HF LCR Meters

6505P  5MHz
6510P  10MHz
6515P  15MHz
6520P  20MHz
6530P  30MHz
6550P  50MHz
65120P  120MHz

- Precise high frequency impedance measurements
- Characterize components to 120MHz (65120P)
- Fast measurement speed
- 0.05% basic measurement accuracy
- 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.

AC 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)

High measurement accuracy
Capacitance, inductance and impedance basic accuracy are all an excellent ±0.05%. Dissipation factor accuracy is ±0.0005 and the quality factor accuracy is ±0.05%.
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 +40Vdc bias voltage and 0 to +100mAdc bias current. /D2 DC bias option provides -40V to +40Vdc 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’s VGA output. 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.

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) Fixtures allow connection to surface mount devices.

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 Ω nominal

DC bias D1 option
- 0 to +100mAdc bias current; 0 to +40Vdc bias voltage

DC bias D2 option
- -40V to +40Vdc bias voltage

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.

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.

Measurement accuracy

Dissipation factor
±0.0005 (1+D²)*

Quality factor
±0.05 %( Q+1/Q)*

Capacitance / Inductance / Impedance
±0.05%*

*Varies with frequency, drive level and measured impedance

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 screen

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
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

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

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<thead>
<tr>
<th>Description</th>
<th>Order code</th>
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<tr>
<td>5MHz HF LCR Meter</td>
<td>1J6505P</td>
</tr>
<tr>
<td>10MHz HF LCR Meter</td>
<td>1J6510P</td>
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<tr>
<td>15MHz HF LCR Meter</td>
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<td>1J6550P</td>
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<tr>
<td>120MHz HF LCR Meter</td>
<td>1J65120P</td>
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</tbody>
</table>

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

Options

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Bin handler (non-isolated)</td>
<td>/B1</td>
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<tr>
<td>Bin handler (isolated 24V)</td>
<td>/B2</td>
</tr>
<tr>
<td>DC Bias (0 to +40V, 0 to +100mA)</td>
<td>/D1</td>
</tr>
<tr>
<td>DC Bias (-40V to +40V)</td>
<td>/D2</td>
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