Data Sheet

Bench LCR Meter Model 891



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. The instrument's 2U half-rack form factor is suitable for the bench or 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 LAN interfaces enhance your productivity by providing remote control capabilities to perform daily operations in production, quality control, and laboratory environments.

Model	891
Best 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% best 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 readout or better accuracy
- Standard USB, GPIB, and LAN interface for remote control
- Save/recall up to 100 setups including 1000 measurements and screenshots



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Front panel



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.



Rear panel

SCPI-compliant programming

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



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 and saved to a USB flash drive. 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 and then saved to a USB flash drive or read out through the remote interface.



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.



Built-in web server interface

Display options

Users have the option to display up to 4 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.

COMMUNICA GPIB Addr IP Mode IP Addres Subnet Ma Gateway	N <mark>TION SETUP</mark> ress is isk	01 Manu 010.000.0 255.255.2	00.200 55.000	
Current	P Address	192 188 0	01 055	
Current Subnet Mask 255.255.2000 Current Gateway 192.168.001.001 Use arrow key to edit.				
SYSTEM INFO	SYSTEM Setup	COMM Setup	CAL	EXIT

Communication setup

Specifications

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

Enhanced Measurement Functions		
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	

Measurement Parameters			
Measurement Speed			
Slow	800 ms/measurement		
Fast	200 ms/measurement		
Measurement Range			
Range	Auto or Hold range		

Specifications (cont.)

Test Signal		
AC		
Levels	0.5 Vrms and 1 Vrms selectable	
Level Accuracy	5%	
Output Impedance	$100 \ \Omega$ (nominal)	
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)	
Frequency Accuracy	$\pm 0.1\%$	
DC		
Level Range	I VDC	
Level Accuracy	5%	
Output Impedance	100 Ω (nominal)	

Impedance Measurement (Z) Accuracy (1)					
Impedance	Frequency				
impedance	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
Ι Ω – ΙΟΟ Ω	0.5% ± 1	0.5% ± 1	1% ± 1	2% ± 1	4% ± 1
100 Ω – 1 kΩ	0.2% ± 1	0.2% ± 1	0.5% ± 1	0.5% ± 1	1% ± 1
1 kΩ – 10 kΩ	0.05% ± 1	0.2% ± 1	0.5% ± 1	$1\% \pm 1$	2% ± 1
10 kΩ – 100 kΩ	0.2% ± 1	0.2% ± 1	1% ± 1	1% ± 1	2% ± 1
100 kΩ – 1 MΩ	0.5% ± 1	0.5% ± 1	2% ± 1	3% ± 1	4% ± 1
$1 M\Omega - 10 M\Omega$	2% ± 1	2% ± 1	5% ± 1	5% ± 1	10% ± 1
$10~\text{M}\Omega-20~\text{M}\Omega$	4% ± 1	5% ± 1	NA	NA	NA

Save/Recall		
Instrument Settings		
Internal	10 locations	
External	90 locations	
Measurement Results and Screenshots		
External	1000 locations	

General			
Remote Interface	USB (Virtual COM), GPIB, LAN		
Display	4.3" 480 \times 272 color 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 \times W \times H)	15" x 10.1" x 4.4" (381 × 256 × 112 mm)		
Weight	7.5 lbs (3.4 kg)		
	Three-Year Warranty		
Standard Accessories	Power cord, Kelvin clips leads, certificate of calibration & test report		
Optional Accessories	TL89F1 test fixture (axial and radial)		

 $^{\rm (1)}$ 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.

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Measurement Accuracy Chart



Mouser Electronics

Authorized Distributor

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B&K Precision:

TL89F1