# Series

### **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

# 1920 Precision LCR Meter

# High Performance Testing to 1 MHz

#### 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 specifications, visit www.quadtech.com

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1-800-253-1230 Fax 1-978-461-4295 Intl. 1-978-461-2100



## 1920 Precision LCR Meter

Parameter	Measurement Range		Basic M	Basic Measurement Accuracy*		
			Low Medium High			
	0.001 pH to		10.5%	10.25%	10/10/	
	1 nE to 9.90	099.999KN 000F	<u>+</u> 0.5%	<u>+</u> 0.25%	$\pm 0.1\%$	
	$10^{-10}$		<u>+</u> 0.5 %	<u>+</u> 0.25%	<u>+</u> 0.178	
	$0.00001 \ 10 \ 99.999$		<u>+0.005</u>	<u>+0.0025</u>	<u>+0.001</u>	
	0.00000 to 9999.9		<u>+0.005</u>	<u>+</u> 0.0025	<u>+0.001</u>	
			<u>+</u> 0.5%	<u>+</u> 0.25%	<u>+</u> 0.1%	
	0.0001 mg to 99.999Mg		<u>+</u> 0.5%	<u>+</u> 0.25%	<u>+</u> 0.1%	
Phase Angle	-180.00 to +179.99 degrees		<u>+</u> 1.8°	<u>+</u> 0.9°	<u>+</u> 0.18°	
	$0.1 \text{m}\Omega$ to $100 \text{k}\Omega$		<u>+</u> 0.5%	<u>+</u> 0.25%	<u>+</u> 0.1%	
DUT AC Voltage	20mV to 1.0V		•	$\pm (2\% + 5mV)@1kHz -$		
DUT AC Current	1µA to 150mA		- <u>+(2% + 5µA)@1KHz</u> $-$			
DUT DC Voltage	20mV to 1.0V		$\underbrace{+(2\% + 5mV)}_{(2\% + 5mV)} \longrightarrow$			
DUT DC Current	1µA to 150mA		◄	<u>+(</u> 2% + 5µA) -		
		*At optimum test	signal levels, frequend	cies, DUT values and without	calibration uncertainty.	
Test Frequency:	Range: 20Hz to 1MHz, Continuous		Median Value:	Averaged over I	Averaged over last three measurements	
	Resolution: 1Hz	from 20Hz to 1kHz,	Cather Champer	00 Circula Tasta		
	4 digits >1kHz		Setup Storage:	30 Single Tests		
	Accuracy: ±(0.02	% +0.02 Hz)		10 Sequential (e	b tests in each)	
			Other:	Constant Voltag	e Mode (voltage leveling)	
Measurement Speed:	Speed	Accuracy Setting		Cable Compens	ation (1M, 2M, no cable)	
	40 meas/sec	Low, No Display		Open/Short Zer	oing	
	25 meas/sec	Low		Distortion Check	2 ×	
	10 meas/sec	Medium		Distortion Onco	~	
	1 meas/sec	High	Calibration:	Recommended	interval 1 year	
Panaina	Automatia Ranga Hold ar upar adaptable			NIST traceable	calibration	
Ranging. Automatic, Range Hold of user s		e noid of user selectable		Built-in automat	ic calibration procedure	
Trigger:	Internal (automatic)			Disalaria last sa		
	External (via RS-232,IEEE-488.2 or Handler)		Usage & Cal Da	Ita: Displays last ca	libration date, standard values	
	Manual			used in calibrati	on	
Source Impedance:	5Ω. 25Ω. 50Ω. 100Ω		Self Test:	Verifies critical in	Verifies critical instrument operation at power-up	
				or when selecte	d from menu	
AC Test Signal:	Voltage: 20mV-1.0V (open circuit), 5mV steps Internal: 0 to 2V in 1mV steps		Test Terminals:	: Front panel, fou	Front panel, four terminal (BNC) Optional Test Fixtures Available	
DC Bias Voltage:				Optional Test Fi		
Display:	LCD Display with backlight		Mechanical:	Bench mount w	ith tilt bail	
	Pass/Fail and sta	atus indicators		Rack mount kit	optional	
Results Formats:	Engineering or scientific format %Deviation from nominal of primary parameter Deviation from nominal of primary parameter Pass/Fail		Dimensions:	(w x h x d): 17 x	(w x h x d): 17 x 5.25 x 16 in (432x133x406 mm)	
			Weight:	15lbs (8kg) net,	15lbs (8kg) net, 21lbs (9.9kg) shipping	
			En de martel	Marta Mill 0000		
			Environmentai:	Nieets IVIIL-2880	DUE, Type 3, Class 5, Style E & F	
	NO DISPLAY MODE	e tor maximum throughput		Operating: 0° to		
Sequencing:	Displays up to 6	sequential test results, primary		Humidity: < 75%	% for 11° to 30°C operating	
	and/or secondary	/		Storage: -40° to	o +71° C	
Standard Interfaces	faces: IEEE-488.2, RS-232, Handler		Power:	100-240 VAC	50/60 Hz	
				100 W Max	х	
Measurement Delay:	Programmable fr	om 0 to 1000ms in 1ms steps				
Averaging:	Programmable fr	om 1 to 1000				

# Ordering Information

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

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