

Benchtop Digital Lcr Bridge And Dcr Component Meter

Item Number: CD07



Introduction

Discover high precision benchtop digital LCR bridge meters with continuous test frequency up to 100kHz, integrated DCR mode, 0.2% basic accuracy, programmable internal bias, automated comparator binning, and comprehensive SCPI communication interfaces for advanced laboratory research and production component testing.

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Application	Description	Key Benefit
Battery Electrode & Contact Testing	Characterizes contact resistance, current collector foil impedance, and direct current resistance (DCR) on battery tabs and cell assemblies.	Ensures low internal resistance and superior conductivity across energy storage materials to prevent thermal runaway.
Passive Component Manufacturing	High-speed sorting and verification of surface-mount inductors, precision thin-film resistors, and multi-layer ceramic capacitors (MLCC).	Delivers rapid 5-bin qualification via automated handler interfaces, significantly reducing inspection cycle times.
Electrolytic Capacitor Verification	Evaluates equivalent series resistance (ESR), loss factor ($\tan \delta$ / D), and polarized capacitance under internal DC bias voltages.	Prevents defective dielectric components from entering power electronic assemblies, enhancing field reliability.
Magnetic Material Characterization	Measures core loss, inductance (L), and quality factor (Q) on ferrite cores, chokes, and high-frequency pulse transformers across swept frequencies.	Identifies optimal magnetic saturation and high-frequency response boundaries for switch-mode power designs.
Incoming Quality Control (IQC)	Rapid parameter screening and tolerance validation (-50% to +50%) for incoming passive electronic components against vendor specifications.	Intercepts out-of-spec batches before board assembly, eliminating downstream manufacturing rework and costs.
Piezoelectric & Ceramic Sensor R&D	Profiles impedance (Z), phase angle (θ), and reactance (X) over continuous frequency bands to pinpoint fundamental resonance points.	Provides fine 1 Hz resolution and 0.2% precision necessary for mapping acoustic transducers and functional ceramics.
Semiconductor Package Testing	Evaluates lead-frame resistance, parasitic packaging inductance, and pin-to-pin leakage under controlled AC drive levels.	Minimizes high-frequency parasitic signal distortion in advanced semiconductor packaging architectures.

Specification Parameter	Fixed Frequency Series (CD07-4401 / CD07-4402 / CD07-4410)	Continuous Frequency Series (CD07-4501 / CD07-4502 / CD07-4510)
Base Model Identifiers	CD07-4401: 10 Fixed Points (100 Hz – 10 kHz) CD07-4402: 12 Fixed Points (100 Hz – 20 kHz) CD07-4410: 16 Fixed Points (100 Hz – 100 kHz)	CD07-4501: 10 Hz – 10 kHz (Continuous, 1 Hz step) CD07-4502: 10 Hz – 20 kHz (Continuous, 1 Hz step) CD07-4510: 10 Hz – 100 kHz (Continuous, 1 Hz step)
Basic Measurement Accuracy	0.20%	0.20%
Display Type & Resolution	3.5-inch TFT LCD, 480 × 320 resolution, 16M colors	3.5-inch TFT LCD, 480 × 320 resolution, 16M colors
Display Digits	Primary Parameter: 5 digits; Secondary Parameter: 5 digits	Primary Parameter: 5 digits; Secondary Parameter: 5 digits
Primary Parameters	L (Inductance), C (Capacitance), R (Resistance), Z (Impedance)	L (Inductance), C (Capacitance), R (Resistance), Z (Impedance)
Secondary Parameters	X (Reactance), D (Dissipation Factor), Q (Quality Factor), θ (Phase Angle), ESR (Equivalent Series Resistance)	X (Reactance), D (Dissipation Factor), Q (Quality Factor), θ (Phase Angle), ESR (Equivalent Series Resistance)
Inductance Measurement Range (L)	0.001 μ H – 9999 H	0.001 μ H – 9999 H

Specification Parameter	Fixed Frequency Series (CD07-4401 / CD07-4402 / CD07-4410)	Continuous Frequency Series (CD07-4501 / CD07-4502 / CD07-4510)
Capacitance Measurement Range (C)	0.001 pF – 99.99 mF	0.001 pF – 99.99 mF
Resistance Measurement Range (R / DCR)	0.0001 Ω – 99.99 M Ω	0.0001 Ω – 99.99 M Ω
Measurement Speed	Slow: 2 times/s; Medium: 4 times/s; Fast: 8 times/s	Slow: 2 times/s; Medium: 4 times/s; Fast: 8 times/s
Test Signal Excitation Level	6 Fixed Levels: 0.1 V, 0.3 V, 0.6 V, 1.0 V, 1.5 V, 2.0 V	0.1 V – 2.0 V continuously adjustable, 1 mV steps
Signal Source Output Impedance	Selectable 300 Ω , 1000 Ω	Selectable 300 Ω , 1000 Ω
Internal DC Bias Source	0 mV – 1500 mV adjustable, 1 mV steps	0 mV – 1500 mV adjustable, 1 mV steps
Range Selection Mode	Auto Range and Manual Range locking	Auto Range and Manual Range locking
Calibration Functionality	Full-scale Open Circuit and Short Circuit zero-clearing	Full-scale Open Circuit and Short Circuit zero-clearing
Screening & Tolerance Setup	Limit range: -50% to +50%; Fixed standard points: 1%, 5%, 10%, 20%	Limit range: -50% to +50%; Fixed standard points: 1%, 5%, 10%, 20%
Comparator Binning	5 Bins: 3 Qualified (Pass) Bins, 1 Unqualified (Fail) Bin, 1 Auxiliary Bin with beeper alarm	5 Bins: 3 Qualified (Pass) Bins, 1 Unqualified (Fail) Bin, 1 Auxiliary Bin with beeper alarm
Data Logging & Statistics	Maximum, Minimum, Average value recording	Maximum, Minimum, Average value recording
Command Set & Protocol	Standard SCPI protocol	Standard SCPI protocol
Standard Communication Interfaces	RS-232 (or RS-485), USB Device, Handler	RS-232 (or RS-485), USB Device, Handler
Optional Communication Interfaces	GPIO (IEEE-488), USB Host	GPIO (IEEE-488), USB Host
Power Supply Requirements	220 V AC $\pm$ 10% or 110 V AC $\pm$ 10%, 45 Hz – 65 Hz	220 V AC $\pm$ 10% or 110 V AC $\pm$ 10%, 45 Hz – 65 Hz
Power Consumption	< 10 W	< 10 W
Operating Environment	Temperature: 10°C to +40°C; Humidity: $\leq$ 90% RH (at 0°C to 40°C)	Temperature: 10°C to +40°C; Humidity: $\leq$ 90% RH (at 0°C to 40°C)
Storage Environment	Temperature: -10°C to +60°C	Temperature: -10°C to +60°C
Included Standard Accessories	3-Core Power Cable (30A51), 4-Terminal Kelvin Test Cable (35A51), User Manual	3-Core Power Cable (30A51), 4-Terminal Kelvin Test Cable (35A51), User Manual
Optional Test Fixtures & Cables	GPIO Cable (32P01), RS-232 Serial Cable (32P04), USB Data Cable (32P05), 2m/4m Extended Test Cable (35P01), Lead-Type Kelvin Test Fixture (35A52), SMD Patch Component Fixture (35P02), 4-Wire LCR SMD Tweezers/Pen (35P03), 4-Terminal Pair Kelvin Fixture, Gold-Plated Shorting Plate (35A53)	GPIO Cable (32P01), RS-232 Serial Cable (32P04), USB Data Cable (32P05), 2m/4m Extended Test Cable (35P01), Lead-Type Kelvin Test Fixture (35A52), SMD Patch Component Fixture (35P02), 4-Wire LCR SMD Tweezers/Pen (35P03), 4-Terminal Pair Kelvin Fixture, Gold-Plated Shorting Plate (35A53)