

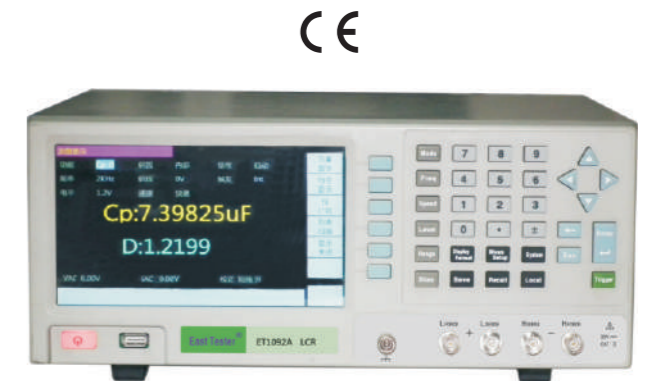
# Datasheet

## ET1092 series

ET1092 series LCR digital bridge is a high precision component parameter analyzer designed based on the principle of automatic balance bridge. Its 10Hz~1MHz test bandwidth, frequency continuous adjustable, 0.05% basic measurement accuracy, automatic level control function, list scanning and file counting function provided by the instrument provide most components and materials. Accurate and complete measurement and analysis are widely used in product development, component inspection, product on-line inspection and other applications.

### Product characteristics

- ▣ 0.05% basic accuracy
- ▣ Measuring speed up to 200 times per second
- ▣ 10Hz-1MHz Frequency Measurement Range, Continuous Adjustable, 1mHz Step
- ▣ Test signal level 10 mV-2 V adjustable, 1 mV step-by-step
- ▣ Internal Programmable DC Bias Voltage -2V~+2V
- ▣ Supporting external DC bias voltage -60V~+60V
- ▣ Supporting external current source
- ▣ Automatic Level Adjustment of Voltage or Current
- ▣ V, I and other test signal monitoring functions
- ▣ 10-Point List Scanning Test Function
- ▣ 10-grade sorting and counting function
- ▣ 100 sets of self-calibration data
- ▣ Automatic and manual range
- ▣ 7 inch LCD display, Chinese and English interface
- ▣ USB, LAN, RS232, GPIB, HANDLER interfaces



### Measurement object

- ▣ Passive components: capacitors, inductors, magnetic cores, resistors, piezoelectric devices, transformers, chip components and network components impedance parameter evaluation and performance analysis.
- ▣ Semiconductor components: C-VDC characteristics of varactor diodes; parasitic parameter analysis of transistors or integrated circuits
- ▣ Other Components: Impedance Evaluation of Printed Circuit Board, Relay, Switch, Cable, Battery, etc.
- ▣ Dielectric materials: dielectric constant and loss angle of plastics, ceramics and other materials evaluation of magnetic materials: permeability and loss angle evaluation of ferrites, amorphous and other magnetic materials
- ▣ Semiconductor Materials: Dielectric Constants, Conductivity and C-V Properties of Semiconductor Materials
- ▣ Liquid Crystal Materials: C-V Characteristics of Dielectric Constants and Elastic Constants of Liquid Crystal Units

### application area

- ▣ Electronic capacitors, substrates, PCB, antennas, ferrites, shock absorbers, SAR phantom materials;
- ▣ Aerospace/National Defense Stealth, RAM (Radar Wave Absorbing Material), Radome;
- ▣ Industrial Material Ceramics and Composites Automotive Parts and Coatings;
- ▣ Polymers and Plastic Fibers, Films, Insulating Materials;
- ▣ Hydrogel disposable diapers and soft contact lenses;
- ▣ Liquid crystal display;
- ▣ Other products containing such materials such as tyres, coatings, adhesives, etc;
- ▣ Study on Fresh Preservation (Deterioration) of Food and Agricultural Food, Microwave Food Development, Packaging and Moisture Content Measurement;
- ▣ Water Content Measurement and Oil Content Analysis of Wood/Paper Products in Forestry and Mining Industry;
- ▣ Pharmaceutical and medical drug research and production, biological implants, human tissue characterization, biomass, fermentation.

### Main technical indicators

Model	ET1092E	ET1092D	ET1092C	ET1092B	ET1092A
Test signal frequency range	10Hz-1MHz	10Hz-500kHz	10Hz-300kHz	10Hz-200kHz	10Hz-100kHz
Frequency Resolution and 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				
Measuring display speed (> 100Hz)	Fast 50 times per second (20ms), moderate 10 times per second (100ms), slow 1.25 times per second (800ms)				
Customized measurement speed (> 1kHz)	It can be set between 0.5 times per second and 200 times per second				
LCR parameter display range	Cp, Cs : 0.001000pF~99.9999F Lp, Ls : 0.001000nH~99.9999kH Rp, Rs,  Z , Xs : 0.001000mΩ~999.999MΩ G, B,  Y  : 0.001000μS~999.999kS θr : ±0.000001rad~3.14159rad θd : ±0.000001deg~179.9999deg D : ±0.000001~9.99999 Q : ±0.001~99999.9				
Test signal voltage range	0~2Vrms				
Voltage Resolution and Accuracy	Resolution 1 mV, accuracy 5%+5 mV				
Test signal current range	100μArms ~ 20mArms				
Current Resolution and Accuracy	Resolution 10 μA, Accuracy 5%+50 μA				
DC bias voltage source	Internal: - 2V ~+2V voltage bias, - 20mA ~+20mA current bias External: - 60V ~+60V Voltage Bias				
Internal resistance of signal source	30 ohms, 100 ohms optional				
Basic accuracy	0.05%				
Display resolution	6 1/2 digit				
comparator	8 combination, 1 unqualified and 1 subsidiary				
Trigger mode	Internal, manual, external, bus				
Mathematical operations	Delta (absolute value), Delta (percentage), direct reading				
Calibration function	Self-Calibration, Open Circuit, Short Circuit, Load, 100 Sets of Self-Setting Frequency Points				
List scanning	10-Point List Scanning Test				
Storage device	Internal /USB memory				
Interface	GPIB, LAN, RS232, USB Host, USB Device, Handler, (3501 GPIB is the choice)				

### General technical specifications

- ▣ Power voltage: 220V.AC ±10%, 50Hz,Optional 110V.AC ±10%, 50Hz;
- ▣ Power consumption: <20W;
- ▣ Display: 7" TFT LCD, with a resolution of 800\*480;
- ▣ Interfaces: Ethernet, RS232, GPIB, USB and Handler interfaces;
- ▣ Service environment: 0°C-40°C;
- ▣ Sizes: 330mm\*285mm\*136mm (L\*W\*H);
- ▣ Weight: 3.6kg.





### Standard accessories

- ▣ Three core power cord(30P04);
- ▣ Kelvin test clip(35P04).

### Optional accessories

- ▣ GPIB Cable (32P01);
- ▣ Rs232 Serial Port Line (32P04);
- ▣ USB Data Line (32P05);
- ▣ 2m/4m test cable (35P01);
- ▣ SMD patch element test fixture (35P02);
- ▣ LCR test pen/four-wire patch element test clamp (35P03);
- ▣ Kelvin Test Clamp (35P04).

### Enclosure

-  Kelvin test clip(35P04)
-  Four-End-to-Kelvin Test Cable(35A51)
-  Lead type test fixture(35A52)
-  SMD patch element test fixture(35P02)