ET3510 / ET3505 / ET3503 / ET3502 / ET3501

ET3500 Series Precision LCR Meter



OVERVIEW

The ET3500 series precision LCR meter is a high-precision component parameter analyser designed on the automatic balance bridge principle. Its 10 Hz – 1 MHz test bandwidth with continuously adjustable frequency, 0.05 % basic measurement accuracy, automatic level control, list scan and binning functions provide accurate, complete measurement and analysis for most components and materials — widely used in product R&D, incoming component inspection and in-line production sorting.

FEATURES

- Frequency measurement range 10 Hz – 1 MHz
- Basic accuracy 0.05 %
- Test frequency user-defined, continuously adjustable in 1 mHz steps
- Measurement speed up to 200 times/s
- Internal programmable DC bias voltage
- Supports externally applied DC bias voltage
- V and I test-signal monitoring
- 10-point list scan test function
- 10-bin sorting and counting functions
- 7-inch LCD, Chinese / English interface, bridge operating system
- Test level 10 mV – 2000 mV, user-defined, continuously adjustable in 1 mV steps
- SCPI programming protocol supported
- Interfaces: USB Host, USB Device, LAN, RS232, HANDLER (GPIB optional)

SPECIFICATIONS

Item	ET3510	ET3505	ET3503	ET3502	ET3501
Frequency range	10 Hz – 1 MHz	10 Hz – 500 kHz	10 Hz – 300 kHz	10 Hz – 200 kHz	10 Hz – 100 kHz

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Test frequency points	User-defined frequency, continuously adjustable in 1 mHz steps				
Test level range	10 mV – 2000 mVrms, 1 mV steps, continuously adjustable				
Basic accuracy	0.05 %				
Display	6½-digit display resolution				
Frequency resolution & accuracy	Resolution 1 mHz · accuracy 0.01 %				
Test parameters	Cp-D, Cp-Q, Cp-G, Cp-Rp, Cs-D, Cs-Q, Cs-Rs, Lp-D, Lp-Q, Lp-G, Lp-Rp, Ls-D, Ls-Q, Ls-Rs, Rs-Xs, |Z|-θr, |Z|-θd, |Y|-θr, |Y|-θd, G-B				
Measurement display speed (≥100 Hz)	Fast 50/s (20 ms) · medium 10/s (100 ms) · slow 1.25/s (800 ms)				
Custom measurement speed (≥1 kHz)	User-settable, 0.5/s – 200/s				
LCR parameter display ranges	Cp, Cs: 0.001000 pF – 99.9999 F · Lp, Ls: 0.001000 nH – 99.9999 kH · Rp, Rs, |Z|, Xs: 0.001000 mΩ – 999.999 MΩ · G, B, |Y|: 0.001000 µS – 999.999 kS · θr: ±0.000001 rad – 3.14159 rad · θd: ±0.000001 deg – 179.9999 deg · D: ±0.000001 – 9.99999 · Q: ±0.001 – 99999.9				
Voltage measurement	Resolution 1 mV · accuracy 5 % + 5 mV				
Test signal current	Range 100 µArms – 20 mArms · resolution 10 µA · accuracy 5 % + 50 µA				
Signal source output impedance	30 Ω, 100 Ω				
Comparator	8 pass bins, 1 fail bin, 1 AUX bin				
Trigger modes	Internal, manual, external, bus				
Math operations	Delta (absolute value), Delta% (percentage), direct reading				
Calibration	Self-calibration, open, short, load, 100 user-defined frequency points				
List scan	10-point list scan test				
Standard interfaces	LAN, RS232, USB Host, USB Device, Handler (GPIB optional)				

MEASUREMENT OBJECTS

- **Passive components:** impedance parameter evaluation and performance analysis of capacitors, inductors, magnetic cores, resistors, piezoelectric devices, transformers, chip components and network components
- **Semiconductor components:** C-VDC characteristics of varactor diodes; parasitic parameter analysis of transistors and integrated circuits
- **Other components:** impedance evaluation of printed circuit boards, relays, switches, cables and batteries
- **Dielectric materials:** permittivity and loss-angle evaluation of plastics, ceramics and other materials; permeability and loss-angle evaluation of ferrites, amorphous and other magnetic materials
- **Semiconductor materials:** permittivity, conductivity and C-V characteristics

- **Liquid crystal materials:** permittivity, elastic constants and other C-V characteristics

APPLICATIONS

- **Electronics:** capacitors, substrates, PCBs, antennas, ferrites, shock absorbers, SAW materials
- **Aerospace & defence:** stealth materials, radar-absorbing materials (RAM), radomes
- **Industrial materials:** ceramics and composites, automotive parts, coatings
- **Polymers & plastics:** fibres, films, insulating materials
- **Hydrogels:** disposable diapers, soft contact lenses
- **LCD displays**
- **Other products containing such materials:** tyres, paints, adhesives
- **Food & agriculture:** food preservation (spoilage research), microwave food development, packaging, moisture measurement
- **Forestry & mining:** wood / paper moisture measurement, oil content analysis
- **Pharmaceutical & medical:** drug research and production, biological implants, human tissue characterisation, biomass, fermentation

ACCESSORIES

- **Standard:** three-core power cord (30A51), Kelvin test fixture (35P04)
- **Optional:** SMD component test fixture (35P02), SMD four-terminal chip test tweezers (35P03), lead-type test fixture (35A52)

For quotations, options and lead time, contact Kate Liu — enquiries are answered personally, typically within one working day.