HF LCR Meters

6500P family for Production applications
20Hz – 120MHz

- Characterize components from 20Hz to 120MHz
- Models defined by their maximum frequency which ranges from 5MHz to 120MHz
- Precise high frequency impedance measurements
- Fast measurement speed
- Comprehensive measurement functions
- Easy to use with large TFT touch screen
- Intuitive user interface
- Fully programmable over GPIB
- Keyboard and mouse control
- Competitively priced

Accuracy and versatility makes these HF LCR Meters the ideal choice for many different tasks and applications in the area of manufacturing test. The wide range of frequency specifications means that a customer can select the model which best meets their requirements and budget.

Measurement parameters
- Impedance (Z)
- Phase Angle (Ø)
- Capacitance (C)
- Dissipation Factor (D)
- Inductance (L)
- Quality Factor (Q)
- Resistance (R)
- Reactance (X)
- Conductance (G)
- Susceptance (B)
- Admittance (Y)

Variable drive and bias levels

AC drive levels up to 1V or 20mA can be selected to evaluate components in realistic operating environments. /D1 DC bias option provides 0 to +40V dc bias voltage and 0 to +100mA dc bias current. /D2 DC bias option provides -40V to +40V dc bias voltage.

External control

The GPIB interface is used to control the instrument and read back measured values for applications such as quality control or for archiving purposes.

An Ethernet interface* similarly allows the instrument to be controlled and to send out data - allowing it to be integrated into many test environments.

Wide range of interfaces

An external monitor or projector may be connected to the instrument. The ability to provide a large screen display of measurement results is invaluable in production environments or for teaching and training.

Instrument control from both a keyboard and mouse is available. Any keyboard or mouse, with either PS/2 or USB interfaces, can be simply connected to provide an alternative method of instrument control and operation.

Data storage and retrieval

All measurement and setup data can be stored using the Ethernet interface* or a USB flash memory (supplied as standard).

Setup Data

Up to 20 instrument setups may be locally stored.

Bin handling

/B1 option (non-isolated 5V) or /B2 option (isolated 24V) signals are available through a 25-way D-type connector. 10 bins can be set using absolute or percentage limits.

* Future Enhancement

Printer outputs

Hard copy printouts can be obtained in a number of ways including direct to an HP-PCL compatible graphics printer or Epson compatible text/ticket printer. A networked HP-PCL compatible printer may also be used via the Ethernet connection.

Component connections

Four front panel BNC connectors permit three or four terminal connections with the screens at ground potential.

The 1J1011 Component Fixture, supplied with all models, ensures optimum performance when measuring a wide range of leaded components and devices.

1J1012 (2 terminal) and 1J1014 (4 terminal) SMD Fixtures allow connection to surface mount devices.

To provide more connection options a range of optional accessories is available.

Protection against charged capacitors

High precision measuring instruments can be damaged by charged capacitors which can cause costly repairs and unacceptable downtime. All the models in the range incorporate protection against charged capacitors.

Comprehensive and precise component tests at higher frequencies

The 6500P series is best summarised by "Comprehensive and precise component tests at higher frequencies". The instrument is the perfect solution for those who have demanding component measurement needs.
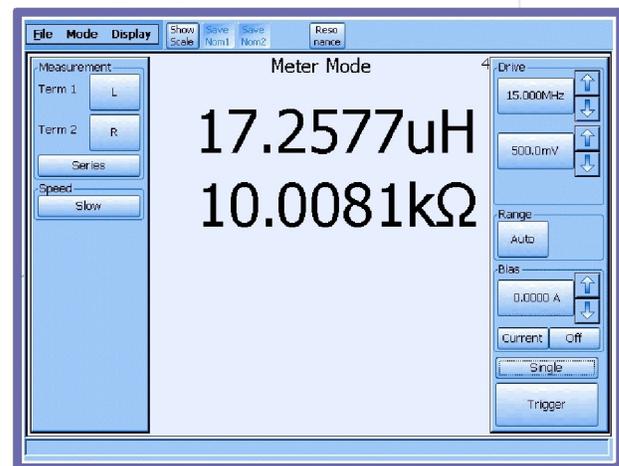
Example of measurement showing clear and concise digital display of component characteristics

Technical specifications

Measurement parameters

Any of the following parameters can be measured and displayed:

AC functions

- Impedance (Z)
- Phase Angle (Ø)
- Capacitance (C)
- Dissipation Factor (D)
- Inductance (L)
- Quality Factor (Q)
- Resistance (R)
- Reactance (X)
- Conductance (G)
- Susceptance (B)
- Admittance (Y)

Display format

Series or parallel equivalent circuit – all parameters

Test conditions

Frequency range

6505P   20Hz to 5MHz

6510P   20Hz to 10MHz

6515P   20Hz to 15MHz

6520P   20Hz to 20MHz

6530P   20Hz to 30MHz

6550P   20Hz to 50MHz

65120P 20Hz to 120MHz

Frequency step size: 0.1mHz

Accuracy of set frequency ±0.005%

AC drive level

10mV to 1Vrms*

200µA to 20mArms*

*Varies with frequency

Signal source impedance: 50 Ohm nominal

DC bias

Option /D1

0 to +100mA dc bias current
0 to +40V dc bias voltage

Option /D2

-40V to +40V dc bias voltage

Binning (optional)

10 bins with absolute and percentage limits.

25 way D-type interface connector.

Option /B1 (non-isolated)

Common 0V. Bin outputs 0 to 5V (nominal) with >10mA current sink capability.

Option /B2 (isolated)

Common 24V input. Outputs 0 to 24V with >10mA current source capability.

Mode of operation

Meter mode

Allows the instrument to be used as a standard LCR meter

Setup Data

Up to 20 instrument setups may be locally stored for each mode.

Measurement connections

Four front panel BNC connectors permit three or four terminal connections with the screens at ground potential.

1J1011 Component Fixture (supplied as standard) allows connection to leaded components and devices.

1J1012 (2 terminal) and 1J1014 (4 terminal) Fixtures allow connection to surface mount devices.

General

Power Supply

Input voltage 90VAC to 264VAC (Autoranging)

Mains frequency

47Hz to 63Hz

Display

8.4″ VGA (640 x 480) colour TFT with touch panel

Local Printer

HP-PCL compatible graphics printing
Centronics / parallel printer port, Epson compatible text / ticket printing

Network Printer

HP-PCL compatible graphics printing

GPIB interface
External instrument control. 24 pin IEEE 488 connector

Remote trigger
Rear panel BNC with internal pull-up, operates on logic low or contact closure

USB interface
Two Universal Serial Bus Interfaces
USB 1.1 compliant

VGA interface
15-way D-type connector to drive an external monitor in addition to the instrument display

Network interface
[1] 10/100-BASE-TX Ethernet controller. RJ45 connector

Keyboard interface
Standard USB or PS/2 keyboard port. Instrument front panel remains active with keyboard plugged in

Mouse interface
Standard USB or PS/2 mouse port. Touch screen remains enabled when the mouse is connected.

Bin handler (option)
/B1 option (non-isolated 5V) or /B2 option (Isolated 24V). 25-way D-type connector

Environmental conditions

This equipment is intended for indoor use only in a non-explosive and non-corrosive atmosphere

Temperature range
Storage -20°C to 60°C
Operating 0°C to 40°C
Full Accuracy 18°C to 28°C

Relative humidity
Up to 80% non-condensing

Altitude
Up to 2000 m

[1] Future enhancement

Installation category
II in accordance with IEC664

Pollution degree
2 - mainly non-conductive

Safety
Complies with the requirements of EN61010-1

EMC
Complies with EN61326 for emissions and immunity

Mechanical
Height 190 mm (7.5″)	Width 440 mm (17.37″)
Depth 525 mm (20.5″)	Weight 14.5 kg (32 lb)

Order codes

Description	Order code
6505P	1J6505P
5MHz HF LCR Meter	
6510P	1J6510P
10MHz HF LCR Meter	
6515P	1J6515P
15MHz HF LCR Meter	
6520P	1J6520P
20MHz HF LCR Meter	
6530P	1J6530P
30MHz HF LCR Meter	
6550P	1J6550P
50MHz HF LCR Meter	
65120P	1J65120P
120MHz HF LCR Meter	

All models supplied with:-
User manual	2 m AC power cable
Universal component fixture (1J1011)	USB memory

Options
Description	Order code
Bin handler (non-isolated)	/B1
Bin handler (isolated 24V)	/B2
DC Bias (0 to 40V, 0 to 100mA)	/D1
DC Bias (-40V to +40V)	/D2