

## 7600 Plus Meter

The 7600 Plus LCR meter performs precision impedance measurement over a frequency range of 10 Hz to 2 MHz. This instrument can measure 14 different impedance parameters with 0.05% accuracy, meeting today's requirements for component and material testing. User-friendly menu-driven programming makes the 7600 Plus ideal for applications in product development, incoming inspections, and production-line testing.



7600 Plus Precision LCR Meter

### Features:

- Frequency range: 10 Hz to 2 MHz
- 0.05% basic measurement accuracy
- 7-digit measurement resolution
- Programmable test voltage and current
- Auto ranging
- Test setup and measurement data storage
- Four bnc terminal Kelvin connection
- Standard interfaces: USB host port, RS-232, Handler, Parallel printer port
- Optional interface: IEEE-488.2
- Graphical and tabular display of measurements: swept frequency, voltage, and current
- Sequence testing of up to 6 individual tests
- Load correction
- Binning (15)
- Built-in auto-calibration routine

### 14 Different Impedance Parameters

Measure and display any two parameters simultaneously to achieve coverage and flexibility.

### Automated Test Sequencing

Run up to six different tests in sequence with a single push of the start button. Each test can have different conditions and limits.

### Swept Measurements

To test how components respond to changes in ac test frequency, voltage, or current, the 7600 Plus meter offers fast, accurate swept parameter measurements with results in graphical and tabular format. No complex programming or external control is required.

### Program and Data Storage

Test setups can be stored and recalled from either internal memory or from a standard USB flash drive. Measurement data can be stored on a USB flash drive in CSV format.

### Load Correction

Substantially improves instrument accuracy by measuring a known standard and applying correction to subsequent measurements. This is ideal for repetitive testing of identical devices under similar conditions.

### Automated Calibration Procedure

The 7600 Plus has a built-in calibration procedure, which can be performed using the SI traceable calibration kit (7000-09). The results and the date of the calibration are stored internally.

### Ease of Use

To ensure that the 7600 Plus is easy to operate, the unit offers a large LCD display and a user-friendly, menu-driven interface.



7600 Plus Rear Connectors



## SPECIFICATIONS

## Measurement accuracy

Parameter	Measurement/Display Range	Basic Accuracy		
		Low	Medium	High
Ls, Lp	000.001 nH to 99.999 99 H	±0.5%	±0.25%	±0.05%
Cs, Cp	00,000.01 fF to 9.999 999 F	±0.5%	±0.25%	±0.05%
Z , Rs, Rp, ESR, Xs	000.000 1 Ω to 99.999 99 MΩ	±0.5%	±0.25%	±0.05%
Q	0.000 001 to 999,999.9	±0.005	±0.0025	±0.0005
D	0.000 001 to 99,999	±0.005	±0.0025	±0.0005
Θ	-180.000 0° to +179.999 9°	±1.8°	±0.9°	±0.18°
Y , Gp, Bp	00,000.01 μS to 9.999 99 MS	±0.5%	±0.25%	±0.05%

Basic Accuracy is based upon ideal frequency and impedance. For more detailed accuracy information, see 7600+ instruction manual

Any two of the 14 parameters can be measured and displayed simultaneously (user-selectable)

## Test frequency range:

10 Hz to 2 MHz

## Test frequency resolution

10 Hz to ≤10 kHz: 0.1 Hz

>10 kHz to ≤100 kHz: 5 digits

>100 kHz: 4 digits

Accuracy: ±(0.01% + 0.10 Hz)

## Ranging

Automatic, Range Hold, or user-selectable

## Resolution

7 Digits

## Trigger

Internal (automatic)

External (RS-232, IEEE-488.2, or Handler Interfaces)

Manual

## AC test signal voltage

<500 kHz: 20 mV to 5.0 V (open circuit) in 5 mV steps

≥500 kHz to ≤1 MHz: 20 mV to 1.0 V (open circuit) in 5 mV steps

>1 MHz: 20 mV to 0.5 V (open circuit) in 5 mV steps

## AC test signal current

250 μA to 100 mA (short circuit) in 50 μA steps

Max Compliance 3 V < 500 kHz

25 Ω, 400 Ω, 6.4 kΩ, or 100 kΩ measurement range dependent

## DC bias voltage

Internal: 2.0 V

External: 0 to ±200 V

## Display

LCD graphics with backlight and adjustable contrast

## Results format

Engineering or scientific

5 deviation from nominal

Deviation from nominal

Pass/Fail

Binning summary

No display (for maximum throughput)

## Sweep result

Primary parameter vs. frequency, voltage, or current

Graphical or tabular format

Up to 200 measurement point per sweep

## AutoAcc

Automatic calculation and display of overall instrument accuracy for selected settings, test conditions, and device under test

## Interfaces

Standard: USB host port, RS-232, Handler, Printer port

Optional: IEEE-488.2 to RS-232 Adapter

## Charged capacitor protection

V<sub>max</sub> ≤250 V: √(8/C)

V<sub>max</sub> ≤1000 V: √(2/C)

C = capacitance in farads of device under test

## Measurement delay

Programmable from 0 - 1000 ms in 1 ms steps

## Averaging

Programmable from 1 - 1000

Median value mode available

## Data storage

USB host port 1.1 compliant, CSV format

## Program storage

Internal memory

USB host port

ASCII format

## Measurement speed

Speed	Accuracy Setting
Fast Accuracy	120 meas/sec
Medium Accuracy	16 meas/sec - 8 meas/sec below 150 kHz
Slow Accuracy	2 meas/sec - 1 meas/sec below 150 kHz

The speed may be slower depending on test conditions and frequency settings

## Calibration

Built-in automatic calibration procedure

IET offers complete, SI traceable calibration using the 7000-09 cal kit

Recommended calibration interval: 1 year

## Usage and calibration data

Displays last calibration date, standard values used in calibration, and number of hours of operation

## Contact check

Time to detect, 2 ms

## Connection terminals

Four bnc connectors located on the front panel

## Mechanical

Dimensions: 41 cm W x 15 cm H x 36 cm D (16" x 6" x 14")

Weight: 8 kg (17 lbs)

## Environmental Conditions

Operating temperature: 0 to 50°C, <75% RH for 11°C to 30°C

Storage temperature: -10 to 60°C

Altitude: <2000 m

## Power

90 to 250 Vac

47 - 63 Hz

100 W max

## Safety

IEC61010-1: 2001

CAT 1, pollution degree 2

## EMC

89/336/EEC, 92/31EEC, 93/68/EEC

## Environmental:

This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.



### ORDERING INFORMATION

#### 7600 Plus Meter Standard Set:

Precision LCR Meter  
 AC Power Cord  
 Instruction Manual  
 Calibration Certificate traceable to SI  
 Flash drive, 2 GB

### OPTIONAL ACCESSORIES:



Remote Test Fixture 1689-9600



Kelvin Test Leads 1700-03



IEEE Interface Option 7000-23



SMD Test Fixture 7000-07



bnc-bnc Extender Cable, 1 m 1689-9602  
 bnc-bnc Extender Cable, 2 m 1689-9602-2



Chip Component Tweezers 7000-05



Calibration Kit 7000-09



Alligator Clip Leads 7000-04

#### Also available:

Rack Mount Kit 7000-00  
 RS232-to-USB Adapter 630250

