GW Instek LCR-8200A

High Frequency LCR Meter

New Product Announcement

This document allows GW Instek's partners to quickly grasp product's main features, FAB and ordering information.

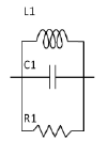
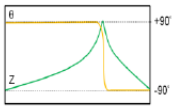
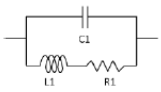
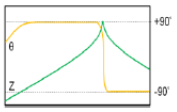
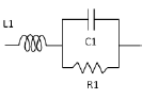
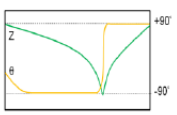
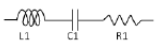
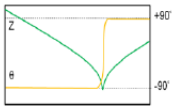
LCR-8200A High-Frequency LCR Meter

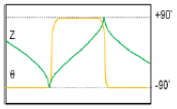
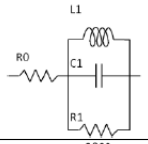
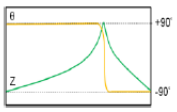
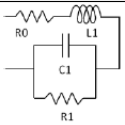
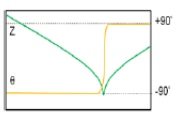
New Product Announcement

GW Instek High Frequency LCR Tester ~ The LCR-8200A is an extended series of the existing LCR-8200 series, providing test frequencies up to 50MHz. This extended series features a 7-inch color display with high measurement accuracy (0.08%), the same as the LCR-8200 series. The measurement results can be presented in numerical or graphical form depending on the selected measurement mode, allowing users to judge the characteristics of the DUT in the best way. At the same time, a full range of standard interfaces such as USB device / RS-232C / Handler and GPIB allow users to control the instrument by the most familiar interface without worrying about additional hardware investment costs. Furthermore, the series also provides USB storage function when operating in the graphics mode. The measured characteristic curves and values of the DUT are saved for subsequent analysis. The wide variety of features of the LCR-8200A can help users easily respond to the test requirements of passive components in R&D, engineering, and production.

There are 2 main differences between LCR-8200A and LCR-8200:

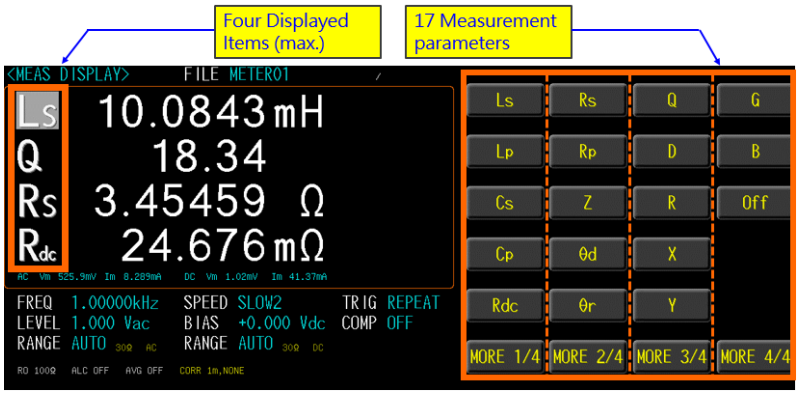
1. Different frequency ranges: LCR-8200 provides 5 models, the highest frequency of each model is 1MHz, 5MHz, 10MHz, 20MHz and 30MHz; and LCR-8200A also provides 5 models, but the highest frequency of each model is 5MHz, 10MHz, 20MHz, 30MHz and 50MHz.
2. Equivalent Circuit Model Analysis: LCR-8200A provides 7 different equivalent circuit models which are using circuit components to form a specific circuit network, to characterize the operational characteristics of the circuit or analysis of its performance and to discover any scope of further modification.

	Equivalent Circuit Model	Typical Frequency Characteristics
A		
B		
C		
D		

	Equivalent Circuit Model	Typical Frequency Characteristics
E		
F		
G		

The Smarter Way to Characterize Component

The Presentation of flexible measurement combinations

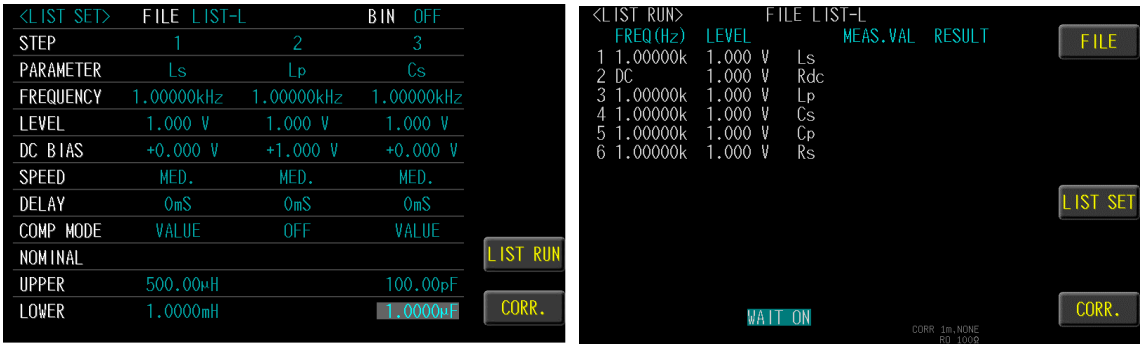


LCR-8200A allows users to select and arrange measurement parameters. Users can select at least one parameter to maximum four parameters from the 17 measurement parameters according to the measurement requirements and the presentation order can also be arranged in a desired manner. The set parameters can be stored in internal/external memory groups for subsequent recalls.

Independent setting judgment

Each selected test parameter can independently set judgement and comparison such as value, difference value or difference percentage. Additionally, the display method can also be based on value, difference value or difference percentage to self-define the presentation of test results, and the observation is more in line with the actual needs. In addition to using the warning sound, all the parameters set for comparison judgment will be displayed in different colors. "Red" means that the limit value is exceeded, and "Green" means that it is within the limit value, so that the judgment can be conducted smoothly under noisy environment.

LIST measurement

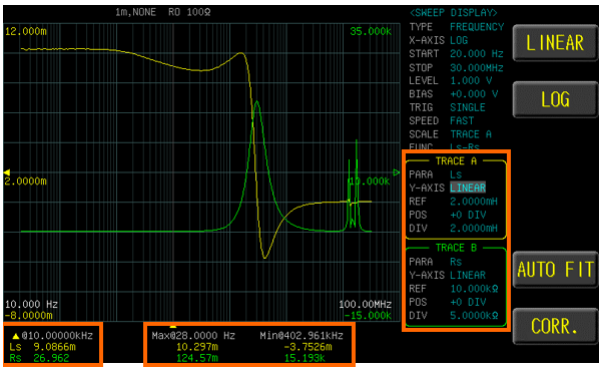


The 15-point LIST measurement mode provides measurement values at a specific frequency or voltage of the DUT, and each set point can set independent comparison and judgement. When the trigger mode is set to “AUTO”, the display “WAIT ON” will appear on the measurement screen and LCR-8200A will detect the contact status of the fixture. When the DUT is connected, the test will start automatically.

BIN Function

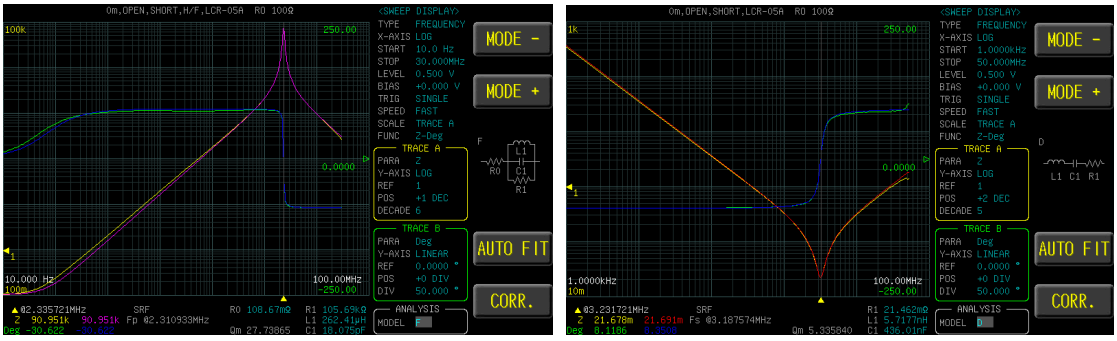
BIN settings for one specific parameter of the selected measurement parameters provide up to 9 BIN positions. Set the judgment basis for individual classifications according to the desired BIN methods (EQUAL/SEQUENTIAL/TOLERANCE/RANDOM) and limit value mode (VALUE/delta/delta%). The result of this sorting can be obtained through the Handler interface. If directly connected to an external device such as a sorter, an immediate sorting can be performed.

Two-curve Sweep



Up to 2 characteristic parameters of the DUT can be swept at the same time. Sweep type (frequency/Vac/Iac/Bias V), axis form (LOG/LINEAR), sweep speed, even adding bias (internal), etc can be set according to the actual demands. After the sweep is completed, automatic adjustment can be used to obtain the best observation display. The movable cursor can be used to obtain the measurement result of the specific position. Swept displays and point values can be saved to the flash drive via the USB host on the panel for subsequent analysis.

Equivalent Circuit Model Analysis



This function, which adopts the algorithm based on resonance theory, consists of 7 different equivalent circuit models. The 3-components analysis model is composed of 4 types, A, B, C and D, whereas the 4-components analysis model covers 3 types, E, F and G. By selecting suitable equivalent circuit model, the instrument will automatically calculate approximate value of each component parameter after measurement, and generate simulated curve (TRACE A/B SIMULATION) to compare with the measured curve (TRACE A/B).

Also, it's available to choose equivalent circuit model followed by directly input value of each component parameter to generate a simulated curve (TRACE A/B SIMULATION) to further compare with the measured curve (TRACE A/B). The parameters of both resonance frequency (SRF) and quality factor (Qm) can be displayed simultaneously.

Key Features

- Wide Test Frequency DC, 10Hz ~ 5MHz/10MHz/20MHz/30MHz/50MHz
- 7" LCD color Display
- 0.08% Basic Accuracy
- Displaying Four Measurement results simultaneously from 17 selectable measurement parameters freely
- 15 steps List Measurement
- Two Curves Sweep Mode
- Equivalent Circuit Model Analysis
- Internal DC Bias Voltage ±12V
- USB Storage available
- ALC function available
- Standard Interfaces : RS-232C, USB host/device, LAN, GPIB and Handler
- Universal power input

7" TFT LCD, supporting a greater view of setting parameters, testing value as well as Sweep/Equivalent Circuit Model Analysis trace.

Function keys to select corresponding option which located on the right of LCD screen

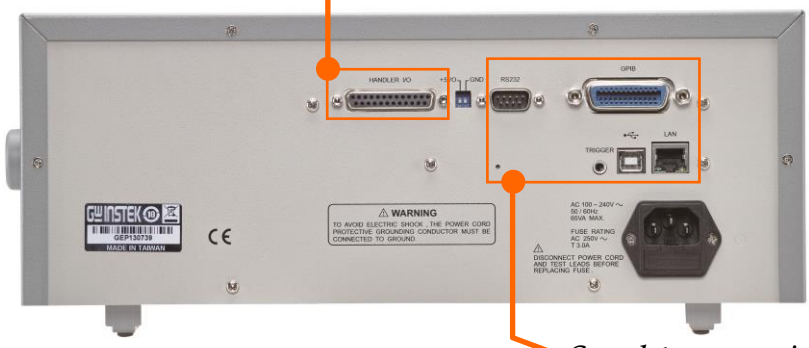
Arrow keys to navigate cursor on the screen

DC Bias indicator lights up when bias is active

USB host provides screen capture or Sweep data storage

Terminal to connect test fixture for measurement

Handler port provides external control by PLC or control system



Complete communication ports, USB/RS-232/LAN as well as GPIB, facilitate the easy & convenient communication.

Specifications comparison ~ LCR-8200A vs LCR-8200

Specifications highlighted in BLUE represent better performance

"X" represents "no such function" or "function not available"

Brand	GW	GW
Model	**LCR-8200A**	LCR-8200
Outlook		
Display	7" Color(840x480)	7" Color(840x480)
Operating Method	Key-pad	Key-pad
Frequency	DC,10Hz-5MHz/10MHz/ 20MHz/30MHz/**50MHz**	DC,10Hz-**1MHz**/5MHz/ 10MHz/20MHz/30MHz
Graph(Sweep)	Standard ~ Two curves	Standard ~ Two curves
Basic Accuracy	0.08%	0.08%
Output Impedance	25Ω,100Ω	25Ω,100Ω
Test Speed (Fast)	2.5ms	2.5ms
Test Parameters	|Z|, |Y|, Cs, Cp, Ls, Lp, X, B, R, Rs, Rp, Q, D, G, θd, θr, Rdc	|Z|, |Y|, Cs, Cp, Ls, Lp, X, B, R, Rs, Rp, Q, D, G, θd, θr, Rdc
Test Signal (AC Volt.)	≦ 1MHz:10mV-2V (RO=100Ω) > 1MHz:10mV-1V (RO=100Ω) ≦ 1MHz:10mV-1V (RO=25Ω)	≦ 1MHz:10mV-2V (RO=100Ω) > 1MHz:10mV-1V (RO=100Ω) ≦ 1MHz:10mV-1V (RO=25Ω)
Test Signal (AC Curr.)	100μA ~ 20mA (RO=100Ω) 400μA ~ 40mA (RO=25Ω)	100μA ~ 20mA (RO=100Ω) 400μA ~ 40mA (RO=25Ω)
Test Signal (DCR Volt.)	1Vdc	1Vdc
Auto Level Control	Standard	Standard
Multi Step(List)	15 Step	15 Step
Equivalent Circuit Model Analysis	**7 models**	X
Graphic Parameters	Freq/Vrms/Irms/BIAS V	Freq/Vrms/Irms/BIAS V
DC Bias	±12V	±12V
Standard Interfaces	RS232C/ LAN/ GPIB USB host & device/ Handler	RS232C/ LAN/ GPIB USB host & device/ Handler

Key Dates for Product Announcement

1. Distributor Announcement (6th of January)
2. Global Market Announcement and Order starting (6th of January)
3. Order Fulfillment: Conformed after receiving the order

Service Policy

1. **2 year warranty**
2. **Service Support**

   The service instructions in the Service Manual will help distributors repair defective units promptly. Should a board replacement be necessary to fix a defective unit, a board swapping service is provided by Good Will Instrument to facilitate the repairs done at a distribution site.
3. GW Instek continues to provide the after sales support through its website. The most updated version of the service manual and Marcom material for LCR-8200A will be posted on the distributor zone of GW Instek Website at https://www.gwinstek.com

Product Outlook

LCR-8200A (Front ~ numerical)

LCR-8200A (Front ~ Sweep)

LCR-8200A (Rear)

Application and Target Markets

- R&D
  - High frequency drive source with adjustable frequency continuity allows the component to be measured under the real operation environment.
  - High Resolution & Accuracy provide precision measurement results, which helps verify component characteristics.
  - Sweep mode for component and material verification based on the sweep of either AC test frequency / voltage / current or Bias voltage.
- Quality Assurance Verification
  - Wide frequency range to cover most of the characteristic measurement items for a broad variety of components.
  - 7’ LCD color display, provides greater view of setting parameters, measured values, judgement results as well as swept curves.
  - Pass/ Fail Test function with buzzer alarm makes the heavy duty of component or material measurement job easy
  - List measurement, with each program containing 15 test steps, performs the routine measurements in sequence just at a push of the trigger button
- Education Lab and Training Institution
  - Wide frequency range to cover most of the characteristic measurement items for a broad variety of components.
  - 7’ LCD color display, provides greater view of setting parameters, measured values, judgement results as well as swept curves.
  - High Resolution & Accuracy provide precision measurement results, which helps verify component characteristics.
  - Pass/ Fail Test function with buzzer alarm makes the heavy duty of component or material measurement job easy
  - Sweep mode for component and material verification based on the sweep of either AC test frequency / voltage / current or Bias voltage.

Specifications

MODEL	LCR-8250A	LCR-8230A	LCR-8220A	LCR-8210A	LCR-8205A
TEST FREQUENCY					
	DC, 10Hz~50MHz; 6 Digits, ±0.0007%	DC, 10Hz~30MHz; 6 Digits, ±0.0007%	DC, 10Hz~20MHz; 6 Digits, ±0.0007%	DC, 10Hz~10MHz; 6 Digits, ±0.0007%	DC, 10Hz~5MHz; 6 Digits, ±0.0007%
OUTPUT IMPEDANCE					
	25Ω / 100Ω SELECTABLE				
BASIC ACCURACY					
	±0.08%				
TEST SPEED					
	MAX: 2.5ms(>10kHz), FAST: 50ms(>20Hz), MEDIUM: 100ms SLOW: 300ms, SLOW2: 600ms				
TEST SIGNAL LEVEL					
AC Voltage: AC Current: DCR Voltage:	10mV ~ 2Vrms (FREQ. ≦ 1MHz), 10mV ~ 1Vrms (FREQ. > 1MHz or FREQ. ≦ 1MHz and RO=25Ω) 100μA ~ 20mArms (RO=100Ω), 200μA ~ 40mArms (RO=25Ω) 1Vdc (40mA max.)				
MEASUREMENT PARAMETERS					
	Maximum four parameters can be measured and displayed at the same time Impedance (Z), Inductance (Ls / Lp), Capacitance (Cs / Cp), AC Resistance (Rs / Rp), Quality Factor (Q), Dissipation Factor (D), Admittance (Y), Conductance (G), Reactance (X), Phase Angle (θd / θr), Susceptance (B), DC Resistance (Rdc)				
LIST MEASUREMENT					
Listed Steps: Listed Parameters: Trigger:	15 Freq/Vac/Iac/DC Bias/Comp/BIN AUTO, REPEAT, SINGLE				
SWEEP MEASUREMENT					
Swept Graphical: Swept Parameters:	Two of measurement parameters Freq/Vac/Iac/BIAS V, Keep Trace				
EQUIVALENT CIRCUIT MODEL ANALYSIS					
	7 different equivalent circuit models. The 3-components analysis model is composed of 4 types, and the 4-components analysis model covers 3 types.				
OTHER FUNCTIONS					
Auto Level Control: DC Bias: Handler:	Standard 0 ~ ±12V PASS, FAIL and OK, NG or BIN 1-9				
OTHER FEATURES					
Correction: V/I Monitor: Comparator: Buzzer: Average:	Open/Short/HF Load/Load Vac, Iac, Vdc, Idc Value, Δ , Δ % OFF, Pass, Fail 1 to 64				
DISPLAY	7" LCD color display (800x480)				
INTERFACE	USB/GPIB/LAN/RS-232/Handler/USB Host/TRIGGER Input				
POWER SOURCE	AC 100V~240V, 50/60Hz; Consumption: 65VA (max.)				
DIMENSIONS & WEIGHT	346 (W) X 145 (H) X 335 (D) mm; Approx. 3.3kg				

Ordering information

LCR-8250A	DC, 10Hz~50MHz High-Frequency LCR Meter with Equivalent Circuit Model Analysis	
	Part Number: *01CR8250A0GT*	***EAN Code:*** *4713008678527*
LCR-8230A	DC, 10Hz~30MHz High-Frequency LCR Meter with Equivalent Circuit Model Analysis	
	Part Number: *01CR8230A0GT*	***EAN Code:*** *4713008678510*
LCR-8220A	DC, 10Hz~20MHz High-Frequency LCR Meter with Equivalent Circuit Model Analysis	
	Part Number: *01CR8220A0GT*	***EAN Code:*** *4713008678503*
LCR-8210A	DC, 10Hz~10MHz High-Frequency LCR Meter with Equivalent Circuit Model Analysis	
	Part Number: *01CR8210A0GT*	***EAN Code:*** *4713008678497*
LCR-8205A	DC, 10Hz~5MHz High-Frequency LCR Meter with Equivalent Circuit Model Analysis	
	Part Number: *01CR8205A0GT*	***EAN Code:*** *4713008678480*

Included Accessories

Safety Sheet x 1, CD x1(user manual),
Power cord x 1, Test lead LCR-06B x 1

Option

LCR-DB1 DC Bias Voltage Box (up to 200V)

Optional Accessories

LCR-05A Test Fixture for axial & radial leaded components (up to 50MHz)
LCR-06B Test Lead with Kelvin clip (4 wire type)
LCR-07 Test Lead with Alligator clip (2 wire type)
LCR-08 Test Fixture (Tweezers) for SMD/Chip components
LCR-10A Test Fixture for Bottom Electrode components (up to 50MHz)
LCR-12 Test Lead with Kelvin clip (4 wire type)
LCR-15A Test Fixture for SMD/Chip components (up to 50MHz)
GTL-232 RS232C Cable, 9-pin Female to 9-pin, null Modem for Computer
GTL-246 USB Cable, USB 2.0, A-B Type, approx. 1200mm
GTL-248 GPIB Cable, approx. 2m

Should you have any questions on the LCR-8200A series announcement, please don't hesitate to contact us.

Sincerely yours,

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