Data Sheet

Bench LCR Meter

Model 891

Industry-Leading Performance

The 891 is a compact, precise, and versatile LCR meter capable of measuring inductors, capacitors, and resistors at DC or from 20 Hz to 300 kHz, in both low and high impedance ranges. The instrument's 2U half-rack form factor is suitable for the bench or standard rack mount installation. A large color display with all important parameters and measurements visible on one screen makes this meter easy to operate.

The instrument's convenient bin sorting function enables quick sorting of components in different bins defined by the user. A linear and logarithmic sweep function is also provided to characterize components over any range of frequencies from 20 Hz to 300 kHz. Standard USB, GPIB, and Ethernet interfaces enhance your productivity by providing remote control capabilities to perform daily operations in production, quality control, and laboratory environments.

Model	891
Basic accuracy	0.05%
Test frequency	20 Hz - 300 kHz
Test levels	0.5 Vrms and 1 Vrms selectable
Measurement parameters	C/L/R/G/B/Y/D/Q/θ/DCR

Features & Benefits

- Compact 2U half-rack form factor with 4.3" color display
- 0.05% basic impedance accuracy
- Measurement parameters include: C/L/R/G/B/Y/D/Q/θ/DCR
- Fully adjustable test frequency from 20 Hz to 300 kHz with 4-digit resolution
- 0.5 Vrms and 1 Vrms selectable test levels
- 300-point frequency sweep function
- Bin sorting function - 9 primary bins with a secondary and out-of-spec bin
- Adjustable measurement speed for fast read out or better accuracy
- Standard USB, GPIB, and Ethernet interface for remote control
- Save/recall up to 100 measurement setups

Bench LCR Meter
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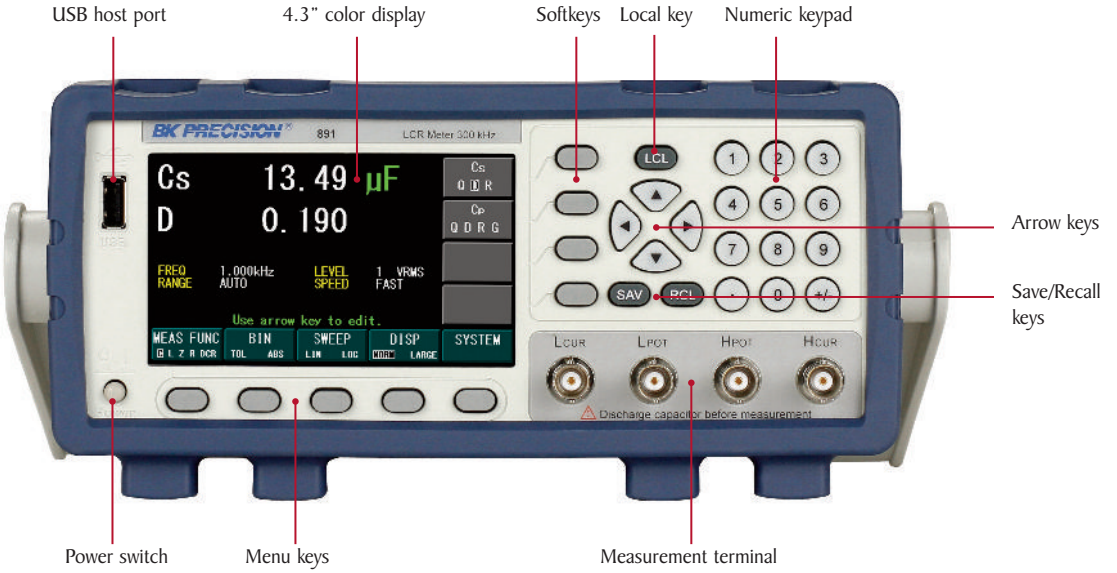
Front panel



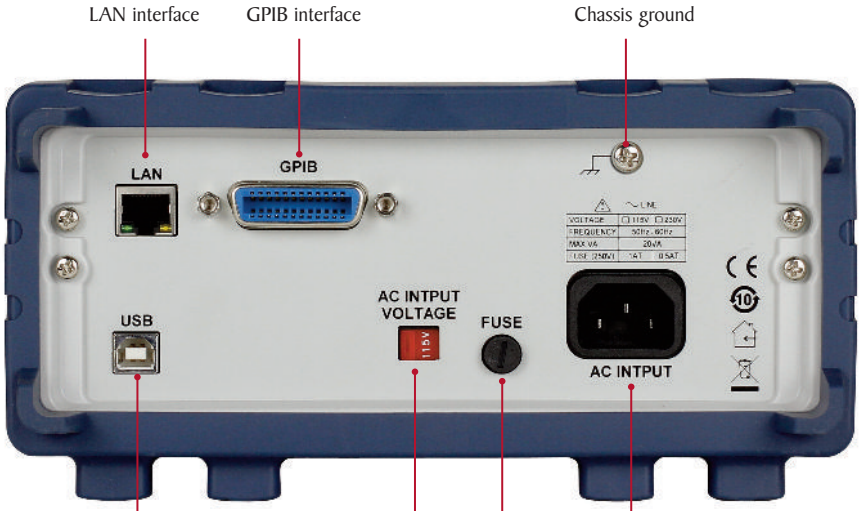
USB host port
Connect your USB flash drive to conveniently store and recall configurations, measurements, and sweep test results.

Intuitive user interface
Easily change test parameters using the menu-driven front panel keypad and easy-to-read color LCD. Convenient function keys let users quickly save/recall up to 100 measurement setups.

Flexible test accessories
Each unit comes standard with Kelvin clip test leads for 4-wire measurement. The optional test fixture provides terminals that help users quickly measure axial and radial lead type components.


Included Kelvin clips

Rear panel



SCPI-compliant programming
The LCR meter can be programmed remotely via the USB (virtual COM), GPIB, and LAN interface using SCPI commands.

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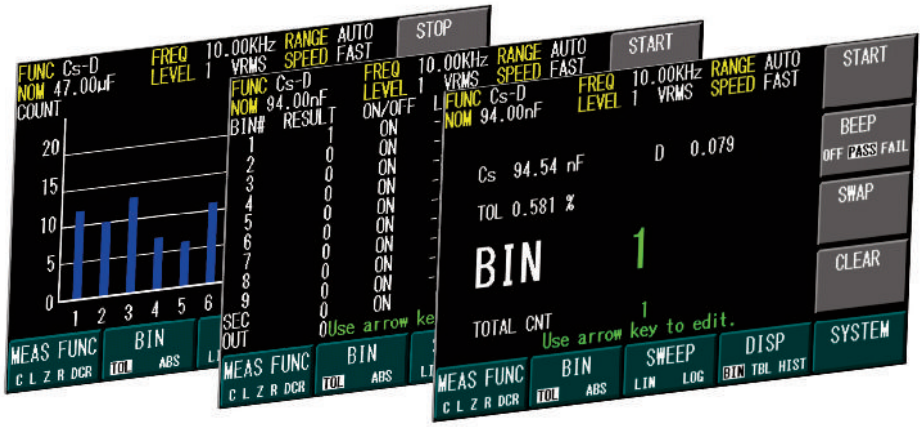
Flexible operation

Bin comparator sorting function

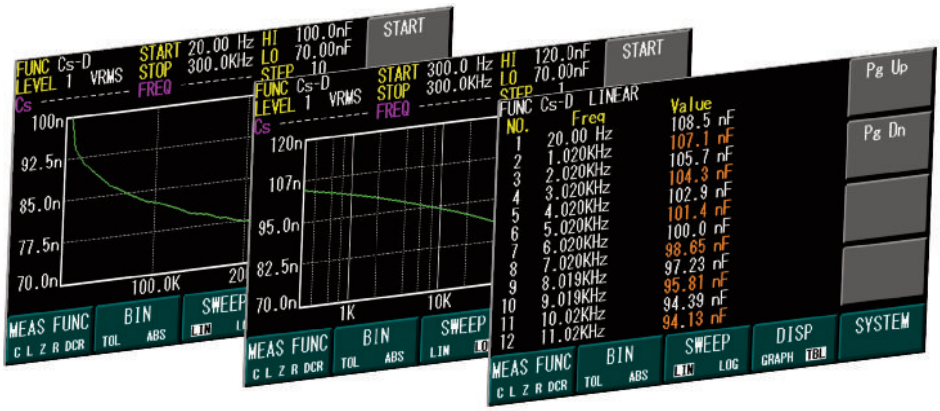
Quickly sort components with the instrument's 9 primary BINs, 1 secondary BIN, and 1 out-of-spec BIN. The results can be displayed on a table or histogram. High and low limits for each bin can be set up in absolute or tolerance mode with Pass/Fail beep.



Histogram display, Table display, and Bin display

Linear and logarithmic sweep function

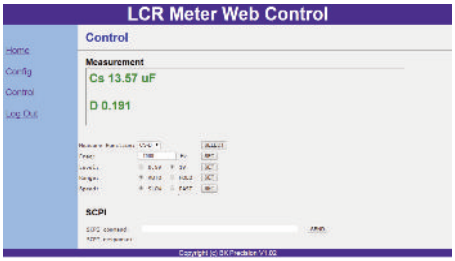
Characterize components up to 300 kHz using a 300-point linear or logarithmic sweep. Measured values for each frequency point can be read directly on the display. Sweep results can be displayed on a graph or table.



Linear sweep function, Logarithmic sweep function, and Linear & Logarithmic sweep function table

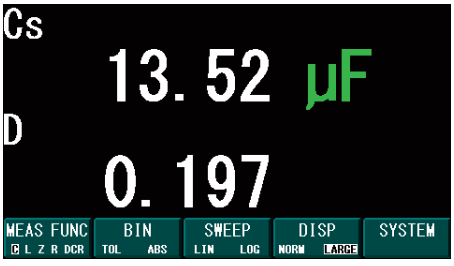
Built-in web server and LAN interface

Configure and control basic instrument settings and take measurements from a remote computer using a web browser. The 891 can also be controlled with SCPI commands using a socket or Telnet connection via the LAN interface.



Display options

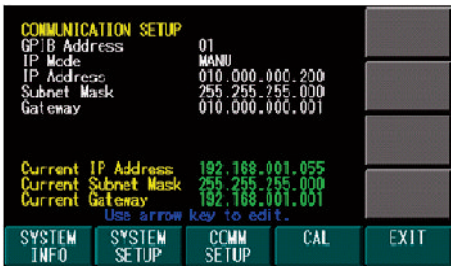
Users have the option to display up to 9 digits resolution on primary and secondary measurements in decimal or scientific notation. Large display mode is also available for easy viewing from a distance.



Large display mode

Remote PC Control

Integrate your LCR meter into an automated test system and control it from a PC using SCPI commands via the standard USB, GPIB, or LAN interface.



Specifications

Measurements	Series mode		Parallel mode	
	Primary	Secondary	Primary	Secondary
Capacitance	Cs	Q, D, Rs	Cp	Q, D, Rp, G
Inductance	Ls	Q, D, Rs	Lp	Q, D, Rp, G
Resistance	R	X	-	-
Conductance	-	-	G	B
Impedance	Z	θ	-	-
Admittance	-	-	Y	θ
DC Resistance	DCR	-	-	-

Enhanced Measurement Function	
Bin Sorting Comparator	
Limit setting mode	Tolerance (TOL) value or absolute (ABS) value
Number of bins	9 primary bins, 1 secondary bin, and 1 out-of-spec bin
Bin counts	0 to 60000
Beep warning	Off, pass with smart tone and fail
Measurement trigger	Manual trigger
Display format	Measurement, table, and histogram
Sweep	
Frequency range	20 Hz to 300 kHz
Sweep modes	Linear and logarithmic
Sweep points	Up to 300 points
Sweep step	1, 2, 5, and 10 points/step
Parameters	Primary and secondary
Display format	Graph and table
Display Range	
Cs, Cp	0.000 F to ± 9999 F
Ls, Lp	0.000 H to ± 9999 H
Rs, Rp, R, Z	0.000 Ω to ± 9.999 GΩ
G, B, Y	0.000 S to ± 9.999 GS
D	0.000 to ± 9999
Q	0.000 to ± 9999
θ	0.000 ° to ± 180.00 °
DCR	0.000 Ω to ± 9.999 GΩ
Test Signal	
Frequency	20 Hz to 300 kHz
Resolution	0.01 Hz (20.00 Hz to 99.99 Hz) 0.1 Hz (100.0 Hz to 999.9 Hz) 1 Hz (1.000 kHz to 9.999 kHz) 100 Hz (100.0 kHz to 300.0 kHz)
Accuracy	± 0.1%

Specifications (cont.)

Test Signal Level	
AC Level	
Range	0.5 Vrms and 1 Vrms selectable
Accuracy	5%
Output impedance	100 Ω (nominal)
DC Level	
Range	1 VDC
Accuracy	5%
Output impedance	100 Ω (nominal)

Impedance (Z) Accuracy [1]

Impedance	Frequency				
	DC, 20 Hz – 1 kHz	1 kHz – 10 kHz	10 kHz– 100 kHz	100 kHz – 200 kHz	200 kHz – 300 kHz
0.1 Ω – 1 Ω	1% ± 1	1% ± 1	2% ± 1	5% ± 1	10% ±1
1 Ω – 100 Ω	0.5% ± 1	0.5% ± 1	1% ± 1	2% ± 1	2% ± 1
100 Ω – 1 kΩ	0.2% ± 1	0.12% ± 1	0.2% ± 1	0.4% ± 1	1% ± 1
1 kΩ – 10 kΩ	0.05% ± 1	0.1% ± 1	0.2% ± 1	0.4% ± 1	0.4% ± 1
10 kΩ – 100 kΩ	0.2% ± 1	0.2% ± 1	0.2% ± 1	1% ± 1	2% ± 1
100 kΩ – 1 MΩ	0.5% ± 1	0.5% ± 1	2% ± 1	2% ± 1	4% ± 1
1 MΩ – 10 MΩ	1% ± 1	2% ± 1	5% ± 1	5% ± 1	10% ± 1
10 MΩ – 20 MΩ	2% ± 1	5% ± 1	NA	NA	NA

Other Measurement	
Measurement Speed	
Slow	800 ms/measurement
Fast	200 ms/measurement
Measurement Range	
Range	Auto or Hold range
Save/Recall	
Instrument Setting	
Locations	number 00 – 09 at internal storage number 10 – 99 at external USB storage
Measurement result and Screenshots	
Locations	number 000 – 009 at internal storage number 010 – 999 at external USB storage
General	
Remote Interface	USB (Virtual COM), GPIB, Ethernet
Display	4.3" 480 × 272 LCD display
AC Input	104 V - 126 V, 50/60 Hz 207 V - 253 V, 50/60 Hz
Power Consumption	20 VA max.
Operating Temperature	32 °F to 104 °F (0 °C to 40 °C)
Storage Temperature	14 °F to 158 °F (-10 °C to 70 °C)
Relative Humidity	up to 80%
Dimension (L × W × H)	10.1" x 4.4" x 15" (258 × 113 × 381 mm)
Weight	7.5 lbs (3.4 kg)
Three-Year Warranty	
Standard accessories	User manual, power cord, certificate of calibration & test report
Optional accessories	TL89F1 Test Fixture

[1] Accuracy is based on test signal level at 1 VRMS with slow measurement speed.
At 0.5 VRMS test signal level, multiply Ae by 1.1.

Measurement Accuracy Chart