New

HIOKI

IMPEDANCE ANALYZER IM7580

Component measuring instruments

300 MHz

World's fastest*

Speed up cycle times and accelerate productivity with high-speed measurement and superior repeatability

*Among impedance analyzers with a frequency bandwidth of 1 MHz to 300 MHz.

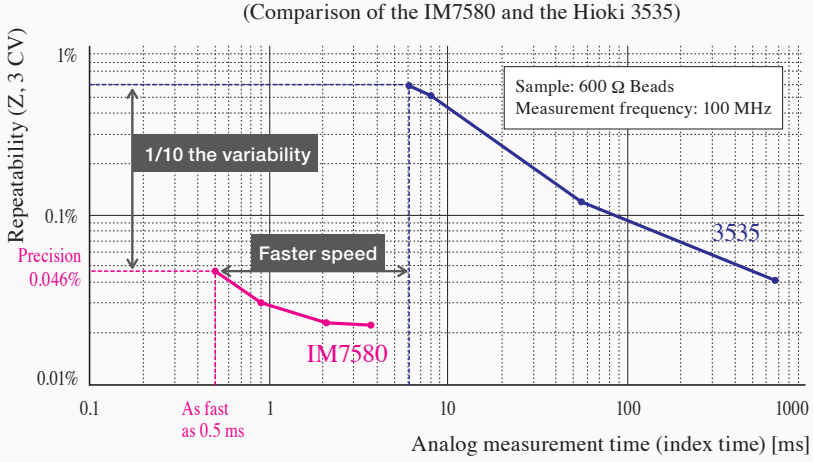

HIOKI
ANALYZER
SETUP
ADJUST
SYSTEM
FILE
DISP
SAVE
TRIG
IM7580 IMPEDANCE ANALYZER
MEAS
HIOKI
IM7580 TEST HEAD

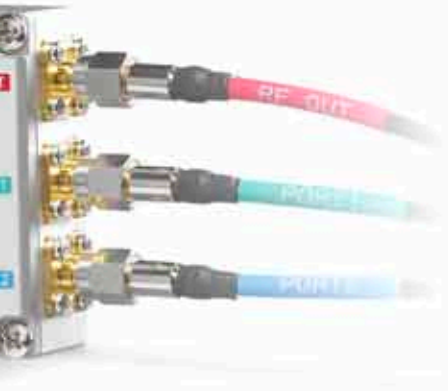
With a measurement time of 0.5 ms, the IM7580 is history's fastest impedance analyzer.

More than just fast

Improved repeatability ensures stable measurement.
The IM7580 delivers the speed and precision that manufacturing applications demand.

Repeatability and analog measurement times
(Comparison of the IM7580 and the Hioki 3535)





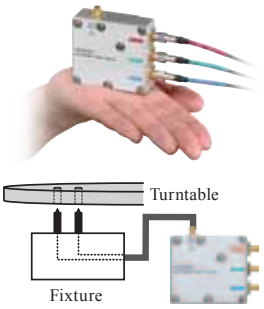
IM7580 basic specifications	
Basic accuracy	±0.72% rdg.
Measurement speeds[*1]	FAST: 0.5 ms / MED: 0.9 ms / SLOW: 2.1 ms / SLOW2: 3.7 ms
Measurable range	100 mΩ to 5 kΩ
Measurement frequency	1 MHz to 300 MHz
Measurement signal level	-40.0 dBm to +7.0 dBm / 4 mV to 1,001 mV / 0.09 mA to 20.02 mA

[*1] Analog measurement time

Superior productivity in a small package

Compact, half-rack footprint

The ability to fit two instruments into a single rack and use them simultaneously lets you carry out a variety of measurements faster. This size is essential for boosting volume on production lines.



A test head that fits in the palm of your hand

The IM7580's test head is small enough to fit in the palm of your hand, enabling it to be placed closer to the measurement target. The ability to position the test head next to the measured object makes testing less susceptible to noise and other adverse effects, increasing accuracy.

Large display

The display's brightness, color, and text size can be changed according to the needs of your application, while the touch screen provides a convenient and intuitive user experience.

Number of display digits (3/4/5/6)
Absolute value display

Customizable display color
(Background color and display color)

Customizable text size

GP-IB INTERFACE Z3000

RS-232C INTERFACE Z3001

* The GP-IB and RS-232C INTERFACE are optional.

Extensive range of interfaces for PC-based management

Save measurement conditions and results on a USB flash drive

Use the USB slot on the front of the IM7580 to store measurement results, screens, and measurement conditions saved on the instrument's internal memory on a USB flash drive.

Extensive range of interfaces for external control

Use the IM7580's LAN, USB, GP-IB, RS-232C, and EXT I/O interfaces to control the instrument from an external device.

*The GP-IB and RS-232C interfaces are optional.

LAN

Connector	RJ-45 connector
Transmission method	10Base-T, 100Base-Tx, 1000Base-T
Protocol	TCP/IP

USB (for PC connectivity)

Connector	USB Type B
Electrical specifications	USB 2.0 (High Speed)

GP-IB (optional)

Connector	24-pin
Standard	IEEE 488.1 1987
Reference standard	IEEE 488.2 1987
Terminator	CR+LF, LF

RS-232C (optional)

Connector	D-sub 9-pin
Flow control	Software
Transmission speed	9600 / 19200 / 38400 / 57600 bps

EXT I/O

Connector	D-sub 37-pin
	Female #4-40 inch thread
Compatible connectors	DC-37P-ULR (solder)
	DCSP-JB37PR (crimp)
	Japan Aviation Electronics Industry, Ltd.

*For more information, see page 15.

Dual measurement modes

Featuring LCR Mode and Analyzer Mode

LCR Mode

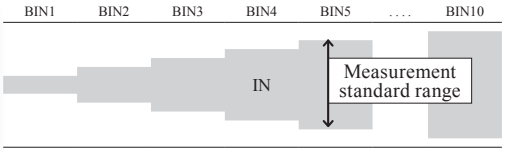
Use LCR Mode to make measurements by applying the desired frequency and level signal to the component being measured. This mode is ideal for evaluating passive devices such as capacitors and coils.

Comparator measurement: Yields a PASS/FAIL judgment for the target component based on a single judgment criterion.

HI	Upper limit	Greater than or equal to upper limit HI is displayed.
IN	Reference value	Within range defined by upper and lower limits IN is displayed.
LO	Lower limit	Less than or equal to lower limit LO is displayed.

Upper and lower limit judgment: Set the upper and lower limits.
Percentage judgment: Set the upper and lower limits as percentages of the reference value.
Deviation percentage judgment:
Set the upper and lower limits as percentages of the reference value. The instrument will display deviation of the measured value from the reference value (Δ%).

Bin measurement: Ranks components using multiple judgment criteria.



Set upper and lower limits for each bin. The instrument will rank components using up to 10 categories.
*Upper and lower limit settings are the same as for comparator measurement.

Display

Zoom function

Displays measured values using larger text for better visibility on production lines and in other field applications.

Monitor function

Displays the measurement signal level being applied to components in real time.

Monitor voltage: 0.0 mV to 1000.0 mV
Monitor current: 0.000 mA to 20.000 mA

Measurement parameters: Measure up to four parameters simultaneously.

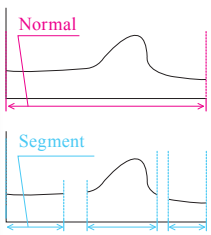
Z	Impedance	G	Conductance	Rp	Equivalent parallel resistance	Cp	Equivalent parallel capacitance
Y	Admittance	B	Susceptance	Ls	Equivalent series inductance	D	Loss factor tan δ
θ	Phase angle	Q	Q-factor	Lp	Equivalent parallel inductance	V	Monitor voltage*
X	Reactance	Rs	Equivalent series resistance (ESR)	Cs	Equivalent series capacitance	I	Monitor current*

*Analyzer mode only

Analyzer Mode

Use Analyzer Mode to perform measurement while sweeping through a range of measurement frequencies and measurement signal levels. This mode is ideal for checking frequency characteristics and level characteristics.

Normal/segment sweep operation: Discover component characteristics by sweeping through a range of frequencies and levels.



Performs measurement after you set the sweep parameter (frequency or level), sweep range, number of sweep points, and measurement conditions.

Allows you to set the sweep parameter, sweep range, number of sweep points, and measurement conditions on a segment-by-segment basis.

Sweep parameters	Frequency/signal level (power, voltage, current)
Sweep range	1 MHz to 300 MHz, -40.0 dBm to +7.0 dBm
Number of sweep points/segments	Up to 801 points / Up to 20 segments (with a total of 801 points)
Measurement condition settings	Frequency, level, speed, average

Interval sweep operation: Discover element characteristics over time under set conditions.

Measurement condition settings	Frequency, level, speed, average
Time interval	0 sec. to 1,000 sec.
Number of sweep points/segments	Up to 801 points / Up to 20 segments (with a total of 801 points)

Display

The graph display can be switched based on the type of measurement being performed (with a total of 7 layouts available).

Sweep graph display (1-graph/4-graph display)

XY graph display (1-graph/2-graph display)

Multi-display (simultaneous display of sweep and XY)

List display

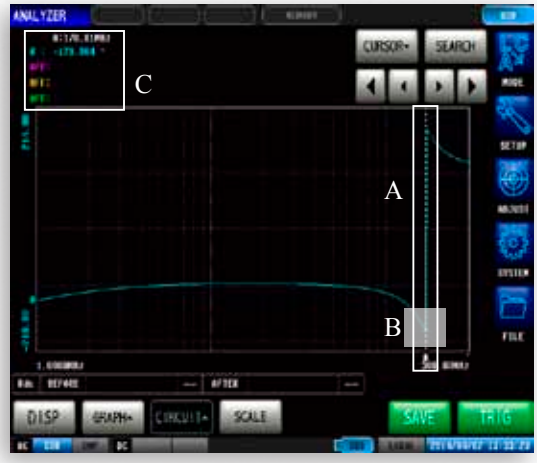
Peak display

Intelligent measurement and analysis

Convenient functionality for performing measurement, reviewing measurement results, and judging measured values

■ Analyzer Mode ■ LCR Mode

A: Panel numbers set for continuous measurement; B: Measured values; C: Parameter judgment results

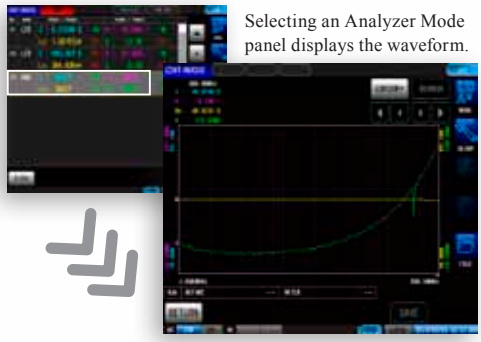


A: Cursor; B: Search result point; C: Measured values at result point

■■ Continuous measurement function

Conduct continuous measurement by progressively loading multiple sets of previously saved measurement conditions using the panel save function. Measurements can combine LCR and Analyzer Mode measurement conditions.

Continuous measurement can be performed using up to 46 measurement condition combinations, and can be implemented from EXT I/O.



Selecting an Analyzer Mode panel displays the waveform.

Panel save and load function

Save previously configured measurement conditions, compensation values, and compensation conditions in LCR or Analyzer Mode and load saved measurement conditions.

Number of panels that can be saved

LCR Mode measurement conditions	30
Analyzer Mode measurement conditions	16

■ Measured value search function

The cursor can be moved automatically to a user-selected measured value point for one set of sweep measurement results.

Search options

Maximum value	Moves the cursor to the maximum value.
Minimum value	Moves the cursor to the minimum value.
Target	Moves the cursor to a user-set measured value.
L-Max value	Moves the cursor to the local maximum value (a filter can be set).
L-Min value	Moves the cursor to the local minimum value (a filter can be set).

Select a measurement parameter to search for.

❯

Select the search type.
(If target, enter the value.)

❯

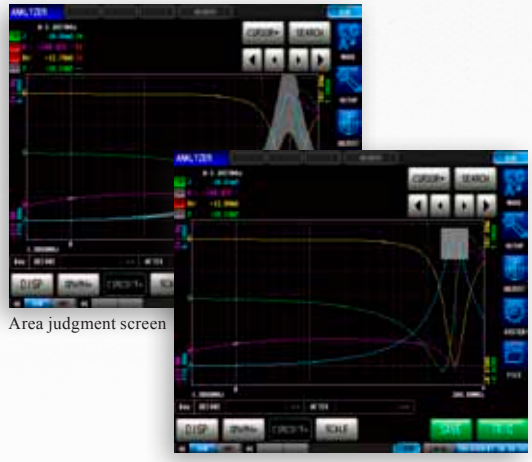
Select whether to search for a rising waveform or falling waveform.

❯

Select whether to use a filter.
(Local maximum and local minimum values only)

Auto search function

Move the cursor automatically according to user-configured settings once sweep measurement is complete.



Area judgment screen

Peak judgment screen

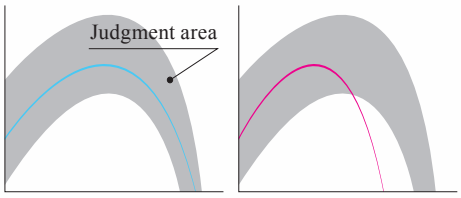
A: Analysis results

Area and peak comparison functions

Check whether measured values fall inside a previously configured judgment area. These functions are ideal for use in verifying non-defective products.

Area judgment: Obtaining an overall judgment for each sweep

Define a range by setting upper and lower limits and display the judgment results as IN or NG.

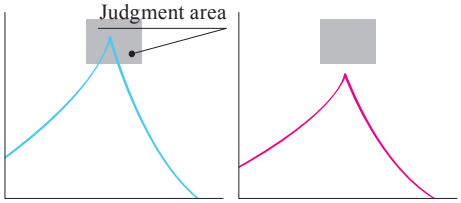


IN judgment: Inside area

NG judgment: Outside area

Peak judgment: Identifying resonance points

Define a range by setting upper, lower, left, and right limits and display the judgment results as IN or NG.

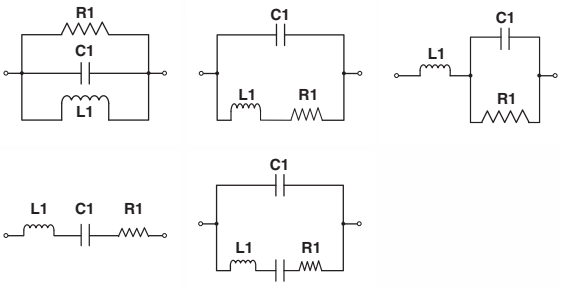


IN judgment: Inside area

NG judgment: Outside area

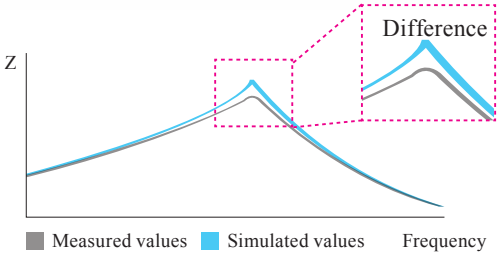
Equivalent circuit analysis function

Analyze individual component values (L/C/R) for elements in the following five circuits based on measurement results:



Simulation function/ residual error display

Perform a simulation based on equivalent circuit analysis results and compare the results to measured values to verify their accuracy. The residual error display allows you to check the quantitative difference between measured values and simulation results.



Absolute accuracy

The IM7580 features the functionality you need to make accurate, reliable measurements.

Contact check

The instrument checks the state of contact between the measurement terminals and circuit elements to verify the state of contact and detect contact errors.

DCR measurement: Checking contact before and after measurement

This capability is ideal for carrying out contact checks of inductive components with low DC resistance values such as inductors, ferrite cores, and common-mode filters.

Judgments based on user-configured upper and lower contact resistance limits

Guaranteed accuracy range	0.1 Ω to 100 Ω
Measurement timing	Before measurement, after measurement, or before and after measurement

Measured value > Upper limit: Displays "HI."
Upper limit ≥ Measured value ≥ Lower limit: Displays "IN."
Measured value < Lower limit: Displays "LO."

Hi-Z reject function: Judging the contact state based on measurement results

Activate this function in order to output a measurement terminal contact error if the impedance measured value is greater than a user-configured reference value.

Valid setting range	1 Ω to 10000 Ω

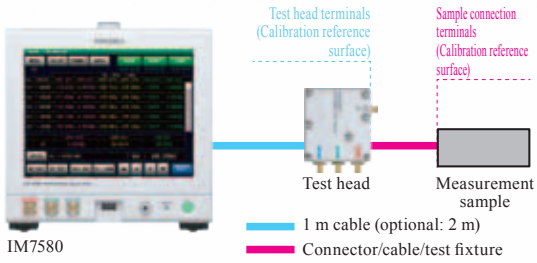
Waveform judgment function: Detecting chatter during measurement

Verify that components and terminals are in contact during measurement. The instrument will output an error if fluctuations in the RMS value exceed a user-configured range that has been set using the initially acquired RMS value waveform as the reference value.

Valid setting range	0.01% to 100.0% of the reference value
Output format	Screen error display or EXT I/O error output

Compensation function

To truly measure accurately, all analyzers should first be set up to their optimal state.



Open, short, and load calibration

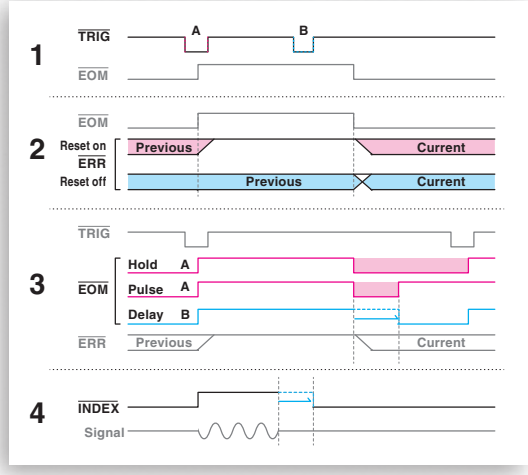
The compensation process involves calibrating the measurement setup, from the IM7580 to the reference surface (either the test head terminals or the sample connection terminals).
Each of three standards (open, short, and load) is connected and its calibration data measured to eliminate potential sources of error.

Electrical length compensation

Enter the length of the electrical connection between the reference surface and the measurement sample connection surface to allow compensation of error caused by phase shift.
If mounting a fixture on the test head, it is necessary to enter the fixture's electrical length.

Open and short compensation

Open and short compensation eliminates sources of error from the calibration reference surface to the sample connection surface (including the fixture, measurement cables, etc.).



External control I/O

When using external control, you can regulate the input and output signal timing as desired.

1. Trigger input:
Timing and enable/disable settings

A. Choose to enable or disable trigger input during measurement. By disabling input, you can prevent erroneous input caused by chatter.

B. Select whether to base input timing on the trigger's rising edge or falling edge.

2. Reset judgment result

You can set the timing at which judgment results are reset.
On: Reset the previous judgment results at the measurement complete signal's rising edge.
Off: Reset the previous judgment results when the next judgment results are output.

3. Measurement complete signal:
Output method and output delay

A. Select whether to use pulse or hold output for the measurement complete signal.
Pulse: You can set the duration for which the measurement complete signal is placed in the "on" state.
Hold: The measurement complete signal switches from "on" to "off" at trigger input.

B. You can set the duration of the delay from output of judgment results to output of the measurement complete signal.

4. Analog measurement signal:
Output delay

When using trigger-synchronized output, you can ensure that the analog measurement signal is only output once the measurement signal has turned off.
Trigger-synchronized output: The measurement signal is only applied to the sample during measurement.

Key lock function

You can lock the instrument's keys to prevent erroneous or unauthorized screen operation.

Full key lock	Disables all setting changes.
Set key lock	Enables only comparator and bin judgment settings.

*Before activating the key lock function, check the passcode setting.

Audio Signal

You can turn the beep tone on or off based on the comparator judgment results.
The key tone can also be turned on or off.
Beep types: 14
Volume: 3 settings

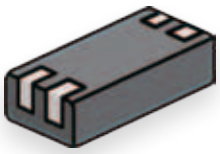
Warm-up function

The instrument will display a message indicating that warm-up operation is complete about 60 minutes after it is powered on.
(A warm-up period of 60 minutes is required in order for the instrument to perform at its defined accuracy.)

Applications

Common-mode filter measurement　Panel save and continuous measurement

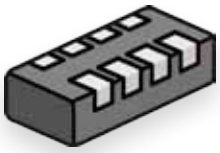
When one component must be measured two different ways or when compensation values and measurement conditions differ for each measurement point, the IM7580 streamlines the measurement process by automatically switching among compensation values and measurement conditions.



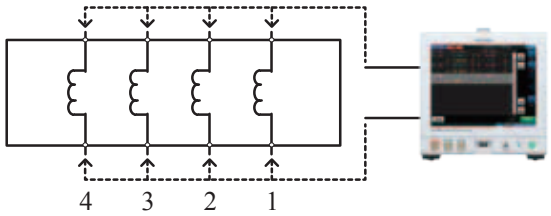
When one component must be measured two different ways

Halve cycle times by using two instruments…

Thanks to a compact design, two IM7580s can be stored in one rack. Using two impedance analyzers simultaneously can dramatically reduce cycle times.



When compensation values and measurement conditions differ for each measurement point



Progressive switching of compensation values and measurement conditions

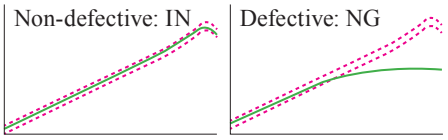
1 → 2 → 3 → 4

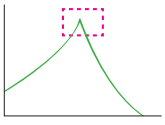
PASS/FAIL judgments for power inductors　Comparator function

By using the comparator function's area and peak judgment functions, you can easily differentiate between defective and non-defective components.

Area judgment

Set the judgment area and then check whether component measurement results fall inside that area. This approach is well suited to differentiating between defective and non-defective components.





As illustrated to the left, you can set a range around the peak value and use it to make judgments.

Measurement parameters and measurement conditions

Measurement parameters	Z Impedance Y Admittance θ Phase angle X Reactance G Conductance B Susceptance Q Q-factor	Rs Equivalent series resistance (ESR) Rp Equivalent parallel resistance Ls Equivalent series inductance Lp Equivalent parallel inductance Cs Equivalent series capacitance Cp Equivalent parallel capacitance D Loss factor tan δ
Display range	Z 0.00m to 9.99999G Ω Y 0.000n to 9.99999G S θ ±(0.000° to 999.999°) X ±(0.00m to 9.99999G Ω) G ±(0.000n to 9.99999G S) B ±(0.000n to 9.99999G S) Q ±(0.00 to 9,999.99)	Rs ±(0.00m to 9.99999G Ω) Rp ±(0.00m to 9.99999G Ω) Ls ±(0.00000n to 9.99999G H) Lp ±(0.00000n to 9.99999G H) Cs ±(90.00000p to 9.99999G F) Cp ±(0.00000p to 9.99999G F) D ±(0.00000 to 9.99999) Δ% ±(0.000 to 999.999%)
Measurable range	100 mΩ to 5 kΩ	
Output impedance	50 Ω (at 10 MHz)	
Measurement frequency – Range	1 MHz to 300 MHz	
Measurement frequency – Resolution	1.0000 MHz to 9.9999 MHz: 100 Hz steps 10.000 MHz to 99.999 MHz: 1 kHz steps 100.00 MHz to 300.00 MHz: 10 kHz steps	
Measurement frequency – Accuracy	±0.01% of setting or less	
Measurement signal level – Range	Power: -40.0 dBm to +7.0 dBm Voltage: 4 mV to 1,001 mV Current: 0.09 mA to 20.02 mA User-configured power, voltage, and current	
Measurement signal level – Resolution	0.1 dB steps	
Measurement signal level – Accuracy	±2 dB (23°C ±5°C) / ±4 dB (0°C to 40°C)	

Measurement modes

Measurement modes	LCR mode: Measurement using a single set of conditions Analyzer mode: Sweep measurement and equivalent circuit analysis Continuous measurement mode: Continuous measurement using previously saved conditions

LCR mode

Measurements	Bin measurement: 10 categories for 4 measurement parameters
	Comparator measurement: Hi, IN, and Lo judgments for 4 parameters
Functionality	Monitor function Monitor voltage range: 0.0 mV to 1000.0 mV Monitor current range: 0.000 mA to 20.000 mA
Display	Zoom display function: Enlarged display of measured values

Analyzer mode

Measurements	Sweep measurement Up to 801 sweep points with user-configurable point delay Normal sweep: Measurement of up to 801 points Segment sweep: Up to 20 segments (with a total of 801 points)
	Time interval measurement Interval of 0.00000 sec. to max. 1,000.00 sec., 801 points
Functionality	Equivalent circuit analysis: 5 circuit models Cursor function: Automatically search for maximum and minimum values, target, local maximum and minimum values Comparator function: Area and peak judgment
Display	List display graph display, XY graph display, judgment results display Scaling: Linear or logarithmic

Continuous measurement mode

Measurements	Continuous measurement using up to 46 combinations of the following measurement conditions: 30 LCR mode measurement conditions and 16 analyzer mode measurement conditions

Speed and accuracy

Measurement speed (analog measurement)	FAST : 0.5 ms SLOW : 2.1 ms MED : 0.9 ms SLOW2 : 3.7 ms
Averaging	Valid setting range: 1 to 256 (in steps of 1)
Basic accuracy	Z: 0.72% rdg. θ: 0.41°
Guaranteed accuracy range	100 mΩ to 5 kΩ (impedance)
Guaranteed accuracy period	1 year
Terminal design	2-terminal design

Supplementary functionality

Trigger function	User-selectable internal or external trigger (EXT I/O, interface, manual) Trigger delay: 0 sec. to 9 sec. Trigger-synchronized output: Stabilization wait time of 0 sec. to 9 sec. INDEX signal delay time of 0 sec. to 0.1 sec. Trigger types: Sequential, repeat, step*1
Compensation function	Open/short/load calibration: From IM7580 to test head Open/load compensation: Compensation of fixture component Electrical length compensation: 0 mm to 100 mm Correlation compensation: Compensation of display values based on user-input compensation coefficient
Contact check	DCR measurement, Hi-Z reject function, waveform judgment function

*1 Analyzer mode only

Recording and interface

Number of measured values that can be stored in memory	LCR Mode: 32000 Analyzer Mode: 100 sweeps Measured values are stored in the instrument and then saved all together.
Panel save and load functions	Measurement conditions: 30 sets for LCR mode, 16 sets for Analyzer mode Compensation values only: 30 sets for LCR mode
Interfaces	HANDLER, USB, LAN, GP-IB (optional), RS-232C (optional)

Display and sound

Key lock function	Lock operation of the instrument using the panel. Unlock by entering a passcode.
Beep tone	Enable or disable for judgment results and key operation.
Warm-up function	The instrument will display a message 60 minutes after it is powered on.
Selection of number of display digits	3, 4, 5, or 6 digits
Display settings	LCD display on/off Backlight brightness adjustment Measurement screen background color (white or black) Switchable parameter colors
Display	8.4-inch color TFT with touch panel

Other

Operating temperature and humidity range	0°C to 40°C, 20% RH to 80% RH, non-condensing
Storage temperature and humidity range	-10°C to 50°C, 20% RH to 80% RH, non-condensing
Operating environment	Use indoors at an elevation of 2,000 m or less in an environment with a maximum pollution level of 2.
Power supply and maximum rated power	100 V to 240 V AC (50/60 Hz), 70 VA
Dielectric strength	1.62 kV AC for 1 min. between power line and ground line
Standards compliance	EMC: EN 61326, EN 61000 Safety: EN 61010
Dimensions and weight	Approx. 215 W × 200 H × 268 D mm (8.46 W × 7.87 H × 10.55 D in) , approx. 6.5 kg (229.3 oz)
Accessories	Test head ×1, Connection cable ×1, Power cord ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1

Measurement accuracy Z: ±(Ea + Eb) [%] θ: ±0.58 × (Ea + Eb) [°]

Conditions	
Guaranteed accuracy temperature and humidity range	0°C to 40°C, **20% RH to 80% RH** (non-condensing) However, must be within ±5°C of the temperature at the time of calibration.
Guaranteed accuracy period	**1 year (Open, short, and load calibration should be performed daily before measurement.)**
Warm-up time	At least 60 min.
Measurement conditions	**Frequency, power, and speed points at which open, short, and load calibration have been performed**

$Ea = 0.5 + Er$

Er: For power of -7 dBm to +7 dBm

Frequency	FAST	MED	SLOW	SLOW2
1 MHz to 100 Mhz	0.09	0.06	0.036	0.03
100.01 MHz to 300 MHz	0.108	0.078	0.039	0.036

Er: For power of -40 dBm to -7.1 dBm

Frequency	Er	Eoff			
		FAST	MED	SLOW	SLOW2
1 MHz to 100 MHz	$3 \times 10^{(-0.046P + Eoff)}$	-1.8	-2	-2.15	-2.3
100.01 MHz to 300 MHz	$3 \times 10^{(-0.048P + Eoff)}$	-1.75	-1.9	-2.1	-2.25

P: Power setting [dBm]

$$Eb = \left(\frac{Zs}{Zx} + Yo \cdot |Zx| \right) \times 100 \quad [\%] \ (|Zx| : \text{Z measured value in } [\Omega])$$

$$Zs = \frac{(20 + Zsr + 0.5 \times F)}{1000} \quad [\Omega] \ (F: \text{Measurement frequency [MHz]})$$

Zsr: For power of -7 dBm to +7 dBm

FAST	MED	SLOW	SLOW2
13.5	9	5.1	3.9

Zsr: For power of -40 dBm to -7.1 dBm

Zsr	Zoff			
	FAST	MED	SLOW	SLOW2
$3 \times 10^{(-0.048P + Eoff)}$	0.35	0.2	0	-0.15

P: Power setting [dBm]

$$Yo = \frac{(30 + Yor + 0.15 \times F)}{1000000} \quad [S] \ (F: \text{Measurement frequency [MHz]})$$

Yor: For power of -7 dBm to +7 dBm

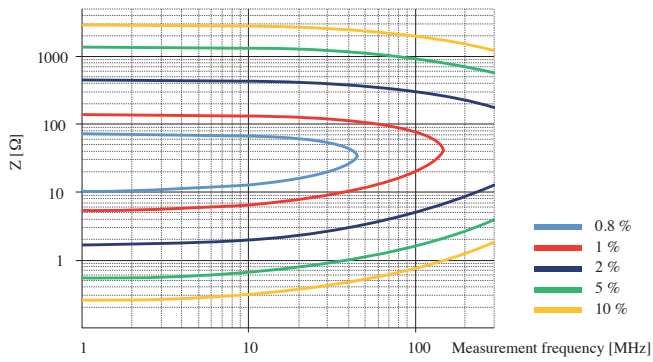
FAST	MED	SLOW	SLOW2
7.5	5.7	3.3	2.4

Yor: For power of -40 dBm to -7.1 dBm

Yorr	Zoff			
	FAST	MED	SLOW	SLOW2
$3 \times 10^{(-0.046P + Yoff)}$	0.1	0	-0.2	-0.4

P: Power setting [dBm]

Basic measurement confirmation table*



*For -7 dBm to +7 dBm, SLOW2.

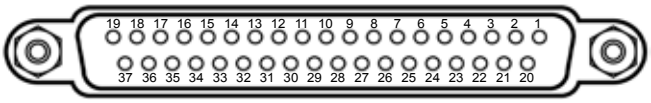
Free software for calculating accuracy

Free software for automatically calculating measurement accuracy based on user-entered measurement conditions and measurement results can be downloaded from Hioki's website.

External control

List of EXT I/O handler interface signals

Pin	I/O	Signal
1	IN	$\overline{\text{TRIG}}$
2	IN	Unused
3	IN	Unused
4	IN	$\overline{\text{LDI}}$
5	IN	$\overline{\text{LD3}}$
6	IN	$\overline{\text{LD5}}$
7	IN	Unused
8	-	$\overline{\text{ISO\_5V}}$
9	-	$\overline{\text{ISO\_COM}}$
10	OUT	$\overline{\text{ERR}}$
11	OUT	$\overline{\text{PARA1-HI}}$,$\overline{\text{BIN1}}$,$\overline{\text{PARA1-NG}}$
12	OUT	$\overline{\text{PARA1-LO}}$,$\overline{\text{BIN3}}$,$\overline{\text{PARA2-NG}}$
13	OUT	$\overline{\text{PARA2-IN}}$,$\overline{\text{BIN5}}$,$\overline{\text{PARA3-NG}}$
14	OUT	$\overline{\text{AND}}$,$\overline{\text{BIN7}}$
15	OUT	$\overline{\text{PARA3-IN}}$,$\overline{\text{BIN9}}$,$\overline{\text{PARA4-IN}}$
16	OUT	$\overline{\text{PARA4-HI}}$
17	OUT	$\overline{\text{PARA4-LO}}$
18	OUT	Unused
19	OUT	$\overline{\text{OUT\_OF\_BINS}}$,$\overline{\text{CIRCUIT\_NG}}$
20	IN	Unused
21	IN	Unused
22	IN	$\overline{\text{LD0}}$
23	IN	$\overline{\text{LD2}}$
24	IN	$\overline{\text{LD4}}$
25	IN	$\overline{\text{LD6}}$
26	IN	$\overline{\text{LD\_VALID}}$
27	-	$\overline{\text{ISO\_COM}}$
28	OUT	$\overline{\text{EOM}}$
29	OUT	$\overline{\text{INDEX}}$
30	OUT	$\overline{\text{PARA1-IN}}$,$\overline{\text{BIN2}}$,$\overline{\text{PARA1-IN}}$
31	OUT	$\overline{\text{PARA2-HI}}$,$\overline{\text{BIN4}}$,$\overline{\text{PARA2-IN}}$
32	OUT	$\overline{\text{PARA2-LO}}$,$\overline{\text{BIN6}}$,$\overline{\text{PARA3-IN}}$
33	OUT	$\overline{\text{PARA3-HI}}$,$\overline{\text{BIN8}}$,$\overline{\text{PARA4-NG}}$
34	OUT	$\overline{\text{PARA3-LO}}$,$\overline{\text{BIN10}}$,
35	OUT	$\overline{\text{PARA4-IN}}$
36	OUT	Unused
37	OUT	Unused



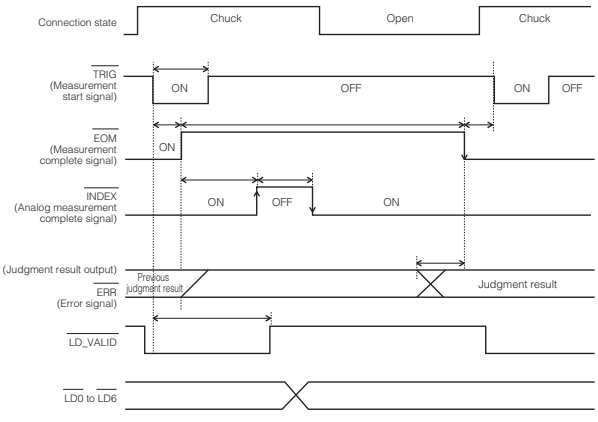
Signal	Function
$\overline{\text{TRIG}}$	External trigger
$\overline{\text{LD0}}$ to $\overline{\text{LD6}}$	Panel number selection
$\overline{\text{EOM}}$	Measurement complete signal
$\overline{\text{INDEX}}$	Analog measurement complete signal
$\overline{\text{ERR}}$	Detection level error
$\overline{\text{LD\_VALID}}$	Panel load
$\overline{\text{ISO\_5V}}$	Isolated power supply 5 V input
$\overline{\text{ISO\_COM}}$	Isolated power supply common
$\overline{\text{PARA1-HI}}$ to $\overline{\text{PARA4-HI}}$	Comparator judgment result: HI judgment
$\overline{\text{PARA1-IN}}$ to $\overline{\text{PARA4-IN}}$	Comparator judgment result: IN judgment
$\overline{\text{PARA1-LO}}$ to $\overline{\text{PARA4-LO}}$	Comparator judgment result: LO judgment
$\overline{\text{OUT\_OF\_BINS}}$	Bin measurement result
$\overline{\text{BIN1}}$-$\overline{\text{BIN10}}$	Bin judgment allocation: Bin 1 to Bin 10
$\overline{\text{CIRCUIT\_NG}}$	Equivalent circuit analysis: Comparator judgment result
$\overline{\text{PARA1-NG}}$ to $\overline{\text{PARA4-NG}}$	Peak judgment result
$\overline{\text{PARA1-IN}}$ to $\overline{\text{PARA3-IN}}$	Peak judgment result
$\overline{\text{AND}}$	Result of applying a logical AND operation to judgment results for measured values for four parameters (output when all judgment results are IN)

Connector used	D-sub 37-pin	Compatible connectors	DC-37P-ULR (solder)
	Female #4-40 inch thread		DCSP-JB37PR (crimp)
			Japan Aviation Electronics Industry, Ltd.

Electrical specifications	Input signals	Photocoupler-isolated, no-voltage contact input
		Input “on” voltage: 0 V to 0.9 V / input “off” voltage: open or 5 V to 24 V
	Output signals	Isolated NPN open collector output
		Maximum load voltage: 30 V / maximum output current: 50 mA/channel
		Residual voltage: 1 V or less (10 mA) or 1.5 V or less (50 mA)
	Built-in isolated power supply	Voltage: 4.5 V to 5 V / maximum output current: 100 mA
		Floating relative to protective ground potential and measurement circuit

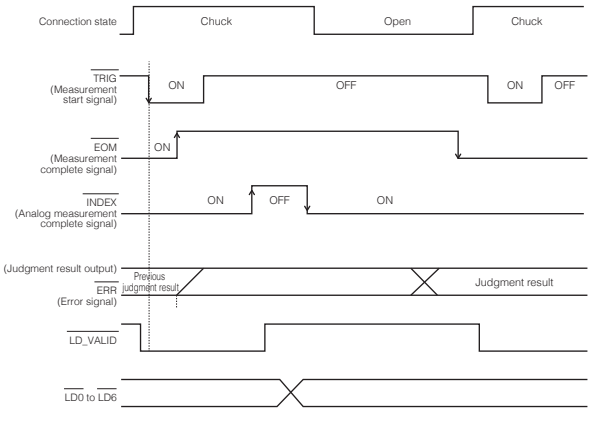
Timing chart

Example of LCR Mode measurement timing



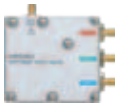
*In this example, the TRIG signal’s active edge is the falling edge (ON).

Example of Analyzer Mode measurement timing



EOM: Off from trigger input to end of measurement processing
INDEX: Off during probe chuck (probe cannot be removed from target)

Instrument



*1 The instrument does not ship with a test fixture or probe. A test fixture designed specifically for use with the Impedance Analyzer IM7580 is required. For more information, please contact your Hioki distributor.

IMPEDANCE ANALYZER IM7580
IMPEDANCE ANALYZER IM7580-02

Standard accessories*1

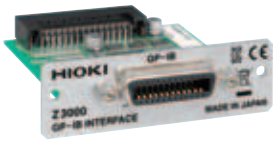
- Test head
- Connection cable (IM7580: 1 m / IM7580-02: 2m)
- Instruction manual
- LCR application disc (Communications user manual)
- Power cord

Free software for calculating accuracy
(LCR application disc)

Free software for automatically calculating measurement accuracy based on user-entered measurement conditions and measurement results can be downloaded from Hioki's website.

Options

Interfaces



GP-IB INTERFACE Z3000

GP-IB CONNECTION CABLE 9151-02
Cable length: 2 m (6.56 ft)

RS-232C INTERFACE Z3001

RS-232C CABLE 9637
Cable length: 1.8 m (5.91ft)

Any interlink-compatible cross-cable can be used as the RS-232C CABLE.

Test fixtures and associated options: Available in December 2014 (tentative)

- TEST FIXTURE STAND IM9200
- ADAPTER IM9906 (3.5 mm to 7 mm)
- SMD TEST FIXTURE IM9201

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