D), Quality Factor (Q), Equivalent Series Resistance (ESR), Conductance (G)

Capacitance Accuracy: 1 kHz: $\pm 0.07\%$ of reading + 0.025% (full scale) 1 MHz: $\pm 0.05\%$ of reading + 0.02% (full scale)

Dissipation Factor Accuracy: 1 kHz: ± 0.0005 with 0.00001 resolution 1 MHz: ± 0.0002 with 0.00001 resolution

Measurement Ranges: 1 kHz Normal Mode: 7 decade ranges, 100 pF to 100 μ F full scale; 100% overranging available (max. 200,000 counts) when $D \leq 0.5\%$ 1 MHz Normal Mode: 11 binary ranges, 1 pF to 1024 pF full scale; 25% overranging when $D \leq 1\%$ 1 MHz High Accuracy Mode: $\pm 30\%$ of user-defined nominal value, maximum 2048 pF, when $D \leq 0.05\%$

Test Signal Level: 0.1 Vrms to 1 Vrms in 0.1 Vrms steps; $\pm 10\%$ accuracy ($C \leq 20 \mu$ F)

Measurement Speed Modes: SHORT: 6.5 ms (153 measurements/sec) MEDIUM: 10 ms (100 measurements/sec) LONG: 21 ms (47 measurements/sec)

Display: Dot-matrix LCD with 4, 5, or 6 digit resolution

Temperature Stability (LONG integration, $12 \pm 5^\circ\text{C}$): C: $\leq 0.01\%/^\circ\text{C}$ D: $\leq 0.0001/^\circ\text{C}$ (1 kHz and 1 MHz Normal Mode); $\leq 0.00004/^\circ\text{C}$ (1 MHz High Accuracy Mode)

Reference Data Stability (LONG integration, constant temperature): C: $\leq 0.01\%/\text{day}$ D: $\leq 0.0001/\text{day}$

Key Features

- Parallel and series measurement circuit modes
- Intelligent 10-bin comparator (9 bins for capacitance, 1 no-go bin)
- Pushbutton zero adjustment for handler and fixture impedance compensation
- Cable length compensation selectable for 0, 1, or 2 meters
- Internal, external, or manual trigger modes
- Power: 100/120/220 Vac $\pm 10\%$, 240 Vac +5–10%, 48–66 Hz

Typical Applications

- Production line capacitor inspection and sorting
- Component quality assurance and acceptance testing
- R&D characterization of capacitive devices
- High-speed automated testing with comparator-based binning

Compatibility & Integration

The 4278A accepts external calibration standards and integrates zero and cable compensation functions for use with automated test handlers and fixture systems.

Features & description

From manufacturer datasheet

Features

- Dual test frequencies 1 kHz and 1 MHz

Applications

- Incoming and outgoing ceramic and film capacitor inspection

4278A Characteristics / Specifications

PARAMETER	VALUE
Model	4278A
Manufacturer	Hewlett-Packard / Agilent / Keysight
Instrument Type	Capacitance Meter
Alias	HP 4278A; Agilent 4278A; Keysight 4278A
Test frequency	1 kHz or 1 MHz
Oscillator level	0.1 V to 1 V in 0.1 V steps
Measurement parameters	C-D, Q, ESR, G
Measurement speed	6.5 ms / 10 ms / 21 ms Crange at 1 kHz: 0.001 pF to 200 uF class Crange at 1 MHz: 0.00001 pF to 2663 pF class
Display resolution	6 digit
Dissipation factor resolution	0.00001
Comparator bins	10
Interface	HP-IB
Handler interface	optional
Target DUT class	ceramic film mica capacitors
Primary use	production inspection and QC
Form	benchtop capacitance meter Notes Specs from Agilent/HP 4278A product literature. Confirm option handler interface and calibration certificate accuracies on the unit.

4278A Specifications

PARAMETER	VALUE
HP / Agilent 4278A 1 kHz / 1 MHz Capacitance Meter	Overview
Applications	- Incoming and outgoing ceramic and film capacitor inspection
Key Features	- Dual test frequencies 1 kHz and 1 MHz
Technical Specifications	Model: 4278A
Notes	Specs from Agilent/HP 4278A product literature. Confirm option handler interface and calibration certificate accuracies on the unit.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

Specifications

PARAMETER	VALUE
Model	4278A
Manufacturer	Hewlett-Packard / Agilent / Keysight
Instrument Type	Capacitance Meter

Specifications

PARAMETER	VALUE
Alias	HP 4278A; Agilent 4278A; Keysight 4278A
Test frequency	1 kHz or 1 MHz
Oscillator level	0.1 V to 1 V in 0.1 V steps

Measurement parameters: C-D, Q, ESR, G

Measurement speed: 6.5 ms / 10 ms / 21 ms
Crange at 1 kHz: 0.001 pF to 200 uF class
Crange at 1 MHz: 0.00001 pF to 2663 pF class

C-D accuracy at 1 kHz 21 ms: 0.07% and 0.0005

C-D accuracy at 1 MHz 21 ms: 0.5% and 0.0002

Specifications

PARAMETER	VALUE
Display resolution	6 digit
Dissipation factor resolution	0.00001
Comparator bins	10

Specifications

PARAMETER	VALUE
Interface	HP-IB
Handler interface	optional
Target DUT class	ceramic film mica capacitors

Primary use: production inspection and QC

Form: benchtop capacitance meter

Notes

Specs from Agilent/HP 4278A product literature. Confirm option handler interface and calibration certificate accuracies on the unit.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.