

The 1900 series consists of high-performance LCR Meters designed to perform fast, automated impedance measurements on a variety of electronic components and materials. These meters have a basic accuracy specification of 0.1% for accurate test results over a wide frequency range, from 20 Hz to 1 MHz. Besides their 15 impedance parameters, the 1900 meters are also capable of measuring dc resistance as well as monitoring the voltage or current in the device under test. The units incorporate a distinctive sequence test mode, allowing up to 6 uniquely different tests to be performed quickly on a single start command. Additionally, these meters include IEEE-488, RS-232, and handler interfaces, all standard.



1900 Series Precision LCR Meter

1910 Model

The 1910 Inductance Analyzer adds bias current capability from 1mA to 1A. The addition of bias current makes the 1910 ideal for measuring inductance of power inductors under actual operating conditions.

1920 Model

The 1920 Precision LCR Meter adds bias voltage capability from 1mV to 2V. The bias voltage feature is used for testing capacitors or providing reverse bias for testing junction capacitance of diodes and similar components.

Features:

- 20 measurement parameters
- Frequency range: 20 Hz to 1 MHz
- Basic measurement accuracy: 0.1%
- Measurement speeds up to 40/sec
- Displays voltage and current measurements
- Wide measurement range with 5-digit measurement resolution
- Four-terminal kelvin connections to maintain measurement integrity
- Programmable dc bias voltage, 0-2V
- Constant voltage (voltage leveling)
- Automatic test sequencing: up to 6 individual tests in one pass
- Menu-driven interface for user-friendly operation
- Autoranging measurements or manual hold
- Averaging measurements: up to 1000
- Interfaces: IEEE-488.2, RS-232, and Handler
- Open/Short zeroing and cable-compensation
- 14 Pass/Fail bins
- Load correction

20 Measurement Parameters

The 1900 series can measure and display any two of its 15 impedance parameters simultaneously with a basic accuracy of 0.1%. Additionally, these meters can measure the DC resistance, or display the current through or voltage across a test device ensuring the operator of the real test conditions.

Wide Frequency Range

The 1900 series offers over 27,000 user-programmable test frequencies to fully characterize devices over the range of 20 Hz to 1 MHz.

Automated Test Sequencing

For increased productivity and throughput, up to six different tests in sequence can be performed with a single push of the start button. Each test can have different measurement parameters, test conditions, and limits.

Programmable Source Impedance

Measurement results can vary substantially based solely on the source impedance of the test instrument being used. To compare measurements made on other test instruments, the 1900 series can have its source impedance set at 5, 25, 50 or 100 Ω .



1900 Rear Connectors



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SPECIFICATIONS

Measure Parameters:

Parameter	Measurement Range	Basic Accuracy		
		Low	Medium	High
Ls, Lp	0.001 nH to 99,999 kH	±0.5%	±0.25%	±0.1%
Cs, Cp	1 pF to 9,9999 F	±0.5%	±0.25%	±0.1%
Z , Rs, Rp, Xs, ESR	0.0001 mΩ to 99,999 MΩ	±0.5%	±0.25%	±0.1%
Y, Gp, Bp	10 nS to 9999.9 S	±0.5%	±0.25%	±0.1%
D	0.00001 to 99.999	±0.005	±0.0025	±0.001
Q	0.00001 to 99.999	±0.005	±0.0025	±0.001
∅	-180.00 to 179.99°	±1.8°	±0.9°	±0.18°
DCR	0.1 mΩ to 100 kΩ	±0.5%	±0.25%	±0.2%
DUT AV Voltage	20 mV to 1.0 V	±(2% + 5 mV) @ 1kHz		
DUT AC Current	1 μA to 150 mA	±(2% + 5 μA) @ 1kHz		
DUT DC Voltage	20 mV to 1.0 V	±(2% + 5 mV)		
DUT DC Current	1 μA to 150 mA	±(2% + 5 μA)		

For more detailed accuracy information, see instruction manual

Test Frequency:

Range: 20 Hz to 1 MHz
 Resolution from 20 Hz to 1 kHz: 1 Hz
 Resolution from >1 kHz: 4 digits
 Accuracy: ±(0.02% + 0.02 Hz)

Ranging:

Automatic, Range Hold or user-selectable

Test Frequency:

Range: 20 Hz to 1 MHz
 Resolution from 20 Hz to 1 kHz: 1 Hz
 Resolution from >1 kHz: 4 digits
 Accuracy: ±(0.02% + 0.02 Hz)

Ranging:

Automatic, Range Hold or user-selectable

Trigger:

Internal (automatic)
 External (via RS-232, IEEE-488.2, or Handler)
 Manual

Source Impedance:

5 Ω, 25 Ω, 50 Ω, or 100 Ω

AC Test Signal:

20 mV to 1.0 V (open circuit) in 5 mV steps

DC Test Signal:

20 mV to 1.0 V (open circuit) in 5 mV steps,
 5 Ω source impedance

DC Bias Current: (1910 only)

Internal: 0 to 1 Amp in 1 mA steps

DC Bias Voltage: (1920 only)

Internal: 0 to 2.0 V in 1 mV steps

Power:

100 to 240 Vac
 50 - 60 Hz
 100 W max

Formats for Results:

Engineering or scientific format
 Deviation from nominal of primary parameter
 %Deviation from nominal of primary parameter
 Pass/Fail
 No display mode for maximum throughput

Sequencing:

Displays up to 6 sequential test results,
 primary and/or secondary

Display:

LCD Display with backlight
 Pass/Fail and Status indicators

Standard Interfaces:

IEEE-488, RS-232, Handler I/O

Measurement Delay:

Programmable from 0 to 1000 ms in 1 ms steps

Measurement Speed:

Speed	Accuracy Setting
40 meas/sec	Low, No Display
25 meas/sec	Low
10 meas/sec	Medium
1 meas/sec	High

The speed is slower at lower frequency settings and may be affected by test conditions
 DC measurements take 2x as long as AC measurements

Averaging:

1 to 1000, programmable

Median Value:

Averaged over the last three measurements

Setup Storage:

30 Single Tests
 10 Sequential (6 tests in each)

Self-Test:

Verifies critical instrument operation at power-up or when selected from a menu

Other Features:

Constant-voltage mode
 Cable compensation (1 m, 2 m, no cable)
 Open/Short zeroing
 Distortion check

Test Terminals:

Four bnc connection terminals are located on the front panel
 Optional test fixture available

Mechanical:

Dimensions: 43.2 W x 13.3 H x 40.6 D cm (17" x 5.25" x 16")
 Weight: 8 kg (17.6 lbs)

Environmental Conditions:

Operating temperature: 0 to 50°C, <75% RH
 Storage temperature: -40 to 71°C
 Altitude: < 2000 m



ORDERING INFORMATION

1910 Model Standard Set:

Inductance analyzer
AC Power Cord
Instruction Manual
Calibration Certificate traceable to SI

1920 Model Standard Set:

Precision LCR Meter
AC Power Cord
Instruction Manual
Calibration Certificate traceable to SI

OPTIONAL ACCESSORIES:



Remote Test Fixture

1689-9600



Kelvin Test Leads

1700-03



Chip Component Tweezers

7000-05



SMD Test Fixture

7000-07



bnc-bnc Extender Cable, 1 m
bnc-bnc Extender Cable, 2 m

1689-9602
1689-9602-2



Calibration Kit

7000-09

Also available:

Rack Mount Kit 2000-16
RS232-to-USB Adapter 630250



Alligator Clip Leads

7000-04

