Single Device Solution for High Speed Testing and Frequency Sweeping

With this new IM3570 Impedance Analyzer, an LCR meter and an impedance analyzer capable of measurement frequencies of 4 Hz to 5 MHz and test signal levels of 5 mV to 5 V have been combined into one measuring instrument. Advanced capabilities include LCR measurement with AC signals, resistance measurement with direct current (Rdc), and sweep measurement which continuously changes the measurement frequency and measurement level.

The IM3570 facilitates high-speed continuous measurement under different measurement conditions and measurement modes, so inspection lines which up to now have required multiple measuring instruments can be equipped with just one device.
LCR measurement, Rdc measurement, and Sweep measurement

Continuous Measurement and High-speed Testing Achieved with One Instrument

Measurements recommended with IMPEDANCE ANALYZER IM3570

1. Testing the resonance characteristics of piezoelectric elements

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**Reduce Equipment Costs with Just 1 Device!**

Frequency sweep measurement can be used to measure the resonance frequency and its impedance, and then the peak comparator function can be used to make a pass/fail judgment on the resonance state.

In LCR mode, you can test capacitance by performing C measurement between 1 kHz and 120 Hz.

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**High Speed and High Accuracy**

Frequency sweep measurement (impedance analyzer) and C measurement can be performed continuously with one instrument.

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**Advantage #1 -- Measurement time shortened**

The measurement time has been shortened from previous models, achieving maximum speeds of 1.5ms* (1 kHz) and 0.5ms* (100kHz) in LCR mode. This is a significant increase in speed compared with previous Hioki products (3522-50 and 3532-50 with basic speed of 5ms). Faster speed contributes to an increase in test quantities. Furthermore, sweep measurement, which requires multiple points to be measured, realizes the quick speed of 0.3ms per point.

*When the display is off (time increases by 0.3 ms when the display is on).
2. C-D and low ESR measurement of functional polymer capacitors

C-D (120 Hz) and low ESR (100 kHz) measurement can be performed for functional polymer capacitors.

Advantage #2  -- Low-impedance measurement accuracy improved

A one-digit improvement in repeat accuracy during low-impedance measurement has been achieved compared with previous Hioki products. For example, when the condition is 1 mΩ (1V, 100 kHz) and the measurement speed is MED, stable measurement with a repeat accuracy (variation)* of 0.12% is possible, making this instrument suitable for 100 kHz ESR measurement.

* Repeat accuracy (variation) is calculated based on the difference between the maximum and minimum values.

3. Rdc and L-Q measurement of inductors (coils and transformers)

The instrument can continuously measure L-Q (1 kHz, 1 mA constant current) and Rdc, and display the numerical values on the same screen. Current dependent elements such as coils incorporating cores for which the inductance value varies depending on the applied current can be measured with a constant current (CC). Since there is a one-digit improvement in repeat accuracy during low impedance measurement compared with previous products, stable measurement of Rdc can be expected.

Advantage #3

By improving the measurement accuracy of θ compared with previous Hioki products, measurement with an absolute accuracy and repeat accuracy of one-digit better than before can be performed for high Q and Rs values for which θ is in the vicinity of 90°.
Test Efficiency Improved by High-speed and High-accuracy Measurements

Features of IM3570

- **Low-capacitance (high-impedance) measurement with improved stability**
  
  There is a one-digit improvement in repeat accuracy during low-capacitance (high-impedance) measurement compared with previous Hioki products. For example, the condition is 1 pF (1 MHz, 1 V) and the measurement speed is SLOW2, stable measurement with a repeat accuracy (variation)\(^*\) of 0.01% is possible.
  
  At the same time, phase repeat accuracy is also improved, which in turn has improved the stability of D measurement during low-capacitance (high-impedance) measurement.

- **Wide setting range for measurement frequency**
  
  IM3570 allows DC or a frequency band within the range of 4 Hz to 5 MHz to be set with five-digit resolution (testing at less than 1 KHz has a 0.01 Hz resolution). This enables the measurement of resonance frequency and measurement and evaluation in a state close to that of actual operating conditions.

- **15 parameters measured**
  
  The following parameters can be measured and selected parameters can be captured by a computer: Z, Y, θ, Rs (ESR), Rp, Rdc (DC resistance), X, G, B, Ls, Lp, Cs, Cp, D (tanδ), and Q.

- **Incorporates contact check function (open-circuit check)**
  
  The contact check function for four-terminal measurement (only for low impedance high accuracy mode) and two-terminal measurement prevents measurement in a state in which a measurement electrode is not in contact with the measurement object.

- **Comparator and BIN functions**
  
  In LCR mode, the instrument allows for Hi, IN, and Lo judgments of two types from the measurement items on one screen. For the judgment method, S\(^*\) setting and Δ% setting are available in addition to absolute value setting. If continuous measurement is used, judgments which span over multiple measurement conditions and measurement items are possible. The BIN function can be used to classify two types of measurement items on one screen into 10 categories and out of range. In analyzer mode, the peak comparator for judging whether resonance points pass or fail can be used.

- **Segment setting**
  
  Up to 20 segments with a total of up to 801 points can be set for the sweep range. This is effective for evaluating multiple frequency ranges in detail.

- **Memory function**
  
  Up to 32,000 measurement results can be stored in the memory of the instrument. The saved measurement results can be copied to a USB flash drive, and can also be acquired using a communication command.

- **Wide setting range for measurement voltage and current**
  
  In addition to normal open-loop signal generation, this instrument enables measurement considering voltage/current dependence in constant voltage and constant current modes. The signal levels can be set over wide ranges, from 5 mV to 5 V, and from 10 μA to 50 mA (up to 1 MHz). (The setting range of measurement signal levels differs depending on the frequency and measurement mode.)

- **DC bias can be generated internally**
  
  Up to a 2.5 V DC bias can be applied and then measurement performed with just the unit. This is reassuring when measuring polar capacitors such as a tantalum capacitor. The charge impedance is 100 Ω. (The DC bias unit required with 3522-50 and 3532-50 is not needed for IM3570 within the bias voltage range of 0 to +2.5V. If a larger bias voltage is required, an external option, which is scheduled to be released in the future, is required.)

- **High resolution with up to 7-digit display**
  
  High-resolution measurement with full 7-digit display is possible. The number of display digits can be set from 3 to 7.

- **Four-terminal probe allows for use at DC to 8 MHz**
  
  The L2000 4-terminal probe (option) employs a 4-terminal structure to facilitate 50 Ω characteristic impedance and improved measurement accuracy, and is well suited to the IM3570.

- **Measurement cable extendable to up to 4 meters**
  
  Accuracy is guaranteed at the measurement cable lengths of 0, 1, 2, and 4 meters. This makes wiring automated machinery simple. (The frequency range for which accuracy is guaranteed differs depending on the cable length. The probe needs to be provided by the customer.)

- **Longer stability**
  
  Measurement accuracy is guaranteed for one year. Previous models required calibration every 6 months, but with this model the calibration interval has been extended to one year.

- **Interval measurement**
  
  In order to, for example, confirm the temporal changes of an element from the response of a sensor, parameter time variations can be measured for up to 801 points at a specified interval (100 μs to 10,000s), and then the data can be displayed in a graph or list.
Measurement results and settings can be saved to a commercially available USB flash drive connected to the front panel.

The rear panel is standard equipped with RS-232C, GP-IB, USB and LAN ports. (The USB port on the rear panel is specifically for connecting a PC.) Various functions of IM3570 can be controlled from a PLC or PC, and measurement results can be acquired. (Excluding turning the power on/off and configuring some interface settings.) Use of an interface suitable for automated machinery enables you to build the optimal measurement system.
The handler (EXT I/O) interface enables output of an end of measurement signal and measurement result signal, and input of signals such as a measurement trigger signal to control the measuring instrument. Each of the signal lines is isolated from the control circuit, and the structure is designed to protect against noise.

### Example of representative EXT I/O timing

![Example of EXT I/O timing diagram](image)

<table>
<thead>
<tr>
<th>Contact state</th>
<th>Timing (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIG ON</td>
<td>1</td>
</tr>
<tr>
<td>INDEX ON</td>
<td>2</td>
</tr>
<tr>
<td>INDEX OFF</td>
<td>3</td>
</tr>
<tr>
<td>TRIG OFF</td>
<td>4</td>
</tr>
<tr>
<td>INDEX ON</td>
<td>5</td>
</tr>
<tr>
<td>INDEX OFF</td>
<td>6</td>
</tr>
<tr>
<td>TRIG ON</td>
<td>7</td>
</tr>
<tr>
<td>INDEX ON</td>
<td>8</td>
</tr>
<tr>
<td>INDEX OFF</td>
<td>9</td>
</tr>
<tr>
<td>TRIG OFF</td>
<td>10</td>
</tr>
</tbody>
</table>

### IM3570 specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement modes</td>
<td>LCR mode: Measurement with single condition Analyzer mode: Sweeps with measurement frequency and measurement level (Measurement points: 1 to 801, Measurement method: normal sweep or segment sweep, Display: List display or graph display) Continuous measurement mode: Measures under saved conditions continuously (maximum of 32 sets)</td>
</tr>
<tr>
<td>Measurement range</td>
<td>100 mΩ to 100 MΩ, 12 ranges (All parameters are determined according to Z.)</td>
</tr>
<tr>
<td>Display range</td>
<td>Z, Rs, Rp, Rs, Rs, Rx, G, B, Ls, Cp, Cs, Rp: ±0.000000 to 9,999,999,999 [unit] Z: ±0.000000 to 180.000000 (^\circ) R: ±0.000000 to 9,999,9999 (Ω) Q: ±0.000000 to 99,999,9999</td>
</tr>
<tr>
<td>Basic accuracy</td>
<td>Z: ±0.08% &amp; deg; (°), ±0.05(^\circ)</td>
</tr>
<tr>
<td>Measurement frequency</td>
<td>4Hz to 5MHz (5 digits setting resolution, minimum resolution 10 MHz)</td>
</tr>
<tr>
<td>Output impedance</td>
<td>Normal mode: 100 Ω Low impedance high accuracy mode: 10 Ω</td>
</tr>
<tr>
<td>Display</td>
<td>5.7-inch color TFT, display can be set to ON/OFF</td>
</tr>
<tr>
<td>No. of display digits setting</td>
<td>The number of display digits can be set from 3 to 7 (initial value: 6 digits)</td>
</tr>
<tr>
<td>Memory function</td>
<td>Stores 32,000 data items to the memory of the instrument</td>
</tr>
<tr>
<td>Averaging</td>
<td>1 to 256</td>
</tr>
<tr>
<td>Interval measurement</td>
<td>100 μs to 10,000 s, max. 801 points</td>
</tr>
<tr>
<td>Panel loading/saving</td>
<td>LCR mode: Analyzer mode: 2; Compensation value: 128</td>
</tr>
<tr>
<td>Memory function</td>
<td>Stores 32,000 data items to the memory of the instrument</td>
</tr>
<tr>
<td>Interfaces</td>
<td>EXT I/O (handler), RS-232C, GP-IB, USB (Hi-Speed/Full-Speed), USB flash drive, LAN (10BASE-T/100BASE-TX)</td>
</tr>
<tr>
<td>Trigger synchronous output function</td>
<td>Applies a measurement signal during analog measurement only</td>
</tr>
<tr>
<td>Operating temperature and humidity ranges</td>
<td>0°C to 40°C, 80% RH or less, no condensation</td>
</tr>
<tr>
<td>Storage temperature and humidity ranges</td>
<td>-10°C to 50°C, 80% RH or less, no condensation</td>
</tr>
<tr>
<td>Power supply</td>
<td>90 to 264 V AC, 50/60 Hz, 150 VA max.</td>
</tr>
<tr>
<td>Dimensions and weight</td>
<td>Approx. 330 (W) x 119 (H) x 307 (D), approx. 5.8 kg</td>
</tr>
<tr>
<td>Accessory</td>
<td>Power Cord x 1, Instruction Manual x 1, Communication Instruction Manual (CD) x 1</td>
</tr>
</tbody>
</table>
Basic accuracy (Z, θ) calculation expression

Top A: Basic accuracy of Z (± % rdg.)
B is the coefficient for the impedance of the sample

Bottom A: Basic accuracy of θ (± % deg.)
B is the coefficient for the impedance of the sample

A is the accuracy of R when DC (± % rdg.)
B is the coefficient for the resistance of the sample

Zx = the actual impedance measurement value (Z) of the sample.

The measurement accuracy is calculated based on the following equation.

Measurement accuracy = Basic accuracy × C × D × E × F × G

[C: Level coefficient] V: Setting value (corresponds to when V mode) [V]
0.005V to 0.999V: 1
(For measurements other than Rdc, at 30kΩ range or below)
10.01V to 5V: 1

[D: Measurement speed coefficient]
FAST : 8, MED : 4, SLOW : 2, SLOW2 : 1

[E: Measurement cable length coefficient]
fm: Measurement frequency [kHz]
0 m : 1 (DC to 5MHz), 1 m : 1.5 (DC to 5MHz),
2 m : 2 × (1 + fm [kHz] / 1000) (DC to 10kHz)

[F: DC bias coefficient] Vdc: AC signal voltage setting value [V]
DC bias setting OFF : 1
DC bias setting ON : 0.1 × (1 + V) (At 10Ω range or below, minimum 100mV)

[G: Temperature coefficient] t: Operating temperature
When t is 18°C to 28°C : 1,
When t is 0°C to 18°C or 28°C to 40°C : 1 + 0.1 × |t - 23|

Basic accuracy

<table>
<thead>
<tr>
<th>Range</th>
<th>Guaranteed accuracy range</th>
<th>DC 4 Hz to 99.9 Hz</th>
<th>100 Hz to 999.9 Hz</th>
<th>1 kHz to 10 kHz</th>
<th>10 kHz to 1 MHz</th>
<th>10 MHz to 1 kHz</th>
<th>1 kHz to 10 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100kΩ</td>
<td>80kΩ to 20MΩ</td>
<td>A=4 B=6</td>
<td>A=6 B=5</td>
<td>A=3 B=2</td>
<td>A=2 B=2</td>
<td>A=8 B=4</td>
<td>A=3 B=2</td>
</tr>
<tr>
<td>10MΩ</td>
<td>800kΩ to 100MΩ</td>
<td>A=0.5 B=0.3</td>
<td>A=0.8 B=0.5</td>
<td>A=0.5 B=0.3</td>
<td>A=1 B=0.7</td>
<td>A=3 B=2</td>
<td>A=1 B=1</td>
</tr>
<tr>
<td>1kΩ</td>
<td>24kΩ to 1MΩ</td>
<td>A=0.2 B=0.1</td>
<td>A=0.4 B=0.8</td>
<td>A=0.3 B=0.5</td>
<td>A=0.3 B=0.8</td>
<td>A=1 B=0.8</td>
<td>A=1 B=0.5</td>
</tr>
<tr>
<td>2kΩ</td>
<td>8kΩ to 300kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.01</td>
<td>A=0.15 B=0.01</td>
<td>A=0.25 B=0.04</td>
<td>A=0.4 B=0.3</td>
</tr>
<tr>
<td>3kΩ</td>
<td>800Ω to 30kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>4kΩ</td>
<td>240Ω to 10kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>5kΩ</td>
<td>800Ω to 30kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>6kΩ</td>
<td>200Ω to 100kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>10Ω</td>
<td>800Ω to 100kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>100Ω</td>
<td>800Ω to 100kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>200Ω</td>
<td>800Ω to 200Ω</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>500Ω</td>
<td>800Ω to 500Ω</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>1kΩ</td>
<td>800Ω to 5kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>2kΩ</td>
<td>800Ω to 5kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>5kΩ</td>
<td>800Ω to 5kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>10kΩ</td>
<td>800Ω to 5kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>50kΩ</td>
<td>800Ω to 5kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
<tr>
<td>100kΩ</td>
<td>800Ω to 5kΩ</td>
<td>A=0.1 B=0.01</td>
<td>A=0.3 B=0.01</td>
<td>A=0.2 B=0.05</td>
<td>A=0.12 B=0.05</td>
<td>A=0.25 B=0.01</td>
<td>A=0.4 B=0.5</td>
</tr>
</tbody>
</table>

Guaranteed accuracy range (measurement signal level)

The guaranteed accuracy range depends on the measurement frequency, measurement signal level, and measurement range.

<table>
<thead>
<tr>
<th>Range</th>
<th>DC 4 Hz to 99.9 Hz</th>
<th>100 Hz to 999.9 Hz</th>
<th>1 kHz to 10 kHz</th>
<th>10 kHz to 1 MHz</th>
<th>100 kHz to 1 MHz</th>
<th>1 MHz to 5 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100MΩ</td>
<td>1 V to 2.5 V</td>
<td>0.101 V to 5 V</td>
<td>0.501 V to 5 V</td>
<td>1.0 V to 5 V</td>
<td>0.501 V to 5 V</td>
<td>0.501 V to 5 V</td>
</tr>
<tr>
<td>10MΩ</td>
<td>0.1 V to 2.5 V</td>
<td>0.050 V to 5 V</td>
<td>0.250 V to 5 V</td>
<td>0.501 V to 5 V</td>
<td>0.501 V to 1 V</td>
<td>0.501 V to 1 V</td>
</tr>
<tr>
<td>100kΩ</td>
<td>0.1 V to 2.5 V</td>
<td>0.050 V to 5 V</td>
<td>0.250 V to 5 V</td>
<td>0.501 V to 5 V</td>
<td>0.501 V to 1 V</td>
<td>0.501 V to 1 V</td>
</tr>
</tbody>
</table>

The above voltages are the voltage setting values corresponding to when in V mode.

*1 Guaranteed accuracy of 10 mΩ or above, *2 Guaranteed accuracy of 0.01 V to 5 V when DC bias is on, *3 Guaranteed accuracy of 10 mΩ or above and 1.01 V to 5 V when DC bias is off.
Options

**EQUIVALENT CIRCUIT ANALYSIS FIRMWARE IM9000**

*(Factory-installed option)*

The Equivalent Circuit Analysis Firmware IM9000 is an optional function for the Impedance Analyzer IM3570. The IM9000 is not included in the standard package. If you want to use the IM9000, specify the option upon purchase.

Customers who have purchased the Impedance Analyzer IM3570 can add the Equivalent Circuit Analysis Firmware IM9000 function. Please contact your Hioki distributor.

**Test Fixtures for SMDs**

- **SMD TEST FIXTURE IM9110**
  - Measurable range: DC to 1 MHz, For SMD with electrodes on side, Measurable sample sizes: 0805 to 0402 (EIA), 1206 to 0603 (JIS). Please contact Hioki for information about other sizes, Direct connection type

- **SMD TEST FIXTURE IM9150**
  - Measurable range: DC to 8 MHz, For SMD with electrodes on bottom, Measurable sample sizes: 1005 to 0402 (EIA) 0402 to 1005 (JIS). Direct connection type

- **SMD TEST FIXTURE 9677**
  - Direct connection type, for SMDs with electrodes on the bottom, DC to 120 MHz, SMD sizes: 1.0 to 4.0 mm wide, 1.5 mm or less high

- **SMD TEST FIXTURE 9699**
  - Direct connection type, for SMDs with electrode on the bottom, DC to 120 MHz, SMD sizes: 1.0 to 4.0 mm wide, 1.5 mm or less high

**Probes and Test Fixtures for Lead Components**

- **FOUR-TERMINAL PROBE L2000**
  - Cable length 1 m (3.28 ft), DC to 8 MHz, characteristic impedance of 50 Ω, 4-terminal pair design, measurable conductor diameter: 0.3 to 5 mm (0.01 to 0.20 in)

- **FOUR-TERMINAL PROBE 9140-10**
  - Cable length 1 m (3.28 ft), DC to 200 kHz, characteristic impedance of 50 Ω, 4-terminal pair design, measurable conductor diameter: 0.3 to 5 mm (0.01 to 0.20 in)

- **TEST FIXTURE 9262**
  - Direct connection type, DC to 8 MHz, measurable conductor diameter: 0.3 to 2 mm (0.01 to 0.08 in)

- **TEST FIXTURE 9261-10**
  - Cable length 1 m (3.28 ft), DC to 8 MHz, characteristic impedance of 50 Ω, 4-terminal pair design, measurable conductor diameter: 0.3 to 1.5 mm (0.01 to 0.06 in)

**For Electrochemical Measurement**

- **DC Bias Unit**
  - DC BIAS VOLTAGÉ UNIT 9268-10
  - Direct connection type, 40 Hz to 8 MHz, maximum applied voltage: ±40 V DC

- **DC BIAS CURRENT UNIT 9269-10**
  - Direct connection type, 40 Hz to 2 MHz, maximum applied current 2 A DC (maximum applied voltage: ±40 V DC)
  - *An internal 500μH inductance is connected in parallel to the DUT.

  *When using the 9268-10 or 9269-10, external constant-voltage and constant-current sources are required.

**Interface Cable**

- **GP-IB CONNECTION CABLE 9151-02**
  - 2 m (6.56 ft) length
  - RS-232C Cable
  - As RS-232C cable, use an interlink (crossover) cable.
  - The 9637 RS-232C cable (9-pin to 9-pin, crossed cable) cannot be used for applications involving the hardware flowcontrol.

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All information correct as of Nov. 20, 2019. All specifications are subject to change without notice.