

# Series 1920 Precision LCR Meter

## High Performance Testing to 1 MHz

### USES:

- Fast Production Testing of LCR Components and Materials
- AC Impedance & DC Resistance Measurements
- Component Characterization Over a Wide Frequency Range
- Component Screening, Evaluation and Design

### FEATURES:

- 20 Measurement Parameters
- Frequency Range 20 Hz to 1MHz
- 0.1% Basic Measurement Accuracy
- Measurement Speeds Up to 40/sec
- DC Resistance Measurements
- Monitoring of DUT Voltage and Current
- 5 Digit Measurement Resolution
- Programmable DC Bias Voltage, 0-2V
- Constant Voltage (Voltage Leveling)
- IEEE-488, RS-232 & Handler Interfaces, all Standard
- Open/Short Zeroing & Cable Compensation
- Load Correction
- 14 Pass/Fail Bins
- Keypad Lockout

### Introduction

The 1920 is a high performance LCR Meter designed to perform fast, automated impedance measurements on a variety of electronic components and materials. The instrument has a basic accuracy specification of 0.1% for accurate test results over a wide frequency range, from 20 Hz to 1 MHz. Besides 15 impedance parameters the 1920 is also capable of measuring DC resistance as well as monitoring the voltage across or current through the device under test. The unit incorporates a distinctive sequence test mode, allowing up to 6 uniquely different tests to be performed quickly on a single start command. Additionally, the 1920 includes IEEE-488, RS-232, and handler interfaces, all standard.

### Description

**20 Measurement Parameters** Measure and display any two of 15 impedance parameters simultaneously, with a basic accuracy of 0.1%. Additionally the 1920 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** Over 27,000 user programmable test frequencies to fully characterize devices over the range of 20 Hz to 1 MHz.

**Automatic Test Sequencing** For increased productivity and throughput the 1920 can perform up to six different tests in sequence with a single push of the start button. Each test can have different measurement parameters, test conditions and limits.

**DC Bias Voltage** The instruments internal DC bias voltage source, programmable from 0 to 2 V in 1 mV steps, allows capacitors to be tested under real DC bias conditions.

**Setup Storage/Recall** The test operator has the ability to store and recall, from internal memory, up to 30 single test setups and 10 sequential setups (six tests in sequence). The front panel can be locked out, with password protection, to ensure that procedures are run the same way every time.

**Load Correction** Substantially improves instrument accuracy by allowing the operator to specify the value of a known standard, measure it, and apply a correction to ongoing measurements.

**Programmable Source Impedance** The operator is able to set instrument source impedance at 5, 25, 50 or 100 ohms, an important feature when comparing measurements to those made on other testers. Measurement results can vary substantially based solely on the source impedance of the tester being used.



*For more detailed information on specifications, pricing and special purchase, rent and lease options, contact us at:*

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800-253-1230



## 1920 Precision LCR Meter

Parameter	Measurement Range	Basic Measurement Accuracy*		
		Low	Medium	High
Ls,Lp	0.001nH to 99.999kH	±0.5%	±0.25%	±0.1%
Cs,Cp	1pF to 9.9999F	±0.5%	±0.25%	±0.1%
DF	0.00001 to 99.999	±0.005	±0.0025	±0.001
Q	0.00000 to 9999.9	±0.005	±0.0025	±0.001
Y,Gp,Bp	10 nS to 9999.9 S	±0.5%	±0.25%	±0.1%
Z ,Rs,Rp,Xs,ESR	0.0001 mΩ to 99.999MΩ	±0.5%	±0.25%	±0.1%
Phase Angle	-180.00 to +179.99 degrees	±1.8°	±0.9°	±0.18°
DCR	0.1mΩ to 100kΩ	±0.5%	±0.25%	±0.1%
DUT AC Voltage	20mV to 1.0V	← ±(2% + 5mV)@1kHz →		
DUT AC Current	1μA to 150mA	← ±(2% + 5μA)@1kHz →		
DUT DC Voltage	20mV to 1.0V	← ±(2% + 5mV) →		
DUT DC Current	1μA to 150mA	← ±(2% + 5μA) →		

\*At optimum test signal levels, frequencies, DUT values and without calibration uncertainty.

<b>Test Frequency:</b>	Range: 20Hz to 1MHz, Continuous Resolution: 1Hz from 20Hz to 1kHz, 4 digits >1kHz Accuracy: ±(0.02% +0.02 Hz)	<b>Median Value:</b>	Averaged over last three measurements
<b>Measurement Speed:</b>	<u>Speed</u> <u>Accuracy Setting</u> 40 meas/sec                  Low, No Display 25 meas/sec                  Low 10 meas/sec                  Medium 1 meas/sec                    High	<b>Setup Storage:</b>	30 Single Tests 10 Sequential (6 tests in each)
<b>Ranging:</b>	Automatic, Range Hold or user selectable	<b>Other:</b>	Constant Voltage Mode (voltage leveling) Cable Compensation (1M, 2M, no cable) Open/Short Zeroing Distortion Check
<b>Trigger:</b>	Internal (automatic) External (via RS-232,IEEE-488.2 or Handler) Manual	<b>Calibration:</b>	Recommended interval 1 year NIST traceable calibration Built-in automatic calibration procedure
<b>Source Impedance:</b>	5Ω, 25Ω, 50Ω, 100Ω	<b>Usage &amp; Cal Data:</b>	Displays last calibration date, standard values used in calibration
<b>AC Test Signal:</b>	Voltage: 20mV-1.0V (open circuit), 5mV steps	<b>Self Test:</b>	Verifies critical instrument operation at power-up or when selected from menu
<b>DC Bias Voltage:</b>	Internal: 0 to 2V in 1mV steps	<b>Test Terminals:</b>	Front panel, four terminal (BNC) Optional Test Fixtures Available
<b>Display:</b>	LCD Display with backlight Pass/Fail and status indicators	<b>Mechanical:</b>	Bench mount with tilt bail Rack mount kit optional
<b>Results Formats:</b>	Engineering or scientific format %Deviation from nominal of primary parameter Deviation from nominal of primary parameter Pass/Fail No Display Mode for maximum throughput	<b>Dimensions:</b>	(w x h x d): 17 x 5.25 x 16 in (432x133x406 mm)
<b>Sequencing:</b>	Displays up to 6 sequential test results, primary and/or secondary	<b>Weight:</b>	15lbs (8kg) net, 21lbs (9.9kg) shipping
<b>Standard Interfaces:</b>	IEEE-488.2, RS-232, Handler	<b>Environmental:</b>	Meets MIL-28800E, Type 3, Class 5, Style E & F Operating: 0° to +50°C Humidity: < 75% for 11° to 30°C operating Storage: -40° to +71° C
<b>Measurement Delay:</b>	Programmable from 0 to 1000ms in 1ms steps	<b>Power:</b>	100-240 VAC    50/60 Hz 100 W Max
<b>Averaging:</b>	Programmable from 1 to 1000		

## Ordering Information

1920 Precision LCR Meter	1700-03	4 BNC Connectors to 2 Kelvin Clips Lead Set
<b>Includes:</b>	1700-04	4 BNC Connectors to 4 Banana Plugs
4200-0300 AC Power Cord	1700-05	4 BNC Connectors to Chip Component Tweezers
150566 Instruction Manual	2000-16	Rack Mount Flanges
Calibration Certificate Traceable to NIST	7000-01	BNC to BNC Cable Set (1M)
<b>Optional Accessories</b>	7000-02	BNC to BNC Cable Set (2M)
1700-01 Axial/Radial Component Test Fixture	7000-07	Low Voltage Chip Component Test Fixture
1700-02 Axial/Radial Remote Test Fixture		

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