COSINUS® MESSTECHNIK GMBH

Ihr Spezialist für
Mess- und Prüfgeräte

LCR-6000 Series

Precision LCR Meter

FEATURES

- 3.5” Color LCD
- 5 Models (10Hz ~ 2kHz/20kHz/100kHz/200kHz/300kHz)
- Consecutive Test Frequency
- Basic Accuracy : 0.05%
- Measuring Speed up to 25ms (Max.)
- Full Frequency Range or Spot OPEN/SHORT
- 16 Major/Secondary Parameter Measurement Combinations and Two Additional Monitoring Parameters (Maximum Four Different Parameters Can be Shown Simultaneously)
- DCR Measurement and Internal D.C. Bias Voltage (±2.5V)
- PASS/FAIL Judgment
- Auto Level Control (ALC) Function
- BIN Function Provides 9BIN and 1AUX, Totally 10 BIN
- 10 Steps Listed Tests to Select Different Frequency, Voltage and Current Criteria
- Standard Interface : RS-232C, Handler and USB Storage
- Compact Size, Ideal for Automatic Equipment (2U,1/2 Rack)

GW Instek introduces the brand new high precision LCR meter - LCR-6000 series, which, with five models, has a test frequency range extending from 2kHz/20kHz/100kHz/200kHz/300kHz (maximum) and with 0.05% basic accuracy. The compact size design, 2U height and 1/2 rack, is one of the practical features of the series which is the optimum space saver suitable for either bench top or system rack. The compacted LCR-6000 series with abundant features is absolutely the excellent tool for R&D, production test, IQC, etc. on implementing each test stages for passive components.

The LCR-6000 series provides rich functionalities with the compact size. First of all, the entire series adopts 3.5-inch color LCD and features opulent display parameters. In addition to simultaneously displaying setting criteria and measurement results, the series increases two additional monitoring parameters. In other words, there are four parameters, primary/secondary and two monitoring, simultaneously shown on the screen that tremendously enhances the measurement efficiency. The enlarge display mode not only emphasizes the measurement results, but also provides PASS/FAIL judgment to facilitate a rapid and convenient test result.

Convenience is one of the unique features. The LCR-6000 series comes equipped with two zero methods, which are full frequency range and spot. Users, without turning off the power and changing test fixture, can freely change frequency within the provided frequency range to conduct measurements. By so doing, tremendous time can be saved from repeatedly executing zero operation. Additionally, frequency range of the series is consecutive that allows users to input precise frequency value to conduct the most genuine test on components.

The LCR-6000 series also features diverse ancillary measurements to meet the measurement requirements of different materials. For instance, the series provides the automatic level control (ALC) function to satisfy the test voltage requirement of MLCC. For inductive component measurements, the series provides the adjustable test current function and the D.C. resistance measurement function. The optional external bias current adapter (±2.5A) is to satisfy the measurement requirements. With respect to the D.C. bias voltage test for capacitive components requirements, the series allows users to conduct verification measurement on materials by its internal ±2.5V adjustable voltage or via an optional external bias voltage adapter (±45V). Furthermore, 10 steps of listed test functionalities allow users to set testing parameters (either by frequency, or voltage, or current) for each step based on users' requirements in order to observe the trend of DUT characteristics.

The LCR-6000 series has 10 memory sets defined by panel setting criteria to facilitate users in selecting test criteria and saving time in repeated settings. 10,000 measurement result storage capability can easily record measurement results instantaneously. The USB host allows easy access to recorded results without connecting the series to the PC. The USB host also allows USB to retrieve and save screen so as to assist users in compiling setting guidelines.

For the external control, the LCR-6000 series provides handler interface and collocates with its measurement sorting function (9BIN, AUX: 1BIN) to facilitate the connection with sorting machine so as to sort out the materials. For remote control and measurement result retrieval requirements, the LCR-6000 series provides RS-232C to assist setting control or measurement result retrieval via the PC commands. Additionally, the free PC software gives users an instant tool to store measurement results that saves time in developing programs.

The brand new compacted LCR-6000 series can effectively improve the limitation of space. Diverse measurement functionalities and display methods are making the series the high CP ratio choice in meeting the requirements of R&D, component assessment for engineering departments, category sorting requirements for component production, and IQC for verification on component specifications.

PANEL INTRODUCTION

CE | USB host | PC Software | RS-232 | Handler | LabVIEW Driver

1. 3.5" Large TFT LCD Provides Setting Parameters and Measurement Result Observation Simultaneously
2. Corresponding Functional Keys Provide More Intuitive And Fast Operation
3. Maximum 4 Measuring Parameters Can Be Shown
4. Usb Host For Data Storage and Display Screen Retrieval
5. Four Wire Measurement Terminal
6. RS-232C Port (Standard)
7. Handler Port (Standard)
8. Universal Power Input AC 100~240V

A. Consecutive Frequency and Convenient Zero Function

Consecutive and Adjustable Frequency

Freely Input Frequency Within Provided Frequency Range

Selectable Fixture Zeroing Methods

Full Frequency Range Zero or Spot Zero

The LCR-6000 series, within the provided frequency range, features consecutive and adjustable frequency capability which allows users to conduct measurement and analysis on components with the most genuine frequency requirements. For OPEN/SHORT fixture compensation function, the LCR-6000 series is equipped with full frequency range zero and spot zero selections. After executing full frequency range zero, users, under the conditions of not turning off the power and not changing test fixture, can freely change test frequency for the LCR-6000 series to execute component measurements that tremendously saves time in repeatedly zeroing test fixture after changing frequency.

B. Rich and Diverse Information Display

MEAS Display

Parameter Setting and Four Measurement Parameters

ENLARGE Display

Enlarge Measurement Results and Include PASS/FAIL Judgment

The measurement result display of the LCR-6000 series not only reveals major and secondary measurement parameters but also includes two monitoring parameters. Therefore, four DUT related parameters can be simultaneously shown on the display screen to save time if repeated measurements are required. With respect to display screen, the LCR-6000 series features diverse display to meet users' observation requirements. For instance, MEAS display shows setting parameters and measurement results at the same time; ENLARGE display focuses on measurement results and PASS/FAIL judgment is available, which is conducive to assist engineers to swiftly obtain the validity of measurement results.

C. Diverse Ancillary Measurement Functions

Automatic Level Control

Ideal for Measuring Components With Voltage Requirements

Internal Bias (±2.5V Adjustable)

Ideal for Capacitive Components' Characteristic Tests

D.C. Resistance Measurement

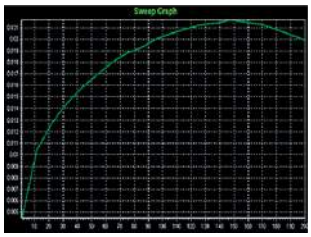
Ideal for inductive components' D.C. Characteristics Verification

To satisfy the diverse measurement application requirements for different components and materials, the LCR-6000 series collocates with many auxiliary measurement functions. For capacitor measurement, Automatic Level Control (ALC) is mainly for component which requires a constant or rated test voltage such as multi-layer ceramic capacitor (MLCC). An internal D.C. bias voltage (±2.5V, internal) is allowing simulating A.C. and D.C. coexistence to learn capacitance variation. For inductor measurement, the D.C. resistance measurement function is to validate D.C. resistance characteristics. Additional, the LCZ function is to quickly identify components ' characteristics. When the function is activated, the LCR-6000 series will automatically determine DUTs' characteristics and reveal the optimum parameters to show the measurement results.

D. 10 Points Listed Tests and PC Software

Listed Tests

Variation Criteria Based Upon Frequency or Voltage/Current



On Software - Characteristic Curve

Provide More Delicate Characteristic Variation Trend

The LCR-6000 series provides the 10 points listed test function, which allows users to define a set of DUT measurement parameters (such as Cs-Rs) and to set 10 test criteria of category (either by frequency or by voltage or by current) but different values to conduct measurements. Through this function, users can rapidly and clearly obtain DUT's characteristic variation trend to determine the adaptability of DUT's practical applications. The measurement results can be recorded directly in the internal memory and be transferred to the PC through USB. The LCR-6000 series also provides free PC software (maximum 1,000 points listed tests) in order to satisfy users' analytical requirements on delicate variation.

E. Standard Interface

Standard Interface

For interface connectivity, the LCR-6000 series comes equipped with Handler interface and RS-232C interface. Handler outputs 10 BIN (9BIN, AUX: 1BIN) sorting results that is best for external connection control, for instance, connecting to a sorting machine to conduct components' sorting operation. RS-232C is suitable for remote control and measurement results retrieval. The PC gives commands to control settings or to read measurement results so as to achieve the requirements of verifying automotive applications.

Ihr Spezialist für
Mess- und Prüfgeräte

SPECIFICATIONS

TEST FREQUENCY		LCR-6300 : 10Hz ~ 300kHz(±0.01%) (4 digits resolution) LCR-6200 : 10Hz ~ 200kHz(±0.01%) (4 digits resolution) LCR-6100 : 10Hz ~ 100kHz(±0.01%) (4 digits resolution) LCR-6020 : 10Hz ~ 20kHz(±0.01%) (4 digits resolution) LCR-6002 : 10Hz ~ 2kHz(±0.01%) (4 digits resolution)
OUTPUT IMPEDANCE		30Ω / 50Ω / 100Ω selectable
BASIC ACCURACY	Slow / Med Fast	0.05% 0.1%
TEST SPEED		FAST : 25ms / MED : 100ms / SLOW : 333ms
TEST SIGNAL LEVELS	AC Voltage Current DCR	10.00mV- 2.00V (±10%) CV : 10.00mV- 2.00V (±6%) 100.0μA- 20.00mA (±10%) CC : 100.0μA- 20.00mA(±6%) (@2VMax) ±1V(2Vpp), Square wave, 3Hz up 0.033A(Max)
DC BIAS	Internal	±2.5V (0.5% + 0.005V)
DISPLAY RANGE	R, X, |Z| G, B, |Y| L C D Q θ d θ r DCR △%	0.00001Ω ~ 99.9999MΩ 0.01nS ~ 999.999S 0.00001μH ~ 9999.99H 0.00001pF ~ 9999.99mF 0.00001 ~ 9.99999 0.00001 ~ 99999.9 -179.999° ~ 179.999° -3.14159 ~ 3.14159 0.00001Ω ~ 99.9999MΩ -99999% ~ 99999%
TEST MODE	Combinations Monitor Parameter (2 Selectable)	Cs-Rs, Cs-D, Cp-Rp, Cp-D, Lp-Rp, Lp-Q, Ls-Rs, Ls-Q, Rs-Q, Rp-Q, R-X, DCR, Z-θr, Z-θd, Z-D, Z-Q, Auto LCZ Z, D, Q, Vac, Iac, △, △%, θr, θd, R, X, G, B, Y
LISTED MODE		10 steps
BIN FUNCTION		Comparator (9BIN,AUX:1BIN)
MEMORY	INT – Panel Setting INT – Measured Data USB Storage	10 file name 10000 Data(.csv) 10 file name for setting, 9999 file name for data, 999 Log file for LCD screen
OTHER FUNCTION	Auto Level Control (ALC) Average Trigger Delay Judgment Screen Capture	ON/OFF 1~256 times INT / MAN / EXT / BUS 0ms~60s PASS / FAIL Saving in to USB (Bmp form)
DISPLAY		3.5" LCD, RGB color (320x240)
INTERFACE		RS-232(SCPI), Handler, USB Host
POWER SOURCE		AC 100V ~ 240V, 50 ~ 60Hz, Max. 30W
DIMENSIONS & WEIGHT		265(W) x 107(H) x 312(D) mm ; Approx. 3kg

Specifications subject to change without notice. CR-6000GD1BH-2018.05_2000

ORDERING INFORMATION

LCR-6300	**10Hz ~ 300kHz Precision LCR Meter**
LCR-6200	**10Hz ~ 200kHz Precision LCR Meter**
LCR-6100	**10Hz ~ 100kHz Precision LCR Meter**
LCR-6020	**10Hz ~ 20kHz Precision LCR Meter**
LCR-6002	**10Hz ~ 2kHz Precision LCR Meter**

ACCESSORIES

Safety Sheet x 1, Power Cord x 1, Test Fixture LCR-06B x 1,
CD x 1 (User manual/PC software)

OPTIONAL ASSESSORIES

LCR-05	Test Fixture for Axial & Radial Lead Components
LCR-06B	Kelvin Clip Test Lead
LCR-07	Test Fixture, Two-Wire with Alligator Clips
LCR-08	Test Fixture (Tweezers) for SMD/Chip Components
LCR-15	Test Fixture for SMD/Chip Components (0201 to 1812)
LCR-16	Test Fixture – ±45V DC Bias Voltage Box
LCR-17	Test Fixture – ±2.5A DC Bias Current Box
GTL-232	RS-232C Cable, 9-pin Female to 9-pin, null Modem for Computer, Approx. 2m
GRA-422	Rack Mount kit

LCR-05

LCR-06B

LCR-07

LCR-08

LCR-15

LCR-16

LCR-17

Cosinus Messtechnik GmbH * Rotwandweg 4 * D-82024 Taufkirchen
Tel.: 089-665594-0 * Fax: 089-665594-30 * Web: www.cosinus.de * eMail: office@cosinus.de