HIOKI

Electrical Measuring Instruments

General Catalog

2019

Recorders
Data Loggers

Impedance Analyzers
Battery Testers

Power Meters
Power Analyzers

Current Probes
Clamp Sensors

Recorders / Data Loggers / Remote Measurement System / Component Measuring Instruments / Signal Sources / Safety Standards Measuring Instruments / Power Measuring Instruments / Clamp on Sensors / Measurement in Telecommunications / Environmental Measuring Instruments / Digital Multi Meters / Insulation and Earth Testers / Clamp Meters / Meter Relays / Automatic Testing Equipment

NEW p.17

Overwhelming high speed technology
A revolutionary approach to measurement, recording and analysis

MEMORY HiCORDER MR6000

The MR6000 overcomes all barriers to reach new ground and meet challenges that are yet to be seen.
World class specifications, operability and design - Hioki's newest memory recorder has been re-engineered from top to bottom, delivering unprecedented performance that will change how you look at waveform recording.
Redefining the world standard for recorders - that is the Hioki MR6000.

200MS/s *High-speed optical isolated measurement*	*Instant saving* *Real-time save*
	Intuitive operation *Touch screen*






New Product Information

Increased efficiency of inverters and improved performance of energy-saving technologies have been achieved in the power electronics, renewable energy, and automotive industries.
We have drastically improved the technology used in our Memory HiCorders, developing the MR6000 Memory HiCorder to meet the advanced demands of all industries.

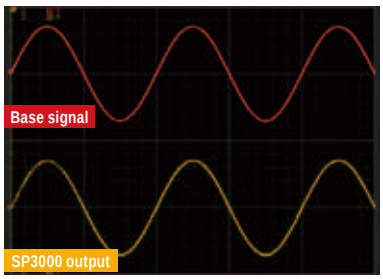
Capture Voltage Signals from Outside the Wire Cover

The world's first non-contact probe transforms
the conventional approach to electric equipment maintenance.

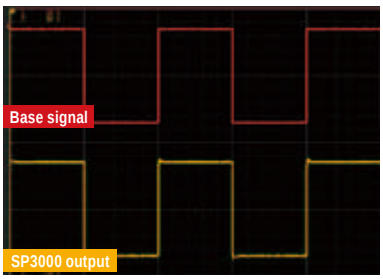
NON-CONTACT AC VOLTAGE PROBE SP3000

- In the waveform observation with a Hioki Memory HiCoder and the oscilloscope, visualization of the electrical signal by simply sandwiching it from the coating, greatly shortening the operation time.
- Ideal for measurement of on-board electrical system signals, observation of communication signals such as LIN signal.
- Corresponds to covered electric wires of ϕ 1.0 mm to ϕ 2.5 mm outside diameter.
- A frequency band from 10 Hz to 100 kHz (-3 dB)

Easy to install in narrow places



Sine wave 1 kHz



Square wave 1 kHz

p.77

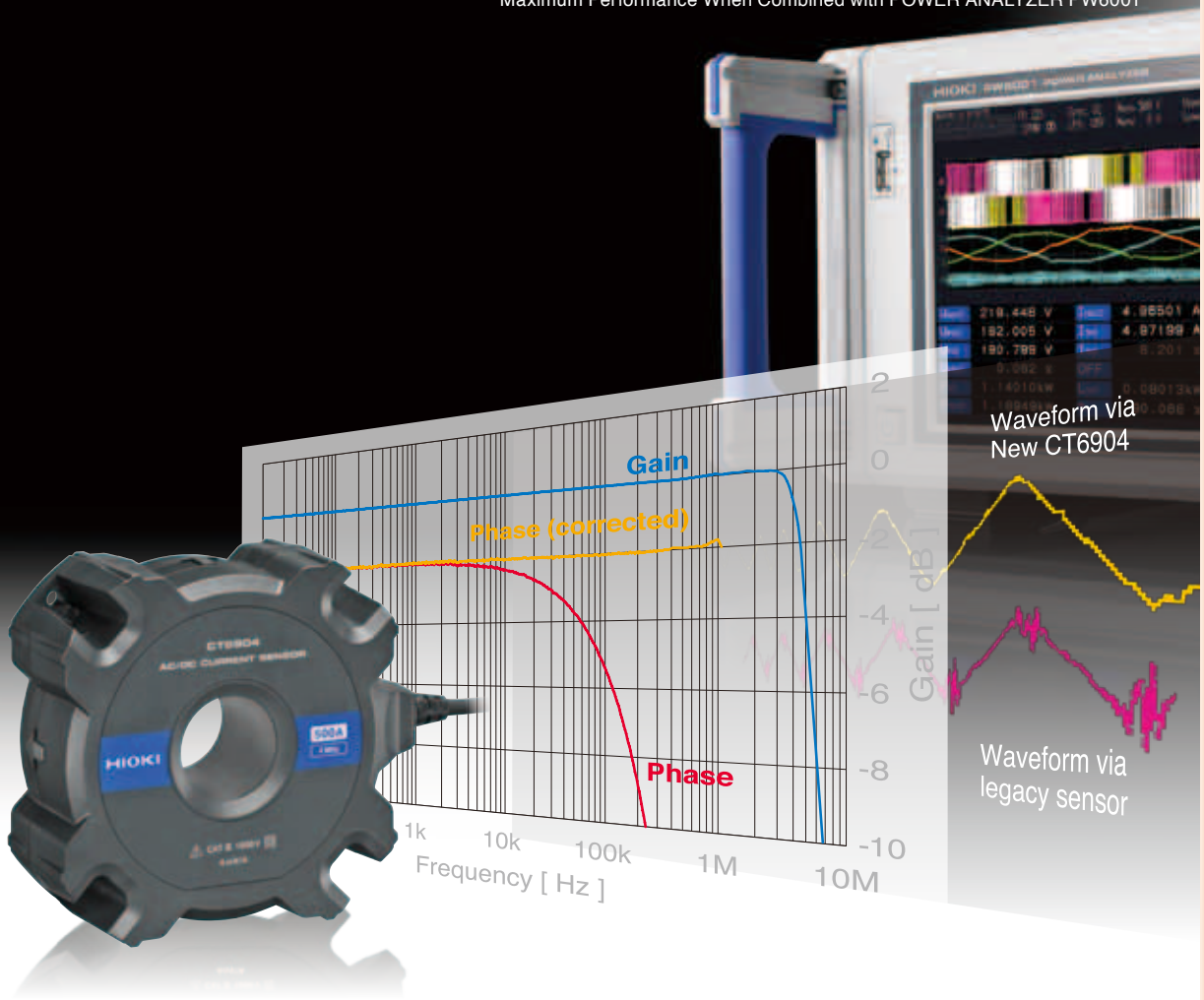
NEW

Changing the World of Current Measurement

Rating	Measurement Frequency Range	Linearity	Accuracy	CMRR
500 A (rms)	4 MHz (±3 dB)	±10 ppm	±0.02% rdg. (±0.007% f.s.)	120 dB (100 kHz)

High inverter efficiency and improved power saving technology performance for the power electronics, natural energy, and automotive industries. Responsive to the advanced demands of every industrial field.

Maximum Performance When Combined with POWER ANALYZER PW6001



World-Class Accuracy & Measurement Range (40× Conventional Models)

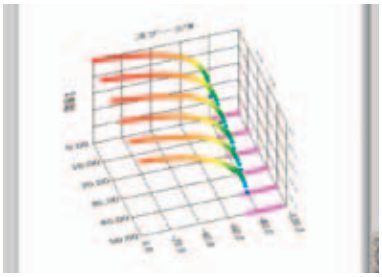
AC/DC CURRENT SENSOR CT6904

NEW p.112

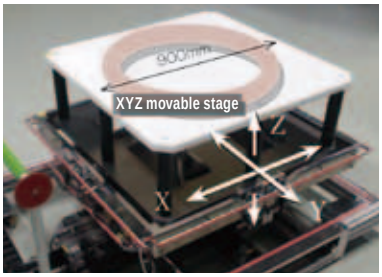
Fully automated multi-point measurement of wireless power supply

WPT TEST SYSTEM TS2400

- Integrating measurement with an XYZ stage for high-speed analysis of multi-type, multi-point measurement data.
- High-Speed Measurement System of 3000 Points/Hour.
- Generates four types of characteristics graphs in real time, even while testing is still in progress.
- Features a large, 900 mm stage designed for use with automotive magnetic resonance devices.
- Can position transmission coils with a radius of up to 800 mm.



3D graph generation using user-defined parameters



Dedicated XYZ stage adopting nonmagnetic material

Power transmission efficiency measurement

Automatic coupling coefficient measurement

Combination supports two types of efficiency measurement

Contents

About the Catalog

● This catalog is organized by product group

Search for products using the field-based (category-based) index on the first page. Products have been grouped using general names by principal application.

● A list of all available products can be found at the end of the catalog

The list is organized by product model and encompasses all products and pricing, including options.

● Options

Individual product pages include dedicated options. Options that are used by entire product groups are introduced together under the corresponding product group. For option specifications and other detailed information, please see the catalog for the product in question.

● Dimensions and mass

Exterior dimensions exclude protrusions, and are given in order of width(W), height(H), and depth(D), in mm units. Indicated weight represents an approximation of the mass of the main unit only, not including case, accessories, etc.

● Battery labeling

Battery labeling complies with IEC international standards and includes R6P (AA), R03 (AAA), 6F22 (9 V), LR6 (AA alkaline), LR03 (AAA alkaline), and CR2032 (button-cell lithium).

1 About the marks

Products that were released within 1 year from the publication date of this catalog

Products labeled as having a three-year warranty are covered for a period of three years from the date of purchase (or if the date of purchase is unknown, a period of three years from the date of manufacture)
Accuracy is guaranteed for the duration of the separately indicated guaranteed accuracy period.

True RMS measuring capability for accurate measurement of even distorted waveforms.

LAN / GP-IB / RS-232C / USB2.0 / USB3.0
Bluetooth®
Supported interfaces

Trademark of SD-3C, LLC

ISO 14001/ISO 9001 certified

ISO14001
HIOKI is certified under the international standard ISO 14001 for environmental management systems.

ISO9001
HIOKI's product design and development, manufacturing and sales and service operations, including repair, inspection and calibration, with regards to our recording devices, component measuring instruments, signal generators, data loggers, environmental measuring instruments, safety measuring instruments, clamp sensors, power meters, field measuring instruments, as well as their integrated modules and options, are certified by the international standard ISO 9001 for quality management and quality assurance. (Remote measuring systems are excluded.)
*For more information, please see the Hioki website.

2 Rectification Methods: True RMS and Mean

There are two methods for converting current into RMS values: the true RMS method (true RMS value indication) and the mean method (mean rectification RMS value indication). Although both methods yield the same value for undistorted sine waves, distortion of the waveform causes the values to diverge.

True RMS RMS value method (true RMS value indication)

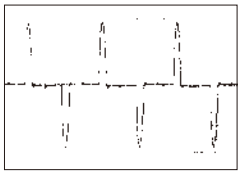
The waveform including harmonic components is calculated according to an RMS calculation formula and displayed.

MEAN Mean method (mean rectification RMS value indication)

The input waveform is treated as an undistorted sine wave (single frequency only). The AC signal mean is calculated, converted to an RMS value, and displayed. The measurement error increases when the waveform is distorted.

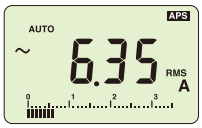
*Widespread use of equipment such as inverter devices and switching power supplies has made it more common for current waveforms being measured to be distorted. It is recommended to use a measuring instrument that uses the true RMS method to ensure accurate measurement.

■ Comparing distorted current values from an inverter, etc.



Current waveform from an inverter (primary side)

Mean-type clamp ammeter

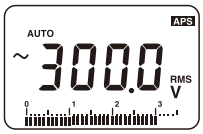


True RMS clamp ammeter

3 Accuracy and tolerances

● *f.s.* *(maximum display, or length of scale, ... full-scale)*

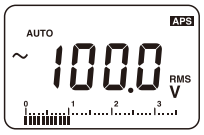
Signifies the maximum display (scale) value or the length of the scale (in cases where the scale consists of unequal increments or where the maximum value cannot be defined). In general, this is the range value (the value written on the range selector, or equivalent) currently in use. However, be aware that in cases where the maximum display value is 2000V but the range value is only 600V, the maximum display value (scale value) is still used as the f.s. value.



300V range

● *rdg.* *(displayed or indicated value, ... reading value)*

This signifies the value actually being measured, i.e., the value that is currently indicated or displayed by the measuring instrument.



Measuring 100 V using the 300 V range

● *dgt.* *(digital resolution, ... digit)*

Signifies the smallest display unit on a digital measuring instrument, i.e., the value displayed when the last digit on the digital display is "1". Essentially, this indicates an error of 1 digit (based on decimal processing in analog-to-digital conversion), but in actuality this is the digit error combined with the f.s. error converted to a fraction of a digit unit. The accuracy associated with a particular measured value as shown in the product specifications is derived from these values.

In the 300 V range, the 0.1 V digit is the smallest digit

Example accuracy calculations

[Example accuracy calculation 1] (when the accuracy notation combines rdg. and dgt.)

Accuracy specification: ±1.0% rdg. ±3 dgt.
Measurement range: 300.0 V
Measured value: 100.0 V

Since the value being measured is 100.0 V:
(A) Reading error (±% rdg.): ±1.0% of 100.0 V = ±1.0 V
(B) Digit error (dgt.): Since the maximum resolution is 0.1 V, ±3 dgt. = ±0.3 V
(C) Total error (A+B): ±1.3 V
Based on the total error (C), the error boundary values for a measured value of 100.0 V would be 98.7 V to 101.3 V.

[Example accuracy calculation 2] (when the accuracy notation combines rdg. and f.s.)

Accuracy specification: ±0.2% rdg. ±0.1% f.s.
Measurement range: 300.00 V
Measured value: 100.00 V

Since the value being measured is 100.00 V:
(A) Reading error (±% rdg.): ±0.2% of 100.00 V = ±0.20 V
(B) Full-scale error (±% f.s.): ±0.1% of 300 V = ±0.30 V
(C) Total error (A+B): ±0.50 V
Based on the total error (C), the error boundary values for a measured value of 100.00 V would be 99.50 V and 100.50 V.

This Electrical Measuring Instruments General Catalog provides a product outline. For more detailed information, please refer to individual product catalogs and series catalogs, which group together similar products.

Ensuring Safe Operation of the Product

To help you use measuring instruments safely, the following information is provided in each product's Instruction Manual under "Specifications":

- Rated voltage to ground: The measurement point's voltage level relative to ground, Measurement Category, Anticipated transient overvoltage, etc.
- Location for use: Pollution Degree 2, indoor, altitude no more than 2000 m, etc.

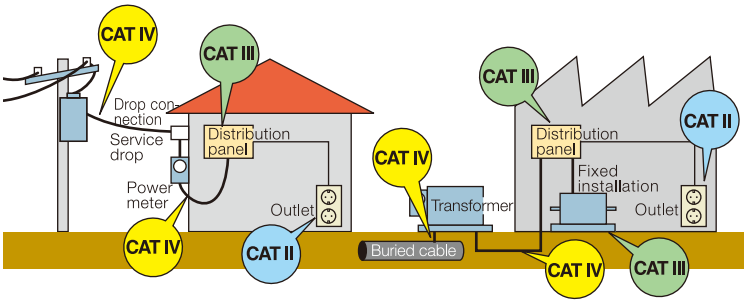
1 Measurement Category

Under safety standards (EN61010 Series, JIS C 1010 Series), measurement is classified into Categories II to IV according to the measurement point's rated voltage to ground, current capacity (size of current that flows in a short-circuit fault), etc., and the transient overvoltage that occurs at the measurement point.

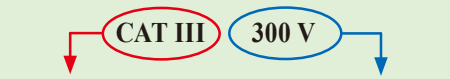
- **Category II**
  Measurement at a point from the power plug to the equipment's power circuits, where equipment is directly connected to an outlet.
- **Category III**
  Measurement at a point on the power distribution cabling or power supply circuits, or at a point from the distribution panel to a distribution terminal behind an outlet, where equipment (for example a fixed installation) takes electricity directly from a distribution panel.
- **Category IV**
  Measurement at a point on a service drop to a building, or on the line from the drop connection to the power meter or distribution panel.

The measurement instrument's Category is marked as "CAT II", CAT III" or "CAT IV" near the measurement terminals.

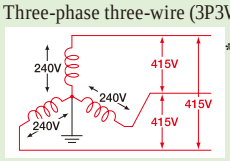
Never measure a measurement point with a higher category number than the category indicated on the measuring instrument. Doing so could lead to a serious accident such as electric shock.



How to read a category indication



Three-phase three-wire (3P3W) system, 400 V line



*** Voltage indications**
Black: Voltage to ground (including line-to-line voltage)
Red: Line-to-line voltage

With the 400 V line in the figure, the line-to-line voltage is 415 V, whereas the voltage to ground is no more than 240 V (300 V).

2 Anticipated Transient Overvoltage

Power lines in factories and similar facilities will at times include transient overvoltage (impulse voltage) that is around 10 times the power source voltage. The transient overvoltage of the measurement points must be predicted in advance, and the instrument will need a safety design that will enable it to withstand such overvoltage.

Assuming 600 V for the measurement point's voltage to ground, a Category IV location could potentially include transient overvoltage of 8000 V.
Hence, CAT IV measurement instruments are designed to withstand transient overvoltage of 8000 V.
CAT III measurement instruments can only withstand up to 6000 V, so if 8000 V transient overvoltage enters, it will cause insulation breakdown that could result in electric shock.

Safety standards stipulate values such as the following for transient overvoltage, according to the voltage to ground and the measurement category.

Rated voltage to ground [V]	Transient overvoltage [V]		
	CAT II	CAT III	CAT IV
300	2500	4000	6000
600	4000	6000	8000
1000	6000	8000	12000

3 Pollution Degrees

If contaminants adhere to the surfaces of a measuring instrument, its insulation performance will fall and it will pose a high risk of electric shock.
Safety standards classify environments where measuring instruments are used into Pollution Degrees 1 to 4.

- **Pollution Degree 1**
  Environment with no pollution, or with only dry contaminants present (non-conductive dirt, dust, etc.), which will not affect a measuring instrument's insulation performance.
- **Pollution Degree 2**
  Environment with only dry contaminants present (non-conductive dirt, dust, etc.), but where condensation could form on a measuring instrument, in which case the contaminants could cause a temporary drop in its insulation performance.
- **Pollution Degree 3**
  Environment with conductive contaminants present (water, soil, etc.), and which therefore could affect a measuring instrument's insulation performance, depending on how (much) contaminant adheres to it. Or, environment with high humidity, where even non-conductive contaminants could be a problem, since due to condensation a measuring instrument could have wet surfaces for relatively long periods.
- **Pollution Degree 4**
  Environment that could cause a prolonged drop in a measuring instrument's insulation performance, due to conductive contaminants (water, soil and the like) adhering to its surfaces, or to being wetted by rain.

A "Pollution Degree 2" marking on a measurement instrument means that it can be used without detriment to safety in environments of Pollution Degree 1 or 2 described above,, and a "Pollution Degree 3" marking means the measurement instrument can be used in environments of Pollution Degrees 1 to 3.

4 Altitude

As altitude (elevation) rises, the air pressure decreases and flashover (breakdown and discharge through the air) becomes more likely to occur.
Accordingly, safety standards stipulate safety design that assumes use locations of altitude no more than 2000 m for measuring instruments.
If measuring instruments are used in locations of altitude exceeding 2000 m, the spaces between their parts that are under hazardous voltage and their parts that humans touch should be made larger as a precaution.

Data Acquisition, Recorder, Data Logger Index

Portable Recorders for Servicing and Maintenance

Simultaneously Capture Multiple Signals at High Speeds

Monitor Anomalies in the Power Line

Sampling speed

200MS/sec (5ns)
20MS/sec (50ns)
10MS/sec (100ns)
1MS/sec (1µs)
400kS
100kS/sec (10µs)
10kS/sec (100µs)
1kS/sec (1ms)
100S/sec (10ms)
10S/sec (100ms)
1S/sec (1sec)

MEMORY HiCORDER MR8847A (16ch)

Instantaneous waveform/ RMS value recording
. . . . . p.18

MEMORY HiCORDER MR8870 (2ch)

Instantaneous waveform/ RMS value recording
. . . . . .p.17

MEMORY HiCORDER MR8880 (4ch)

Instantaneous waveform/ RMS value recording
. . . . . .p.16

Log Multiple Channels of

HEAT FLOW LOGGER LR8432 (10ch)

Heat flow/ DC/ Temperature/ Pulse measurement
. . . . . p.27

MEMORY HiLOGGER LR8431 (10ch)

DC/ Temperature/ Pulse measurement
. . . . . p.30

PEN RECORDER PR8111 (1ch) PR8112 (2ch)

DC measurement, 150 mm chart width
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WIRELESS FUNGAL LOGGER LR8520

Fungal index recording
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WIRELESS MINI LOGGER LR8512- LR8515

Multi-signal recording
. . . . . p.25 to 27

DATA LOGGERS LR 5000 series

Multi-signal recording
. . . . . p.32 to 34

1ch 2ch 4ch 8ch 10ch 16ch

Number of channels

Non-contact AC Voltage Testing

NON-CONTACT AC VOLTAGE PROBE SP3000

- Measure insulated wires with outside diameters ranging from 1 mm to 2.5 mm
- Frequency band: 10 Hz to 100 kHz
- Rated measurement voltage : 5 Vrms 14 Vp-p

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Memory Recorder Options

- CAN ADAPTER 8910
  Record and analyze CAN-bus signals
- DIFFERENTIAL PROBE 9322, P9000
  Floating measurement of high- voltage waveforms

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- Connection cord
- PC card
- Logic probe
- Clamp on probe, etc

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PC Software for Data Management

iPad App for Memory HiCorder HMR Terminal

- For Memory HiCorder
- (Exclusively for iPad) Free download from App Store

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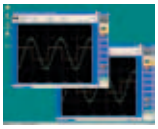
MEMORY HiVIEWER 9725



- Functions identical to those of Memory HiCorder 8860 Series

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WAVE PROCESSOR 9335

- For Memory HiCorder
- Convert data, print and display waveforms

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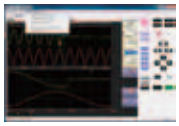
LAN COMMUNICATOR 9333



- For Memory HiCorder
- For data collection and remote control

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Data Acquisition, Recorder, Data Logger Index

Multi-Channel Recorders

MEMORY HiCORDER MR6000 (16ch)

Instantaneous waveform/ Long term recording p.17

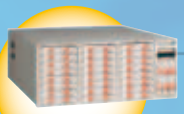
MEMORY HiCORDER MR8741 (16ch)

Systems Integration p.19

MEMORY HiCORDER MR8827 (32ch)

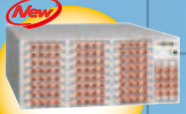
Instantaneous waveform/ RMS value recording p.18

MEMORY HiCORDER MR8740 (54ch)



Ideal for rack-mounting p.19

MEMORY HiCORDER MR8740T (108ch)



Ideal for rack-mounting p.19

MEMORY HiCORDER MR8875 (16ch)

Instantaneous waveform/ Temperature/Pulse/CAN signal measurement p.16

MEMORY HiCORDER MR6000 (32ch)

Instantaneous waveform/ Long term recording p.17

MEMORY HiCORDER MR6000 (Logic128ch)

Instantaneous waveform/ Long term recording p.17

Temperature, Voltage and More

WIRELESS LOGGING STATION LR8410 (15ch)

DC/ Temperature measurement p.29

MEMORY HiLOGGER LR8400 (30ch)

DC/ Temperature/ Pulse measurement p.31

MEMORY HiCORDER MR8875 (60ch)

Temperature measurement p.16

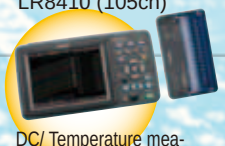
MEMORY HiLOGGER LR8400 (60ch)

DC/ Temperature/ Pulse measurement p.31

MEMORY HiLOGGER 8423 (120ch)

DC/ Temperature/Pulse measurement p.30

WIRELESS LOGGING STATION LR8410 (105ch)



DC/ Temperature measurement p.29

MEMORY HiLOGGER 8423 (600ch)

DC/ Temperature/ Pulse measurement p.30

16ch 30ch 32ch 60ch 64ch 120ch 128ch 600ch

Number of channels

Other compatible software (third party)

FlexPro

- Powerful data analysis and presentation software for importing and organizing data from the MEMORY HiCORDER Series
- From Weisang GmbH (Germany)

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For heat flow measurement

HEAT FLOW SENSOR Z2012-01 to Z2017-01

- Waterproof heat flow sensor that can measure heat flow and temperature of curved surfaces
- High sensitivity and superior cost performance

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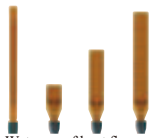
HEAT FLOW SENSOR Z2012 to Z2019



- Waterproof heat flow sensor that can measure heat flow of curved surfaces
- High sensitivity and superior cost performance

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Data Logger, Data Acquisition Index

Monitor Power Demand and Equipment Efficiency

CLAMP ON POWER LOGGER
PW3365

- Designed for 50/60 Hz commercial line use
- 3 circuits (1P2W), single circuit (1P3W, 3P3W, 3P4W)
- Save data to SD card continuously
- (Current) Clamp input
- (Voltage) Non-metallic contact sensor

. . . . . p.72

CLAMP ON POWER LOGGER
PW3360

- Designed for 50/60 Hz commercial line use
- 3 circuits (1P2W), single circuit (1P3W, 3P3W, 3P4W)
- Save data to SD card continuously
- Clamp input
- Harmonic analysis

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Peripherals for Compact Loggers

DATA COLLECTOR LR5092
COMMUNICATION ADAPTER LR5091

- Used with the LR5000 series
- Transfer data from LR5000s to the PC
- Transfer setting/clock data from PC to the LR5000s
- Free bundled software
- USB interface

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Compact Temperature or Humidity Loggers

WIRELESS FUNGAL LOGGER
LR8520

- Record fungal index, growth prediction, temperature and humidity
- Minimum 0.5 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Alarm output
- Three-way power

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WIRELESS VOLTAGE/ TEMP LOGGER LR8515

- 2 ch Voltage (±50 mV to ±50 V)/ Thermocouple recording
- Minimum 0.1 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Three-way power

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WIRELESS HUMIDITY LOGGER LR8514

- 2 ch Temperature/ 2 ch Humidity recording
- - 40 to 80 °C/ 0 to 100 % RH (with optional sensor)
- Minimum 0.5 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Three-way power

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TEMPERATURE LOGGER
LR5011

- 1 ch Temperature recording
- - 40 °C to 180 °C (with optional sensor)
- Fastest 1 sec interval
- 60000 data × 1ch memory
- Dry cell battery operation
- IP54 (splash-proof)

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HUMIDITY LOGGER
LR5001

- 2 ch Temperature / Humidity alternating recording
- - 40 °C to 85 °C/ 0 to 100 %rh (with LR9504 sensor)
- Fastest 1 sec interval
- 60000 data × 2ch memory
- Dry cell battery operation
- IP54 (splash-proof)

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Pulse integration (flow rate, vehicle speed, etc.)

WIRELESS PULSE LOGGER
LR8512

- 2 ch Pulse totalization/ No. of revolutions/ Logic recording
- Fastest 0.1 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Three-way power

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Compact Current Loggers

WIRELESS CLAMP LOGGER
LR8513

- AC/DC load current, AC leakage current recording
- 2ch, Clamp-on sensor input
- Fastest 0.5 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Three-way power

. . . . . p.26

CLAMP LOGGER
LR5051

- 2ch AC current recording (with optional sensor)
- 0 to 1000 A AC
- Fastest 1 sec interval
- 60000 data × 2ch memory
- Dry cell battery operation

. . . . . p.32

Compact DC Voltage Loggers

WIRELESS VOLTAGE/ TEMP LOGGER LR8515

- 2 ch Voltage (±50 mV to ±50 V)/ Thermocouple recording
- Minimum 0.1 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Three-way power

. . . . . p.25

VOLTAGE LOGGER
LR5041/5042/5043

- 1ch DC voltage recording
- LR5041: ±50mV DC
- LR5042: ±5V DC
- LR50413: ±50V DC
- Minimum 1 sec interval
- 60000 data × 1ch memory
- Dry cell battery operation
- IP54 (splash-proof)

. . . . . p.33

Instrumentation recording

INSTRUMENTATION LOGGER
LR5031

- 1 ch 0 to 20mA recording
- Minimum 1 sec interval
- 60000 data × 1ch memory
- Dry cell battery operation
- IP54 (splash-proof)

. . . . . p.33

Impedance, LCR Meter / Resistance Meter / Battery Tester Index

Impedance, Inductance and Capacitance in Research and Development and During Component Production

IMPEDANCE ANALYZER IM7587

- |Z|, L, C, R testing
- Testing source frequency: 1 MHz to 3 GHz
- Measuring time: 0.5 ms
- Measure LCR and conduct frequency sweeps simultaneously

p.35

IMPEDANCE ANALYZER IM7585

- |Z|, L, C, R testing
- Testing source frequency: 1 MHz to 1.3 GHz
- Measuring time: 0.5 ms
- Measure LCR and conduct frequency sweeps simultaneously

p.36

IMPEDANCE ANALYZER IM7583

- |Z|, L, C, R testing
- Testing source frequency: 1 MHz to 600 MHz
- Measuring time: 0.5 ms
- Measure LCR and conduct frequency sweeps simultaneously

p.36

IMPEDANCE ANALYZER IM7581

- |Z|, L, C, R testing
- Testing source frequency: 100 kHz to 300 MHz
- Measuring time: 0.5 ms
- Measure LCR and conduct frequency sweeps simultaneously

p.37

IMPEDANCE ANALYZER IM7580A

- |Z|, L, C, R testing
- Testing source frequency: 1 MHz to 300 MHz
- Measuring time: 0.5 ms
- Measure LCR and conduct frequency sweeps simultaneously

p.37

CHEMICAL IMPEDANCE ANALYZER IM3590

- |Z|, L, C, R, σ (conductivity), ε (dielectric constant) testing
- Battery measurement
- Testing source frequency: 1 mHz to 200 kHz
- Measuring time: 2 ms

p.38

IMPEDANCE ANALYZER IM3570

- |Z|, L, C, R testing
- Testing source frequency: 4 Hz to 5 MHz
- Measuring time: 0.5 ms
- Measure LCR and conduct frequency sweeps simultaneously

p.39

Impedance, Inductance and Capacitance Testing During Component Production

LCR METER IM3536

- |Z|, L, C, R testing
- Testing source frequency: DC, or 4 Hz to 8 MHz
- Measuring time: 1 ms
- Accuracy guaranteed range from 1mΩ
- Continous testing under varying conditions

p.40

LCR METER IM3533

- |Z|, L, C, R testing
- Testing source frequency: 1 mHz to 200 kHz
- Measuring time: 2 ms
- Transformer measurement mode
- Frequency sweep measurement: (IM3533-01)

p.41

LCR METER IM3523

- |Z|, L, C, R testing
- Testing source frequency: 40 Hz to 200 kHz
- Measuring time: 2 ms

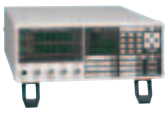
p.40

LCR HiTESTER 3511-50

- |Z|, L, C, R testing
- Testing source frequency: 120 Hz or 1 kHz
- Measuring time: 5 ms

p.41

C METER 3506-10



- C, D (tan δ), Q testing, Measure low capacitance
- Testing source frequency: 1 kHz, 1 MHz
- Measuring time: 1.5 ms (1 MHz)
- RS-232C, GP-IB

p.42

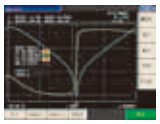
C HiTESTER 3504

- C, D (tan δ) testing, Measure high capacitance MLCC
- Testing source frequency: 120 Hz or 1 kHz
- Measuring time: 2 ms
- RS-232C standard (3504-50) BIN function, GP-IB (3504-60) BIN function, Contact check, GP-IB

p.42

Exclusive option for the IM3570

EQUIVALENT CIRCUIT ANALYSIS FIRMWARE IM9000



- Optional software built in to the IM3570
- Equivalent five circuit models
- Enables displaying the ideal frequency characteristics graph derived from the analysis results
- Cole-Cole plot, Admittance circle display

p.39

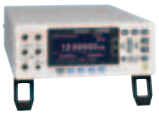
DC Resistance Testing

RESISTANCE METER RM3548

- High-precision portable resistance meter measures from μΩ to MΩ
- Testing source current: DC, 1 A max.
- Display refresh rate: approx. 100 ms
- Finest resolution: 0.1 μΩ

p.44

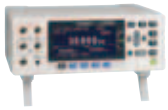
RESISTANCE METER RM3545



- Featuring super-high accuracy and multi-channel capabilities
- Testing source: DC, 1 A max
- Fastest measurement speed: 2.2 ms
- Finest resolution: 0.01 μΩ
- Multi-point measurement: 20 locations

p.44

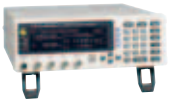
RESISTANCE METER RM3544



- High-precision bench-top resistance meter for both manual operation and integration with automatic lines
- Testing source current: DC, 300 mA max.
- Fastest measurement speed: 18 ms
- Finest resolution: 1 μΩ

p.45

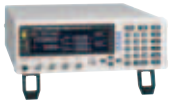
RESISTANCE HiTESTER RM3543



- Advanced enough to measure 0.1 mΩ shunts with room to spare
- Ideal high precision & high resolution for automated lines
- Testing source: DC, 1 A max.
- Minimum integration time: 0.1 ms
- Finest resolution: 0.01 μΩ

p.45

RESISTANCE METER RM3542A



- High-speed resistance meter ideal for automated lines; compatible with super-small electronic components
- Testing source: DC, 100 mA max.
- Fastest measurement time: 0.9 ms
- Minimum integration time: 0.1 ms
- Finest resolution: 0.1 μΩ

p.46

RESISTANCE HiTESTER RM3542

- High speed resistance meter ideal for automated lines
- Testing source: DC, 100 mA max.
- Fastest measurement time: 0.9 ms
- Minimum integration time: 0.1 ms
- Finest resolution: 0.1 μΩ

p.46

Probes and Test Fixtures

- Probes and test fixtures for lead components
- Test fixtures for SMDs
- DUT size reference table included

p.43

Battery Testing

SWITCH MAINFRAME SW1001, SW1002

- Pair with a measuring instrument to achieve multi-channel capabilities
- SW1001: max. 66 channels (2-wire) to max. 18 channels (4-terminal pair)
- SW1002: max. 264 channels (2-wire) to max. 72 channels (4-terminal pair)

p.47

PRECISION DC VOLTMETER DM7276/7275

- DC V only
- Measure DC voltage and temperature simultaneously
- 7-1/2 digit resolution
- 1-year 9ppm Accuracy (DM7276)
- 1-year 20ppm Accuracy (DM7275)
- Built-in EXT I/O, LAN, and USB

p.55

BATTERY IMPEDANCE METER BT4560

- For Li-ion battery testing
- Low-frequency AC-IR method without charge and discharge
- R, X, Z, θ measurement
- Testing source from 0.1 Hz
- Testing source current: 1.5 Arms
- Measuring range at least 3 mΩ
- DCV measurement with 10 μV resolution

p.47

BATTERY HiTESTER BT3564

- EV and PHEV battery pack testing
- Testing source: AC 1kHz
- Measure voltage up to 1000V
- Measurement time: 728 ms
- Finest resolution: 0.1μΩ and 10μV

p.48

BATTERY HiTESTER BT3563, BT3562

- The perfect battery tester for production lines
- Testing source: AC 1kHz
- Max. voltage: 60 V DC (BT3562); 300 V DC (BT3563)
- Measurement time: 18ms
- Finest resolution: 0.1μΩ and 10μV

p.49

BATTERY HiTESTER 3561

- The perfect battery tester for small secondary batteries
- Testing source: AC 1kHz
- Measurement time: 10ms
- Finest resolution: 0.01mΩ

p.49

BATTERY TESTER BT3554

- Diagnose deterioration and health of UPS, compact and large lead-acid batteries
- Testing source: AC 1kHz
- Finest resolution: 1μΩ

p.50

Super Megohm / DMM / Signal Generator Index

Super Insulation Testing of Capacitors

SUPER MΩ HiTESTER SM7810

- For testing leakage current in MLCC
- 6.8ms measurement speed over 8ch simultaneously
- Testing current is applied externally
- Resistance measurement: Max. 1×10^{15} Ω
- Current measurement: 1pA to 1mA

p.51

POWER SOURCE UNIT SM7860 series

- Specially designed power source unit for SM7810
- Supports multi-channel systems and provides functions required for MLCC test lines
- 50 mA per channel output

p.51

SUPER MEGOHM METER SM7420

- Fastest 6.4 ms measurement speed
- 4ch
- Dedicated micro current measurement (cannot generate or measure voltage)
- Max. 2×10^{16} Ω display
- Min. 0.1 fA resolution

p.52

SUPER MEGOHM METER SM7110, SM7120

- Fastest 6.4 ms measurement speed
- 1ch
- Max. 2000 V output (SM7120)
- Max. 1000 V output (SM7110)
- Max. 2×10^{16} Ω display
- Min. 0.1 fA resolution
- 300 times better noise resistance

p.52

SUPER MEGOHMMETER SM-8213, 8215, 8220

- Digital display
- Timer, Comparator functions
- Resistance measurement: Max. 2×10^{16} Ω
- Testing voltage: 5V to 1000V DC

p.53

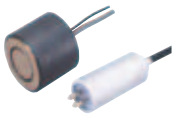
Peripherals

SURFACE/VOLUME RESISTANCE MEASUREMENT ELECTRODE SM9001

- Simple and Convenient Surface/Volume Resistance Measurement (up to 10^{13} Ω, 1000V)
- Measure surface and volume resistance of entire sheets without need to cut samples

p.54

Testing terminals for super megohm measurement



- For flat plate testing
- For surface resistance testing
- For liquid testing
- Screen box
- Comparing resistance box

p.54

System Integrated Digital Multi-Module Stations

DMM STATION U8991+MR8740T

- Store entire data from 108 units of DMM in single operation
- Simultaneous 108 ch sampling without signal scanner
- High ±0.02% precision & ultra high 6-1/2 digit resolution
- 50 times/s sampling

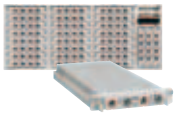
p.55

DMM STATION MR8990+MR8741

- Store entire data from 16 units of DMM in single operation
- Simultaneous 16 ch sampling without signal scanner
- High ±0.01% precision & ultra high 6-1/2 digit resolution
- 500 times/s sampling

p.55

DMM STATION MR8990+MR8740



- Store entire data from 54 units of DMM in single operation
- Simultaneous 32 ch sampling without signal scanner
- High ±0.01% precision & ultra high 6-1/2 digit resolution
- 500 times/s sampling

p.55

Benchtop Multimeters for Production and Inspection Lines

PRECISION DC VOLTMETER DM7276/7275

- DC V only
- Measure DC voltage and temperature simultaneously
- 7-1/2 digit resolution
- 1-year 9ppm Accuracy (DM7276)
- 1-year 20ppm Accuracy (DM7275)
- Built-in EXT I/O, LAN, and USB

p.55

DIGITAL HiTESTER 3239

- 4-terminal method resistance measurement
- Multi functional/high precision 5-1/2 digits
- 300 times/s sampling
- Comparator
- External control I/O
- RS-232C (-01 model: GP-IB)
- True RMS

p.56

DIGITAL HiTESTER 3238

- Multi functional/high precision 5-1/2 digits
- 300 times/s sampling
- Comparator
- External control I/O
- RS-232C (-01 model: GP-IB)
- True RMS

p.56

DIGITAL HiTESTER 3237

- Simple & low cost model
- High precision 5-1/2 digits
- 300 times/s sampling
- Comparator
- External control I/O
- RS-232C (-01 model: GP-IB)
- True RMS

p.56

Arbitrary Wavefom Generation Recorders

VIR GENERATOR UNIT U8794+MR8740T

- DC voltage output
- DC current output
- resistance output (simulated resistance)
- 8ch

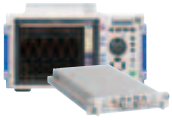
p.57

ARBITRARY WAVEFORM GENERATION RECORDER U8793+MR8847A

- Max. 2 MHz D/A output Arbitrary Waveform Generation function
- 10 mHz to 100 kHz Function Generator
- 20M-Sampling/s
- Max. 15V output
- Max. 16ch

p.57

ARBITRARY WAVEFORM GENERATION RECORDER U8793+MR8827



- Max. 2 MHz D/A output Arbitrary Waveform Generation function
- 10 mHz to 100 kHz Function Generator
- 20M-Sampling/s
- Max. 15V output
- Max. 32ch

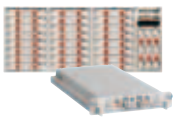
p.57

ARBITRARY WAVEFORM GENERATION RECORDER U8793+MR8741

- Max. 2 MHz D/A output Arbitrary Waveform Generation function
- 10 mHz to 100 kHz Function Generator
- 20M-Sampling/s
- Max. 15V output
- Max. 16ch

p.57

ARBITRARY WAVEFORM GENERATION RECORDER U8793+MR8740



- Max. 2 MHz D/A output Arbitrary Waveform Generation function
- 10 mHz to 100 kHz Function Generator
- 20M-Sampling/s
- Max. 15V output
- Max. 54ch

p.57

Signal Generators and Calibrators

DC SIGNAL SOURCE SS7012

- DC constant voltage, constant current source
- ±25 V, ±25 mA
- Thermoelectric power generation, K, E, J, T, R,S, B, N thermocouple
- DC voltage, DC current measurement
- Battery operation

p.57

Safety Standards Measuring Instruments Index

Leakage Current Testing in Equipment and Medical Devices

LEAK CURRENT HiTESTER ST5540

- Test both medical- and general-use electrical devices
- Built-in support for all networks
- Support for rated currents of up to 20 A
- Support for automatic testing on production lines, etc.

. . . . . p.58

LEAK CURRENT HiTESTER ST5541

- Testing of general-use electrical devices
- Built-in support for networks other than medical-use electrical devices
- Support for rated currents of up to 20 A
- Support for automatic testing on production lines, etc.

. . . . . p.58

Insulation Resistance and Withstand Voltage Testing

AC AUTOMATIC INSULATION/ WITHSTANDING HiTESTER 3174

- Insulation resistance test: up to 2000 MΩ
- Withstanding voltage test: up to 5 kV AC
- Contact check
- Full remote control

. . . . . p.60

AUTOMATIC INSULATION/ WITHSTANDING HiTESTER 3153

- Insulation resistance test: up to 9999 MΩ
- Withstanding voltage test: up to 5 kV AC/DC
- Full remote control

. . . . . p.61

INSULATION/ WITHSTANDING HiTESTER 3159

- Insulation resistance test: up to 2000 MΩ
- Withstanding voltage test: up to 5 kV AC
- RS-232C
- Manual voltage setting

. . . . . p.61

HIGH VOLTAGE SCANNER 3930

- Supports remote control
- For automatic multipoint testing of insulation / withstand voltage
- Use with 3153's program or with general-purpose logic sequencers

. . . . . p.59

PC Applications

SAFETY TEST DATA MANAGEMENT SOFTWARE 9267

- PC-controlled application software

. . . . . p.59

Insulation Resistance and Withstand Voltage Testing

INSULATION TESTER ST5520

- Rapid 50ms testing speed
- 25 to 1000V test voltage with 1V resolution
- Insulation resistance test: up to 9990MΩ (at 500 to 1000V)
- Memory / Comparator / Timer function

. . . . . p.60

AC Ground Bond Testing

AC GROUNDING HiTESTER 3157

- Protective ground tester indispensable for standard certification (low resistance measure)
- 0 to 1.8Ω measurement
- Testing current up to 31A

. . . . . p.62

Power Measuring Instruments Index

Evaluate and Analyze the Power Efficiency of Motors, Equipment and other Energy Saving Devices

POWER ANALYZER PW6001

- ±0.02% accuracy
- Wide-band DC, 0.1 Hz to 2 MHz
- DC, or 1P2W to 3P4W
- 6 ch/ Clamp input
- Max. 12ch by synchronizing two 6-channel models
- Measure inverter equipment and analyze motors
- Analyze waveforms without an oscilloscope

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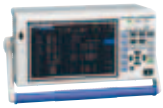
POWER ANALYZER PW3390



- High-accuracy model, for comprehensive device assessment
- Super precise ±0.04 % accuracy
- Wide-band DC, 0.5Hz to 200 kHz
- DC, or 1P2W to 3P4W
- 4 ch/ sensor input

. . . . . p.64

AC/DC CURRENT BOX PW9100

- Direct current measurement option for PW6001/ PW3390/ 3390
- Wide-band DC to 3.5MHz, 50A AC/DC rated input, 0.04V/A output
- PW9100-03 : 3 channels
- PW9100-04 : 4 channels

. . . . . p.64

3-Phase Power Meters for Industrial Equipment Testing

POWER METER PW3337

- 3 ch input, DC, or 1P2W to 3P3W, or 3P4W
- Max. input 1000 V, 65 A
- DC, or 0.1 Hz to 100 kHz
- ±0.1 % basic accuracy
- Direct input or clamp input

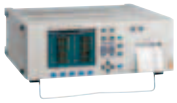
. . . . . p.67

POWER METER PW3336

- 2 ch input, DC, or 1P2W to 3P3W
- Max. input 1000 V, 65 A
- DC, or 0.1 Hz to 100 kHz
- ±0.1 % basic accuracy
- Direct input or clamp input

. . . . . p.67

POWER HiTESTER 3193-10



- Analysis station for total evaluation
- Wide-band DC, 0.5Hz to 1MHz
- DC, or 1P2W to 3P4W
- 6ch-Direct/ Clamp input

. . . . . p.66

Single-Phase Power Meters for Industrial Equipment Testing

POWER METER PW3335

- Ultra-sensitive standby power measurement
- Measure according to IEC 62301
- DC, or 1P2W
- Max. input 1000 V, 30 A
- DC, or 0.1 Hz to 100 kHz
- ±0.1% basic accuracy
- Direct or clamp input

. . . . . p.68

AC/DC POWER HiTESTER 3334

- Compliant with the SPECpower® Benchmark
- DC, or 1P2W
- Max. input 300 V, 30 A
- DC, or 45 Hz to 5 kHz
- ±0.2% basic accuracy
- Guaranteed accuracy of 3 Years ±0.3 %
- Direct input only

. . . . . p.69

POWER HiTESTER 3333

- Space-saving footprint
- High accuracy of ±0.2 %
- 1P2W only
- Max. input 300 V, 30 A
- 45 Hz to 5 kHz
- Guaranteed accuracy of ±0.3% for 3 years
- Direct input only

. . . . . p.69

Monitor and Record Power Quality

POWER QUALITY ANALYZER PW3198

- IEC61000-4-30 Ed.2 Class A Power Quality Analyzer
- Monitor and record the quality of power
- 1P2W to 3P4W
- Clamp input
- Compact and lightweight

. . . . . p.70

POWER QUALITY ANALYZER PQ3100

- IEC61000-4-30 Ed.3 Class S Power Quality Analyzer
- Monitor and record the quality of power
- 1P2W to 3P4W
- Clamp input
- Compact and lightweight

. . . . . p.72

PQA-HiVIEW PRO 9624-50

- For PW3198, 3197, 3196
- Easy operation, analyze data on the PC
- Convenient report creation function

Monitor Energy Consumption and Analyze Energy Savings

CLAMP ON POWER LOGGER PW3365

- Designed for 50/60 Hz commercial line use
- 3 circuits (1P2W), single circuit (1P3W, 3P3W, 3P4W)
- Save data to the SD card continuously
- (Current) Clamp input
- (Voltage) Non-metallic contact sensor

. . . . . p.72

CLAMP ON POWER LOGGER PW3360

- Designed for 50/60 Hz commercial line use
- 3 circuits (1P2W), single circuit (1P3W, 3P3W, 3P4W)
- Save data to the SD card continuously
- Clamp input
- Harmonic analysis

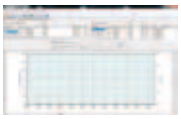
. . . . . p.73

CLAMP ON POWER HiTESTER 3169

- Designed for 50/60 Hz commercial line use
- 4 circuits simultaneously (1P2W) to single circuit (3P4W)
- Save demand value to the PC card continuously
- Clamp input
- D/A output

. . . . . p.72

POWER LOGGER VIEWER SF1001



- Easy graphical processing of measurement data saved with the PW3360/3365 series, 3169 series on a PC

Handheld Power Meter

AC CLAMP POWER METER CM3286

- Easy AC power checker
- Single-phase, 3-phase (balanced condition/without distortion)
- Phase angle, power factor
- Harmonic levels (-01 only)
- AC clamp, True RMS, Battery operation
- Built-in Bluetooth® wireless technology (CM3286-01)

. . . . . p.74

Current Probes/Clamp Sensors Index

Current Probes to Observe DC to MHz Bandwidth Waveforms on Oscilloscopes and Memory Recorders

CURRENT PROBE CT6701

- DC to 120 MHz (−3dB)
- 5 Arms maximum
- φ 5 mm (0.20 in) Core dia.

p.75

CURRENT PROBE CT6700

- DC to 50 MHz (−3dB)
- 5 Arms maximum
- φ 5 mm (0.20 in) Core dia.

p.75

CLAMP ON PROBE 3276

- DC to 100 MHz (−3dB)
- 30 Arms maximum
- φ 5 mm (0.20 in) Core dia.

p.76

CLAMP ON PROBE 3275

- DC to 2MHz (−3dB)
- 500 Arms maximum
- φ 20 mm (0.79 in) Core dia.

p.76

CLAMP ON PROBE 3274

- DC to 10MHz (−3dB)
- 150 Arms maximum
- φ 20 mm (0.79 in) Core dia.

p.76

CLAMP ON PROBE 3273-50

- DC to 50MHz (−3dB)
- 30 Arms maximum
- φ 5 mm (0.20 in) Core dia.

p.76

Power Supplies for Current Probes

POWER SUPPLY 3272, 3269

- For the 3270 series
- 3269: Connect up to four sensors
- 3272: 1 or 2 sensors connectable

p.76

Current Probes to Observe Waveforms Using Wide-Band Power Analyzers

AC/DC CURRENT SENSOR CT6904

- Frequency characteristics Amplitude: DC to 4 MHz Phase: DC to 1 MHz
- 500A AC/DC rated
- φ 32 mm (1.26 in) Core dia.

p.77

AC/DC CURRENT SENSOR 9709, CT6865

- Frequency characteristics 9709: Amplitude DC to 100 kHz, 500A AC/DC rated, Phase DC to 100 kHz CT6865: Amplitude DC to 20 kHz, 1000A AC/DC rated, Phase: DC to 1 kHz
- φ 36 mm (1.42 in) Core dia.

p.78

AC/DC CURRENT SENSOR CT6862, CT6863

- Frequency characteristics CT6862: Amplitude DC to 1 MHz, 50 A AC/DC rated, Phase DC to 300 kHz CT6863: Amplitude DC to 500 kHz, 200 A AC/DC rated, Phase DC to 300 kHz
- φ 24 mm (0.94 in) Core dia.

p.78

AC/DC CURRENT PROBE CT6844 - CT6846

- Frequency characteristics CT6844: DC to 200 kHz, 500 A AC/DC rated CT6845: DC to 100 kHz, 500 A AC/DC rated CT6846: DC to 20 kHz, 1000 A AC/DC rated
- Core dia. CT6844: φ 20 mm (0.79 in) CT6845: φ 50 mm (1.97 in) CT6846: φ 50 mm (1.97 in)

p.79

AC/DC CURRENT PROBE CT6841, CT6843

- Frequency characteristics CT6841:DC to 1 MHz, 20 A AC/DC rated CT6843: DC to 500 kHz, 200 A AC/DC rated
- φ 20 mm (0.79 in) Core dia.

p.79

CLAMP ON SENSOR 9272

- Frequency characteristics Amplitude: 1Hz to 100kHz Phase: 5 Hz to 50 kHz
- 20A or 200A AC rated
- 2V/20 A
- φ 46 mm (1.81 in) Core dia.

p.81

Power Supplies for Current Probes

SENSOR UNIT CT9555, CT9556, CT9557

- Power supply for current sensors

CT9555: 1ch, with Waveform output
CT9556: 1ch, with Waveform/RMS output
CT9557: 4ch, with Waveform/Total Waveform/Total RMS output

p.80

High-precision Direct Current Input

AC/DC CURRENT BOX PW9100

- Direct current measurement option for PW6001/PW3390/3390/3390-10
- Wide-band DC to 3.5MHz, 50A AC/DC rated input
- PW9100-03 : 3 channels
- PW9100-04 : 4 channels

p.64

AC/DC Current Clamps (Use for waveform observation) Hioki PL14 Terminal

AC/DC AUTO-ZERO CURRENT SENSOR CT7700 series

- DC to 5kHz (-3dB)

CT7742: 2000A AC/DC, φ 55mm
CT7736: 600A AC/DC, φ 33mm
CT7731: 100A AC/DC, φ 33mm

p.82

AC/DC CURRENT SENSOR CT7600 series

- DC to 10kHz (-3dB)

CT7642: 2000A, AC/DC φ 55mm
CT7636: 600A AC/DC, φ 33mm
CT7631: 100A AC/DC, φ 33mm

p.82

DISPLAY UNIT CM7290, CM7291

- Use with CT7000 series current sensors
- DCA, ACA, (DC+AC)A, frequency measurement
- Power supply for single sensor
- Built-in Bluetooth® wireless technology [CM7291]

p.83

AC Current Clamps (Use for waveform observation) Hioki PL14 Terminal

AC CURRENT SENSOR CT7136

- Frequency band up to 20 kHz
- 600 A AC rated input
- φ 46 mm (1.81 in) Core dia.

p.85

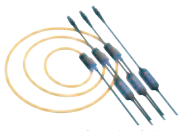
AC CURRENT SENSOR CT7126, CT7131

CT7126
- Frequency band up to 20 kHz
- 60 A AC rated input
- φ 15 mm (0.59 in) Core dia.

CT7131
- 100 A AC rated input

p.85

AC FLEXIBLE CURRENT SENSOR CT7040 series



- 10 Hz to 50 kHz (±3dB)
- 6000A AC rated
- Loop diameters

CT7044: φ 100 mm (3.94 in)
CT7045: φ 180 mm (7.09 in)
CT7046: φ 254 mm (10.0 in)

p.83

AC Current Clamps (Use for waveform observation) BNC Terminal

CLAMP ON SENSOR 9695

9695-02 Requires the 9219
- 40 Hz to 5 kHz
- Phase: 45 Hz to 5 kHz
- 50 A AC rated input
- φ 15 mm (0.59 in) Core dia.

9695-03 Requires the 9219
- 100 A AC rated input

p.85

CLAMP ON SENSOR 9669, 9661

9669
- 40 Hz to 5 kHz
- Phase: 45 Hz to 5 kHz
- 1000 A AC rated input
- φ 55 mm (2.17 in) Core dia.

9661
- 500 A AC rated input
- φ 46 mm (1.81 in) Core dia.

p.85

AC FLEXIBLE CURRENT SENSOR CT9667 series

- 10 Hz to 20 kHz (±3dB)
- 5000 A/ 500 A AC rated input
- φ 254 mm (10.0 in) Core dia.

p.84

CLAMP ON SENSOR 9660, 9694

9660:
- Frequency characteristics Amplitude: 40Hz to 5kHz Phase: 45Hz to 5kHz
- 100 A AC rated input
- φ 15 mm (0.59 in) Core dia.

9694:
- 5 A AC rated input

p.85

Leak Current Hioki PL14 Terminal

AC LEAKAGE CURRENT SENSOR CT7116

- Frequency band 40 Hz to 5 kHz
- 6 A AC rated input
- φ 40 mm (1.57 in) Core dia.

p.85

Leak Current BNC Terminal

CLAMP ON LEAK SENSOR 9675, 9657-10

9675:
9657-10
- Frequency characteristics Amplitude: 40Hz to 5kHz
- Primary rated 10 A AC
- φ 30 mm (1.18 in) Core dia.

9657-10:
- φ 40 mm (1.57 in) Core dia.

p.85

Load Current BNC Terminal

CLAMP ON PROBE 9132-50, 9010-50,9018-50

- Use for level measurement

9132-50: AC 20 to 1000 A, φ 55 mm (2.17 in) Core dia.
9010-50: AC 10 to 500 A, φ 46 mm (1.81 in) Core dia.

- Excellent phase characteristics

p.84

RGB LASER / LED and Optical Power Meters for Production Lines

RGB LASER METER TM6102

- Irradiance, centroid wavelength
- Illuminance, chromaticity
- Specially designed for laser photometry

p.86

RGB LASER LUMINANCE METER TM6103

- Radiance, centroid wavelength
- Luminance, chromaticity
- Specially designed for laser photometry

p.86

OPTICAL POWER METER TM6104

- Radiant flux (optical power), centroid wavelength
- Luminous flux, chromaticity
- Specially designed for laser photometry

p.86

LED OPTICAL METER TM6101

- Measure the optical characteristics of white LEDs and LED lighting during production.
- Measure luminous intensity, chromaticity, and color rendering index

p.86

OPTICAL POWER METER 3664

- Measure the LD light of optical disks
- 4 -1/2 digit, 0.01 dBm resolution
- Remote control and data acquisition via USB

p.88

LAN CABLE HiTESTER 3665

- Use for installing LAN cables or repair maintenance
- Detect split pairs with wiring check
- Get NVP-Enhanced measurement
- Identify cable destinations

p.89

Communication Testing for Electrical Construction

PV Maintenance Testers

BYPASS DIODE TESTER FT4310

- Test for open or short-circuit bypass diodes even during the day
- Easily test using the strings in the junction boxes
- Automatically transfer data wirelessly via Bluetooth® wireless technology

p.87

INSULATION TESTER IR4053

- Built-in dedicated PV function
- 600 V AC/ 1000 V DC
- 5 test voltage ranges from 50 to 1000 V
- Comparator function
- Integrated hard carrying case

p.98

Magnetic Field Testing

MAGNETIC FIELD HiTESTER FT3470-52

- To measure as defined by IEC/EN 62233
- Compliance testing of household appliances
- Compliant to ICNIRP 2010 guidelines
- 10 Hz to 400 kHz
- Bundled with 100 cm^2 and 3 cm^2 sensors

p.89

MAGNETIC FIELD HiTESTER FT3470-51

- To measure as defined by IEC/EN 62233
- Compliance testing of household appliances
- Compliant to ICNIRP 2010 guidelines
- 10 Hz to 400 kHz
- Bundled with 100 cm^2 sensor

p.89

Infrared Thermometers

INFRARED THERMOMETER FT3701

- Long-focus, precise-field type
- φ 100mm at a 3m distance
- -35.0 °C to 500.0 °C
- Measurement wavelength 8 to 14µm
- Two-beam laser marker

p.90

INFRARED THERMOMETER FT3700

- Long-focus type
- φ 83mm at a 1m distance
- -35.0 °C to 500.0 °C
- Measurement wavelength 8 to 14µm
- Two-beam laser marker

p.90

Temperature Sensing

TEMPERATURE HiTESTER 3442

- K type thermocouple
- 1 channel
- -100.0 °C to 199.9 °C, 200 °C to 1300 °C
- Recording of max. and min. temperatures
- Waterproof structure IP54

p.91

TEMPERATURE HiTESTER 3441

- K type thermocouple
- 1 channel
- -100.0 °C to 199.9 °C, 200 °C to 1300 °C
- Recording of max. and min. temperatures

p.91

Temperature probes

- K type thermocouple
- Pt 100

p.91

WIRELESS HUMIDITY LOGGER LR8514, etc.

Refer to the Wireless Logger series for temperature measurement

p.26

WIRELESS LOGGING STATION LR8410

Refer to the Multi-channels Wireless Logger series for temperature measurement

p.29

Compact Data Logger LR5000 Series

Refer to the LR5000 Data Logger series for temperature measurement

p.32 to 34

Forecast Likelihood of Fungal Growth

WIRELESS FUNGAL LOGGER LR8520

- Record fungal index, growth prediction, temperature and humidity
- Minimum 0.5 sec interval
- Wireless data download to a tablet or computer
- 500,000 data/ ch
- Alarm output
- Three-way power

p.25

Illumination / Sound Level Testing

SOUND LEVEL METER FT3432

- IEC 61672-1 Class2 compliant
- 30 dB to 137 dB
- DC output / AC monitor output

p.90

LUX METER FT3424, FT3425

- DIN 5032-7:1985 class B, JIS C 1609-1: 2006 general AA class compliant
- 0 to 200 000 lx
- Timer hold function
- Memory function
- Built-in Bluetooth® wireless technology (FT3425)

p.92

Tachometer and Rotation Testing

TACHO HiTESTER FT3406

- 500 mm non-contact detection distance
- 0.5 r/sec to 99990 r/min
- Dust-proof construction
- Drop proof (1m onto concrete surface)
- Analog output and pulse output functions
- Also power with optional AC Adapter

p.92

TACHO HiTESTER FT3405

- 500 mm non-contact detection distance
- 0.5 r/sec to 99990 r/min
- Dust-proof construction
- Drop proof (1m onto concrete surface)
- No output features

p.92

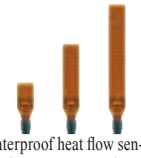
Heat Flow Testing

HEAT FLOW LOGGER LR8432

Heat flow/DC/Temperature/ Pulse measurement

p.27

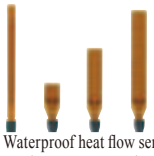
HEAT FLOW SENSOR Z2012-01 to Z2017-01



- Waterproof heat flow sensor that can measure heat flow and temperature of curved surfaces
- High sensitivity and superior cost performance

p.28

HEAT FLOW SENSOR Z2012 to Z2019



- Waterproof heat flow sensor that can measure heat flow of curved surfaces
- High sensitivity and superior cost performance

p.28

Digital Multimeter/Tester Index

DMM for Electrical Work

DIGITAL MULTIMETER DT4255

- 6000 count display
- Current-limiting resistor/ fast-blow fuse
- Low-pass filter function
- AC current measurement with clamp-on probe
- Voltage detector
- USB communication (option)
- True RMS
- CAT IV 600 V

. . . . . p.94

DIGITAL MULTIMETER DT4223

- 6000 count display
- Protective function against accidental voltage input
- Low-pass filter function
- No current measurement
- Voltage detector
- True RMS
- CAT III 600 V

. . . . . p.95

DIGITAL MULTIMETER DT4221

- 6000 count display
- Low-pass filter function
- No current or resistance measurements
- Voltage detector
- True RMS
- CAT III 600 V

. . . . . p.95

DMM for Heating, Ventilation and Air Conditioning (HVAC)

DIGITAL MULTIMETER DT4254

- 6000 count display
- Measure 1700 V DC for PV
- Voltage-only model
- Current measurement terminals removed for safety
- USB communication (option)
- Voltage detector
- True RMS
- CAT IV 600 V

. . . . . p.94

DIGITAL MULTIMETER DT4253

- 6000 count display
- Low-pass filter function
- DC 60µA to 60mA measurement
- AC Current measurement with Clamp-on probe
- USB communication (option)
- True RMS
- CAT IV 600 V

. . . . . p.94

General Purpose DMM

DIGITAL MULTIMETER DT4256

- Multi-function model
- 6000 count display
- Low-pass filter function
- Direct input current terminals
- AC current measurement with clamp-on probe
- Voltage detector
- USB communication (option)
- True RMS
- CAT IV 600 V

. . . . . p.94

DIGITAL MULTIMETER DT4252

- 6000 count display
- Low-pass filter function
- 10 A Direct input
- USB communication (option)
- True RMS
- CAT IV 600 V

. . . . . p.94

DIGITAL MULTIMETER DT4224

- 6000 count display
- Protective function against accidental voltage input
- Low-pass filter function
- No current measurement
- True RMS
- CAT III 600 V

. . . . . p.95

DIGITAL MULTIMETER DT4222

- 6000 count display
- Low-pass filter function
- No current measurements
- Capacitance and diode testing
- True RMS
- CAT III 600 V

. . . . . p.95

PENCIL HiTESTER 3246-60

- New insulated test pin sleeves prevent short-circuits
- Pencil type DMM
- CAT III 600 V
- 4199 count display
- Average rectified
- Ultra bright LED light at probe tip

. . . . . p.96

CARD HiTESTER 3244-60

- New insulated test pin sleeves prevent short-circuits
- A thin card size DMM
- CAT III 300 V, CAT II 600 V
- 4199 count display
- Average rectified

. . . . . p.96

Analog Multimeters

HiTESTER 3030-10

- Basic type analog tester
- CAT III 600V
- Average rectified

. . . . . p.96

High-Precision Handheld DMM

DIGITAL MULTIMETER DT4282

- Multi-function model
- 60000 count display
- DC+AC Voltage measurement
- + Peak, - Peak measurement
- Low-pass filter function
- USB communication (option)
- True RMS
- CAT IV 600 V
- 10 A Direct input

. . . . . p.93

DIGITAL MULTIMETER DT4281

- Multi-function model
- 60000 count display
- DC+AC Voltage measurement
- + Peak, - Peak measurement
- Low-pass filter function
- USB communication (option)
- True RMS
- CAT IV 600 V
- AC Current measurement with Clamp-on probe

. . . . . p.93

Benchtop Multimeters for Production and Inspection Lines

PRECISION DC VOLTMETER DM7276/7275

- DC V only
- Measure DC voltage and temperature simultaneously
- 7-1/2 digit resolution
- 1-year 9ppm Accuracy (DM7276)
- 1-year 20ppm Accuracy (DM7275)
- Built-in EXT I/O, LAN, and USB

. . . . . p.55

DIGITAL HiTESTER 3239

- 4-terminal method resistance measurement
- Multi functional/high precision 5-1/2 digits
- 300 times/s sampling
- Comparator
- External control I/O
- RS-232C (-01 model: GP-IB)
- True RMS

. . . . . p.56

DIGITAL HiTESTER 3238, 3237

3238: Multi functional
3237: Simple & low cost model

- High precision 5-1/2 digits
- 300 times/s sampling
- Comparator
- External control I/O
- RS-232C (-01 model: GP-IB)
- True RMS

. . . . . p.56

System Integrated Digital Multi-Module Stations

DMM STATION U8991+MR8740T

- Store entire data from 108 units of DMM in single operation
- Simultaneous 108 ch sampling without signal scanner
- High ±0.02% precision & ultra high 6-1/2 digit resolution
- 50 times/s sampling

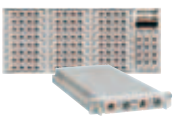
. . . . . p.55

DMM STATION MR8990+MR8741

- Store entire data from 16 units of DMM in single operation
- Simultaneous 16 ch sampling without signal scanner
- High ±0.01% precision & ultra high 6-1/2 digit resolution
- 500 times/s sampling

. . . . . p.55

DMM STATION MR8990+MR8740



- Store entire data from 54 units of DMM in single operation
- Simultaneous 16 ch sampling without signal scanner
- High ±0.01% precision & ultra high 6-1/2 digit resolution
- 500 times/s sampling

. . . . . p.55

Because the DMM offers a large number of measurement functions and ranges, only a representative value (maximum accuracy) for each range is included as the basic accuracy (due to space limitations). For more accuracy information for each range, please see the detailed catalog or user manual.

Field Measuring Instruments Index

5-Range Digital Meg-ohm Meters

INSULATION TESTER IR4053

- Built-in dedicated PV function
- 600 V AC/ 1000 V DC
- 5 test voltage ranges from 50 to 1000 V
- Comparator function
- Integrated hard carrying case

. . . . . p.98

HIGH VOLTAGE INSULATION TESTER IR3455

- 5 high voltage ranges
- 250/500/1k/2.5k/5k V testing voltages
- Leak current, voltage, temperature, insulation resistance testing, data memory
- Integrated hard carrying case

. . . . . p.100

5-Range Digital Meg-ohm Meters for Electrical Equipment Maintenance

INSULATION TESTER IR4058

- 5 test voltage ranges from 50 to 1000 V
- High-speed & bar-graph display
- Comparator function
- 600 V AC/DC meter
- 200 mA continuity check
- Integrated hard carrying case
- Built-in Bluetooth® wireless technology

. . . . . p.97

INSULATION TESTER IR4057

- 5 test voltage ranges from 50 to 1000 V
- High-speed & bar-graph display
- Comparator function
- 600 V AC/DC meter
- 200 mA continuity check
- Integrated hard carrying case

. . . . . p.97

INSULATION TESTER IR4056

- 5 test voltage ranges from 50 to 1000 V
- Comparator function
- 600 V AC/DC meter
- 200 mA continuity check
- Integrated hard carrying case

. . . . . p.98

3-Range Analog Meg-ohm Meters

ANALOG MΩ HiTESTER 3490

- 3 ranges
- 250/500/1000 V testing voltages
- 200 mA continuity (3 Ω resistance range)
- AC voltage measurement
- Bright LED, luminous scale
- Integrated hard carrying case

. . . . . p.100

Single-Range Analog Meg-ohm Meters

ANALOG MΩ HiTESTER IR4018

- Single range
- 1000 V testing voltage (2000 MΩ)
- AC voltage measurement
- Bright LED, luminous scale
- Integrated hard carrying case

. . . . . p.99

ANALOG MΩ HiTESTER IR4017

- Single range
- 500V testing voltage (1000 MΩ)
- AC voltage measurement
- Bright LED, luminous scale
- Integrated hard carrying case

. . . . . p.99

ANALOG MΩ HiTESTER IR4016

- Single range
- 500 V testing voltage (100 MΩ)
- AC voltage measurement
- Bright LED, luminous scale
- Integrated hard carrying case

. . . . . p.99

Ground Clamps and Earth Resistance Testers

CLAMP ON EARTH TESTER FT6381

- Earth resistance measurements for multi-grounded wires
- Measure currents ranging from leakage current to load currents
- True RMS
- Built-in Bluetooth® wireless technology, automatic measurement report function

. . . . . p.106

CLAMP ON EARTH TESTER FT6380

- Earth resistance measurements for multi-grounded wires
- Measure currents ranging from leakage current to load currents
- True RMS

. . . . . p.106

EARTH TESTER FT6031

- 3- or 2- pole method
- Supports Class A to Class D ground types
- IP67 dustproof and waterproof
- Improved cable winder

. . . . . p.106

ANALOG EARTH TESTER FT3151

- Three or two electrode measurement method
- EN and JIS standard

. . . . . p.106

Voltage Detectors

VOLTAGE DETECTOR 3120

- Non-metallic contact
- Ideal for 70 to 1000 V installations (sensitivity fixed)

. . . . . p.107

VOLTAGE DETECTOR 3481

- Non-metallic contact
- Bright LED
- 40 to 600 V AC range

. . . . . p.107

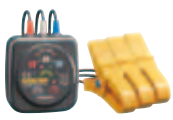
Phase Detectors

DIGITAL PHASE DETECTOR PD3259

- Non- metalic voltage measurements
- Non- metalic measure voltage and detect phase sequence simultaneously
- 90 to 520 V AC
- φ 6 - 30 mm (0.24 - 1.18 in) core dia.

. . . . . p.107

PHASE DETECTOR PD3129-10



- Non-metallic contact clip
- For use on 70 to 1000 V lines (50/60 Hz), Thick conductors φ 10 to 40 mm core dia.

. . . . . p.108

PHASE DETECTOR PD3129

- Non-metallic contact clip
- For use on 70 to 600 V lines (50/60 Hz), Conductors φ 2.4 mm to 17 mm core dia.

. . . . . p.108

Clamp Meters/Options and Peripherals Index

AC Current Leakage Clamp Meters

CLAMP ON EARTH TESTER FT6380, FT6381

- Earth resistance measurements for multi-grounded wires
- Measure currents ranging from leakage current to load currents
- True RMS
- Built-in Bluetooth® wireless technology, automatic measurement report function (FT6381 only)

p.106

CLAMP ON LEAK HiTESTER 3293-50

- True RMS
- 30 mA leak current range with 10 µA resolution
- 1000 A max. load current
- Reversible display technology
- Filter function

p.105

CLAMP ON LEAK HiTESTER 3283

- True RMS
- AC leak current and load current testing
- 10 mA leak current range with 10 µA resolution
- Load current up to 200 A
- Filter function

3283: Not CE marked
3283-20: CE marked

p.105

AC Current Clamp Meters for Electrical Work

AC/DC CLAMP METER CM4141 CM4142

New

- Easily get into tight spaces
- 1000 A AC/DC range
- True RMS
- V, A, Hz, Ω, and other extensive measurement parameters
- Built-in Bluetooth® wireless technology (CM4142)

p.104

AC CLAMP METER CM3289

New

- Successor to the popular 3280-20F
- New thinner clamp gets into even more confined spaces
- True RMS
- 42 to 1000 A AC range
- Weighing only 100g with thin 16 mm body
- DMM function

p.103

DIGITAL CLAMP ON HiTESTER 3282 3281

Discontinuation scheduled

- True RMS

3282: 30 to 1000 A AC range
3281: 30 to 600 A AC range

- Wave peak value at inrush current
- Waveform distortion check

p.103

AC CLAMP METER 3280-10F

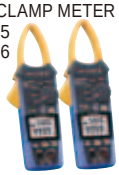
- Average rectified
- 42 to 1000 A AC range
- Weighing only 100g with thin 16 mm body
- DMM function

p.103

AC/DC Current Clamp Meters for General Industrial Applications

AC/DC CLAMP METER CM4375 CM4376

New



- Easily get into tight spaces
- 1000 A AC/DC range
- True RMS
- V, A, Hz, Ω, and other extensive measurement parameters
- Inrush current
- Built-in Bluetooth® wireless technology (CM4376)

p.104

DISPLAY UNIT CM7290, CM7291

- Use with CT7000 series current sensors
- DCA, ACA, (DC+AC)A, frequency measurement
- Power supply for single sensor
- Built-in Bluetooth® wireless technology (CM7291)

p.83

AC/DC CLAMP METER CM4373 CM4374

- True RMS
- 600/2000 A range
- V, A, Hz, Ω, and other extensive measurement parameters
- Inrush current
- Max/Min/Avg/Peak
- Built-in Bluetooth® wireless technology (CM4374)

p.101

AC/DC CLAMP METER CM4371 CM4372

- True RMS
- 20/600 A range
- V, A, Hz, Ω, and other extensive measurement parameters
- Inrush current
- Max/Min/Avg/Peak
- Built-in Bluetooth® wireless technology (CM4372)

p.101

CLAMP ON AC/DC HiTESTER 3288

- For AC/DC measurement
- True RMS (3288-20)
- Average rectified (3288)
- 100/ 1000 A range
- Light weight 150 g, 16 mm thin body
- DMM function

p.102

CLAMP ON AC/DC HiTESTER 3287

- For AC/DC measurement
- True RMS
- 10/ 100 A range
- Light weight 170 g, 16 mm thin body
- DMM function

p.102

CLAMP ON AC/DC HiTESTER 3284 3285

- For AC/DC measurement
- True RMS
- 200/ 2000 A range (3285)
- 20/ 200 A range (3284)
- DC/ AC/ AC+DC mode
- Peak value at inrush current
- Efficient value at half wave rectifier

p.102 to 103

Accessories for AC Clamp Meters

CLAMP ON ADAPTER 9290-10

- Primary 1000A, secondary 100A (1/10 ratio) output
- Superior phase angle characteristics for power

p.85

Handheld Power Meter

AC CLAMP POWER METER CM3286

- Easy AC power checker
- Single-phase, 3-phase (balanced condition/without distortion)
- Phase angle, power factor
- Harmonic levels (-01 only)
- AC clamp, True RMS, Battery operation
- Built-in Bluetooth® wireless technology (CM3286-01)

p.74

Custom Meter Relays for Systems Integration

METER RELAY 2104H/L/HL

- 1 channel analog scale
- Electronic design assures high accuracy and reliability
- ±1.5% class
- 100 mm (3.94 in) width

p.110

METER RELAY 2103H/L/HL

- 1 channel analog scale
- Electronic design assures high accuracy and reliability
- ±2.5% class
- 80 mm (3.15 in) width

p.110

Current Transformers

CURRENT TRANSFORMER CT-5MRN series

- For 50/60 Hz lines only
- 5 VA rated load
- Polyester resin mold type

p.109

Shunts and Multipliers

EXTERNAL SHUNTS HS-1 series

- Use in combination with a 50 mV meter
- 30A to 300A

p.109

New Solutions

Connecting Instruments in the Field with IT

GENNECT CROSS SF4071, SF4072

- Mobile app for iOS, Android
- Improve efficiency of operations that repeat measurement and recording
- Data linkage function & report creation in case of trouble

p.111

GENNECT CROSS SF4000

New

- Software automatically recognizes LAN-connected measuring instrument
- Display acquired data as graphs in real-time
- List MAX, MIN and AVG values
- Windows compatible

p.111

WPT TEST SYSTEM

WPT TEST SYSTEM TS2400

- Generates four types of characteristics graphs in real time, even while testing is still in progress
- Automatic measurement, automatic data collection
- Position transmission coils with a radius of up to 800 mm

p.112

Capture High- to Low-Voltage Signals in a Single Device! Rugged, Professional and Ready for the Field

MEMORY HiCORDER **MR8880**

Printer docks onto main unit

Printer unit is optional

- CAT III 600V isolation performance; directly measure a 480V power line
- 4 completely isolated channels let you simultaneously record data on a 3-phase power line plus have one extra channel
- Tough against harsh environments; -10°C to 50°C operating temperature range
- Built to withstand mechanical shocks and vibrations (ships standard with side protectors)
- Make settings easily with PRESETS function

Model No. (Order Code) **MR8880-20** (4ch, printer unit option, English model)

Note: Input cords and Battery Pack are not included. Purchase the cords appropriate for your application separately. Printer Unit MR9000 is optional and sold separately.

Other options: refer to the detailed catalog

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of channels	4 analog channels + 8 logic channels (standard) *Note: Isolated analog channels, isolated input and frame, logic has common GND*
Measurement ranges (10 div full-scale)	4 channels of voltage measurement; mode switchable between instantaneous waveform or RMS value, 10 mV to 100 V/div, 13 ranges, resolution: 1/640 of range RMS value mode: 30 Hz to 10 kHz, Crest factor: 2
Max. rated voltage	Between terminals: 600 V AC/DC, Between terminal to earth: 600 V AC/DC CAT III; 300 V AC/DC CAT IV
Frequency characteristics	DC to 100 kHz (±3dB)
Time axis (High-speed function)	100 µs to 100 ms/div, 10 ranges, Sampling period: 1/100 of range
Recording intervals (Real-time function)	100 µs to 1 minute, 19 selections (simultaneous sampling in all channels)
Measurement functions	High-speed function (high speed recording) Real-time function (actual time recording)
Memory capacity	14-bits × 1M-words/ch (1 word = 2 bytes)
Removable storage	CF card slot ×1 (Up to 2 GB), USB 2.0 memory ×1
Printing	[Printer unit is option] 112 mm (4.41 in) × 18 m (59.06 ft), thermal paper roll, Recording speed : 10 mm (0.39 in)/sec *Note: Printing is not supported when using alkaline batteries*
Display	5.7-inch VGA-TFT color LCD (640 × 480 dots)
Displayable languages	English, Japanese, Chinese
Communication interfaces	USB 2.0 mini-B receptacle × 1; Transfers files from the installed CF card or USB memory stick to a PC when connected, and External PC control
Power supply	AC adapter Z1002: 100 to 240 V AC (50/60 Hz), 45 VA (include AC adapter, when Real-time recording), 107 VA (include AC adapter, when Real-time recording and printing) Battery pack Z1000: AC adapter has priority when used in combination with battery pack, recharge with AC adapter 3 hours, Continuous use 3 hours (with back-light ON) LR6 (AA) alkaline batteries ×8, Continuous use 40 minutes, (with back-light ON, cannot be used with the Printer unit) DC power supply: 10 to 28 V DC (cable available by special order)
Dimensions and mass	205 mm (8.07 in)W × 199 mm (7.83 in)H × 67 mm (2.64 in)D, 1.66 kg (58.6 oz) (with the Battery pack installed) When printer is combined - with main unit: 303 mm (11.93 in)W × 199 mm (7.83 in)H × 67 mm (2.64 in)D, 2.16 kg (76.2 oz) (with the Battery pack installed)
Accessories	Instruction manual ×1, AC adapter Z1002 ×1, Alkaline battery box ×1, Strap ×1, USB cable ×1, Application disk (Wave viewer Wv, Communication commands table) ×1

Dedicated options

PRINTER UNIT MR9000
Printing width 100 mm (3.94 in), used together with the MR8880-20 main body, includes 1 roll of recording paper

AC ADAPTER Z1002
Included as standard, for main unit, 100 to 240 V AC

BATTERY PACK Z1000
NiMH, Charges while installed in the main unit

CARRYING CASE C1003
Includes compartment for options, soft case type

Options

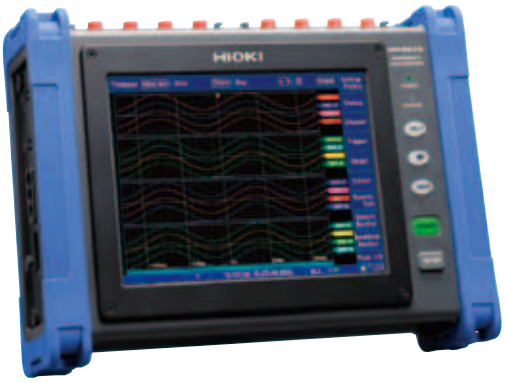
PC CARD 2G 9830 (2 GB capacity)
PC CARD 1G 9729 (1 GB capacity)

PC CARD 512M 9728 (512 MB capacity)

RECORDING PAPER 9234
112 mm (4.41 in) × 18 m (59.06 ft), roll type, 10 rolls/set

1000V Direct Input Multi-channel Logger

MEMORY HiCORDER **MR8875**



- 1000V input and instantaneous DC or RMS waveform measurement with new Analog Unit MR8905
- Multi-channel logger capable of thermocouple temperature measurement up to 60 ch at 10 msec intervals
- Measure multiple channels simultaneously despite handheld portable design
- Max. 2 µsec high-speed simultaneous logging for all input channels
- Save directly to the SD Card in real time for uninterrupted long-term logging
- 16-bit high-resolution measurement of voltage, temperature, distortion and CAN signals
- FFT calculation, waveform calculation functions for advanced analysis
- Intuitive touch screen for optimal operability
- Tough against vibrations and extreme temperatures, with strengthened body ideal for in-vehicle testing and road tests
- 3 different power supplies

Model No. (Order Code) **MR8875** (Max. 16 - 60ch, 32MW memory, main unit only)

Note: Test leads are not included. Purchase the leads appropriate for your application separately. AC Adapter Z1005 is included as standard.

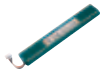
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of input units	Up to 4 slots
Number of channels	Max. 16 analog channels (Max. 60 channels when using the MR8902) + standard 8 logic channels + 2 pulse channels *Note: For analog units, channels are isolated from each other and from the MR8875's GND. For CAN unit ports or standard logic terminals or standard pulse terminals, all channels have common GND.*
Measurement ranges (20 div full-scale)	5 mV to 10 V/div , 11 ranges (when using the MR8901), 500 mV to 50 V/div , 7 ranges (when using the MR8905), resolution : 1/1250 of range
Max. rated voltage	Between terminals: 150 V DC Between terminal to earth: 100 V AC, DC (when using the MR8901)
Frequency characteristics	DC to 100 kHz (-3 dB, when using the MR8901)
Time axis	200 µs to 5 min/div, 21 ranges, sampling period: 1/100 of range, External sampling possible
Max. sampling rate	[When using MR8901] 500 kS/s (2 µs period, all channels simultaneously) [When using MR8902] 10 ms (all input channels are scanned at high speed during every recording interval) [When using MR8903] 200 kS/s (5 µs period, all channels simultaneously) External sampling: 200 kS/s (5 µs period)
Measurement functions	High-speed function (high speed recording), Real-time calculation between channels, FFT calculation, or other functions
Storage memory capacity	Total 32 M-words (memory expansion: N/A, 8 MW each input unit) *Note: 1 word = 2 bytes, therefore 32 Mega-words = 64 Mega-bytes.* *Note: Storage memory can be allocated depending on the number of channels used at each input unit*
Removable storage	SD card slot ×1, USB 2.0 memory
Display	Touch-panel operation 8.4-inch SVGA-TFT color LCD (800 × 600 dots)
Communication interfaces	LAN: 100BASE-TX (DHCP, DNS supported, FTP server/ client, WEB server, send E-mail, command control) USB: USB 2.0 compliant, series mini-B receptacle ×1 (setting / measure with communication command, or file transfer SD card to PC), series A receptacle ×2 (USB memory, USB mouse/ key-board)
Power supply	1) AC adapter Z1002: 100 to 240 V AC (50/60 Hz), 56 VA 2) Battery pack Z1003: 7.2 V DC, 36 VA, continuous operation time: 1 hour with back light ON (AC adapter has priority when used in combination with battery pack), Charges while installed in the MR8875, recharging time: 3 hours 3) External DC Power: 10 to 28 V DC, 56 VA, (please contact your HIOKI distributor for connection cord)
Dimensions and mass	298 mm (11.73 in)W × 224 mm (8.82 in)H × 84 mm (3.31 in)D, 2.4 kg (84.7 oz), (excluding input units and the Battery pack Z1003) Reference data: 3.47 kg/ 122.4 oz (including the MR8901 ×4 units and the Battery pack Z1003)
Accessories	Instruction manual ×1, Measurement guide ×1, AC adapter Z1002 ×1, Protection sheet ×1, USB cable ×1, Shoulder strap ×1, Application disk (Wave viewer Wv, communication commands table, CAN Editor) ×1

Dedicated options

Other options: refer to the detailed catalog

AC ADAPTER Z1002
Included as standard, for main unit, 100 to 240 V AC



BATTERY PACK Z1003
NiMH, Charges while installed in the main unit

CAN CABLE 9713-01
For the MR8904, unprocessed on one end, 1.8 m (5.91 ft) length

SD MEMORY CARD 2GB Z4001
SD MEMORY CARD 8GB Z4003

SD Card Precaution
Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

Input modules

- ANALOG UNIT MR8901
  4ch, Voltage measurement, DC to 100kHz
- VOLTAGE/TEMP UNIT MR8902
  15ch, Voltage measurement, Thermocouple measurement
- STRAIN UNIT MR8903
  4ch, Voltage measurement, Strain gauge converter input
- CAN UNIT MR8904
  2-port, up to 15 analog channels and up to 16 logic channels
- ANALOG UNIT MR8905
  2ch, High-voltage measurement
  (available with MR8875 Ver 2.14/3.14 or later)

Install by inserting into the main unit. Can be replaced by user.

MR8905

Oscilloscope-like Waveform Observation, Plus Recording of RMS Variations - In a Single Device!

MEMORY HiCORDER **MR8870**

- Mode for recording instantaneous waveform and RMS fluctuations
- Save values in real time to a CF card
- Record four channels at once by synchronizing two instruments with the bundled PC application
- Compact and easy to carry
- Easy, intuitive operation
- Fast, 1MS/s performance despite the compact size
- Built-in, compact-yet-sharp QVGA-TFT wide LCD

Model No. (Order Code) **MR8870-20** (2ch, English model)

Note: Input cords and battery pack are not included. Purchase the cords appropriate for your application separately. The AC Adapter Z1005 is included as standard.

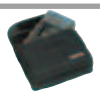
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of channels	2 analog channels + 4 logic channels (standard) *Note: Isolated analog channels, isolated input and frame, logic has common GND*
Measurement ranges	10 mV to 50 V/div (10 div full-scale), 12 ranges, Resolution: 1/100 of range
Max. rated voltage	Between terminals: 400 VDC, Between terminal to earth: 300 VAC, DC CAT II
Frequency characteristics	DC to 50 kHz (-3 dB)
Time axis (Memory mode)	100 µs to 5 min/div, 20 ranges,at 100 points/div resolution, three steps of time-axis magnification from ×2 to ×10, and 9 steps of time-axis compression from ×1/2 to ×1/1,000
Recording intervals (RMS mode)	1 ms to 1 min., 16 settings, sampling period: 200 µs (fixed) (for AC voltage/current, 1,000 RMS values/sec.), envelope mode always on *Note: Only the maximum value and minimum value for each recording interval are recorded.*
Measurement functions	Memory recorder (high speed recording), RMS recorder (50/60 Hz, DC only)
Memory capacity	12-bits × 2M-words/ch (1 word = 2 bytes)
Removable storage	CF card TYPE I slot ×1 (Up to 2 GB)
Display	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Displayable languages	English, Japanese
Interfaces	USB 2.0 mini-B receptacle ×1, Functionality: Connect the instrument to a PC to send files on the CF card to the PC. The instrument cannot be controlled from a PC.
Printer	N/A
Power supply	AC Adapter Z1005: 100 to 240 VAC (50/60 Hz) , 30 VA max. (when using the AC adapter and charging the 9780 with the instrument) Battery Pack 9780: 3 VA, continuous operating time of approx. 2 hr. (25°C reference value; when used with the Z1005, the Z1005 takes priority), charging time of 200 min. using the AC adapter (25°C reference value) (option) External DC power: 10 to 16 V, 10 VA max. (connection cord of 3 m or less is available by special-order)
Dimensions and mass	176 mm (6.93 in)W × 101 mm (3.98 in)H × 41 mm (1.61 in)D, 600 g (21.2 oz) (with the Battery pack 9780 installed)
Accessories	Instruction manual ×1, Measurement guide ×1, AC adapter Z1005 ×1, Strap ×1, USB cable ×1, Application disk (Dedicated program for the MR8870) ×1, Protection sheet 9809 ×1

Other options refer to the detailed catalog

Options

BATTERY PACK 9780
NiMH, Charges while installed in the main unit



SOFT CASE 9812
Includes space for small items, Neoprene rubber

CARRYING CASE 9782
Includes compartment for options, Resin coated

PC CARD 2G 9830 (2 GB capacity)
PC CARD 1G 9729 (1 GB capacity)
PC CARD 512M 9728 (512 MB capacity)

Accessories

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets can be purchased separately, bundled with instrument

AC ADAPTER Z1005
100 to 240 V AC, bundled with instrument

Highest Measurement Capabilities and Fastest Transfer Rate in History

MEMORY HiCORDER **MR6000**

- High-speed 200 MS/s isolated testing (with High Speed Analog Unit U8976x8)
- Simultaneously measure up to 32 analog channels (with 4ch Analog Unit U8975x8)
- Real-time saving of data of all 32 ch at 1 MS/s (with SSD Unit U8332)
- Highly-responsive touchscreen
- Memory Concierge: Easily search for the waveform you want to see with the waveform search function
- Faster save times (1/10th the time required by legacy models)
- Real-time digital filter calculation

Germany iF Design Award

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	MR6000	MR6000-01
Additional function	N/A	Real-time waveform calculation, Digital Filter calculation
Number of input units	Max. 8 units	
Number of channels	Max. 32 analog channels (when using the U8975), or 128 logic channels (when using the 8973)	
Measurement ranges (20 div full-scale)	10 mV to 400 V f.s., 12 ranges (when using the U8976), Resolution : 1/1600 of range 4 V to 200 V f.s., 6 ranges (when using the U8975), Resolution : 1/32000 of range	
Max. allowable input	400 V DC (when using the U8976), 200 V DC (when using the U8975)	
Frequency characteristics	DC to 30 MHz (when using the U8976), DC to 2 MHz (when using the U8975)	
Max. sampling rate	200 MS/s, all channnels simultaneously (when using the U8976) External sampling: 10 MS/s	
Recording methods	Normal: Normal waveform recording Envelope: Record maximum and minimum values every fixed period	
Storage memory capacity	1 G-words	
Removable storage	SD memory card ×1, USB memory ×7, SSD/HDD (built in the main unit) ×1 FTP transmission (to LAN-connected computer) **Use only Storage Media sold by HIOKI.*	
Display	12.1 inch XGA-TFT color LCD (1024 × 768 dots)	
External interfaces	LAN, USB, SD, SATA, Monitor output	
Power supply	100 to 240 V AC (50/60 Hz) (300 VA max.)	
Dimensions and mass	353 mm (13.9 in)W × 235 mm (9.25 in)H × 154.8 mm (6.09 in)D, 6.5 kg (229.3 oz) (main unit only)	
Accessories	Power cord ×1, Quick start manual ×1, Precautions conserning use ×1, Application disk (CD-R) ×1, Instruction manual (CD-R, detail and calculation) ×1 , Blank panel (for blank slots only)	

Model No. (Order Code) **MR6000** (Main unit only, input modules up to 8 units)
MR6000-01 (Built-in real-time waveform calculation and other functionality)

Note: Main unit MR6000/MR6000-01 cannot operate alone. You must install one or more optional input modules in the unit.

Other options refer to the detailed catalog

Options A

Note: user cannot install or change the SSD Unit U8332, the HD Unit U8333, and the Z5021

Other options refer to the detailed catalog

PROBE POWER UNIT Z5021
Built-in type in the main unit.
±12 V DC, drive up to 8 probes.

SSD UNIT U8332
Specified upon order, built-in type, 256 GB

HD UNIT U8333
Specified upon order, built-in type, 320 GB

SD MEMORY CARD 2GB Z4001
2 GB capacity

SD MEMORY CARD Z4003
8 GB capacity

USB DRIVE Z4006
16 GB, Long-life, High-reliability SLC Flash Memory

Storage Media Precaution

Use only Storage Media sold by HIOKI. Compatibility and performance are not guaranteed for Storage Media made by other manufacturers. You may be unable to read from or save data to such media.

Options B

Install by inserting into the main unit. Can be replaced by user.

- ANALOG UNIT 8966
  2 ch, voltage input, 20MS/s (DC to 5 MHz)
- TEMP UNIT 8967
  2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968
  2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969
  2 ch, strain gauge type converter amp *Includes Conversion Cable L9769
- FREQ UNIT 8970
  2 ch, for measurement of frequency, rpm, pulse
- CURRENT UNIT 8971
  2 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972
  2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973
  4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990
  2 ch, DC V input, 0.1 µV resolution, 500 times/s sampling
- HIGH VOLTAGE UNIT U8974
  2 ch, voltage input, max. 1000 V DC, 700 V AC
- 4CH ANALOG UNIT U8975
  4 ch, voltage input, 5MS/s (DC to 2 MHz)
- HIGH SPEED ANALOG UNIT U8976
  2 ch, Voltage input, 200MS/s (DC to 30 MHz)

The Global Standard Recorder for Field and R&D Testing

MEMORY HiCORDER **MR8847A**

USB2.0 LAN CE 3 year Warranty

- Supports a wide variety of measurements with a total of 13 plug-in modules
- Generate and record with a single unit
- Direct 1000 V high voltage input testing
- High-speed sampling up to 20MS/s with fully isolated inputs
- 16 analog + 16 logic channels to 64 logic + 10 analog channels
- High-speed sampling with waveform judgement function
- Soil-resistant construction strong against adverse working environments
- Big buttons coated to withstand industrial oil and residue
- Drop-in paper loading and one-touch setup, along with high-speed 50mm/s printing

Model No. (Order Code) **MR8847-51** (Max. 16ch, 64MW memory, main unit only)
MR8847-52 (Max. 16ch, 256MW memory, main unit only)
MR8847-53 (Max. 16ch, 512MW memory, main unit only)

Note: Main unit MR8847-51/ -52/ -53 cannot operate alone. You must install one or more optional input modules in the unit.

Accessories: Instruction manual ×1, Measurement guide ×1, Application disk (Wave viewer Wv, Communication commands table) ×1, Power cord ×1, Input cord label ×1, USB cable ×1, Printer paper ×1, Roll paper attachment ×2, Ferrite clamp ×1

■ Basic specifications (Accuracy guaranteed for 1 years, Post-adjustment accuracy guaranteed for 1 years)

Max. Number of channels	16 ch analog + 16 ch logic, or 10 ch analog + 64 ch logic (when used with built-in logic input + plug-in Logic Unit 8973 × 3)
Number of slots	8 slots (Max. 8) [Limitation on number of slots] when using the Current Unit 8971: Max. 4, when using the Logic Unit 8973: Max. 3
Number of logic channels	16 ch logic (logic probe terminal GND share a common GND with chassis) Built-in logic input not available when using DVM Unit MR8990 on slots 1 or 2. [Limitation on using built-in logic input] (with logic measurement ON) • Measurement resolution on slots 1 and 2 is limited up to 12 bits • Cannot use Frequency Unit 8970 on slots 1 or 2.
Measurement ranges (20 div full-scale)	[Analog unit 8966]: 5 mV/div to 20 V/div, 12 ranges, resolution : 1/100 of range (using 12-bit A/D) [High Voltage Unit U8974]: 200 mV/div to 50 V/div, 8 ranges, resolution : 1/1600 of range (using 16-bit A/D)
Max. allowable input	400 V DC (using the 8966), 1000 V DC (using the U8974)
Frequency characteristics	DC to 5 MHz (-3 dB, using the 8966), DC to 100 kHz (using the U8794)
Time axis (Memory function)	5 µs to 5 min/div (100 samples/div) 26 ranges, External sampling (100 samples/div, or free setting), Time axis zoom: x2 to x10 in 3 stages, compression: 1/2 to 1/200 000 in 16 stages
Measurement functions	MEMORY (high-speed recording), RECORDER (real-time recording), X-Y RECORDER (X-Y real-time recording), FFT
Other functions	Waveform judgment (at Memory or FFT function)
Memory capacity	MR8847-51: Total 64 M-words (Memory expansion: none) 32 MW/ch (using 2 Analog channels), to 4 MW/ch (using 16 Analog channels) MR8847-52: Total 256 M-words (Memory expansion: none) 128 MW/ch (using 2 Analog channels), to 16 MW/ch (using 16 Analog channels) MR8847-53: Total 512 M-words (Memory expansion: none) 256 MW/ch (using 2 Analog channels), to 32 MW/ch (using 16 Analog channels)
Removable storage	CF card slot (standard) ×1 (up to 2GB, FAT, or FAT-32 format), SSD (128 GB, optional), USB memory stick (USB 2.0)
Printing	216 mm (8.50 in) × 30 m (98.43 ft), thermal paper roll, Recording speed : Max. 50 mm (1.97 in)/s
Display	10.4 inch TFT color LCD (SVGA, 800 × 600 dots)
Displayable languages	English, Japanese, Korean, Chinese
External interfaces	[LAN] 100BASE-TX (FTP server, HTTP server), [USB] USB2.0 compliant, series A receptacle ×1, series B receptacle ×1, (File transfer internal drive/CF card to PC, or remote control from PC)
Power supply	100 to 240 V AC, 50/60 Hz (130 VA max., when using printer: 220 VA max.), 10 to 28 V DC (when using the optional factory-installed DC Power Unit 9784)
Dimensions and mass	351 mm (13.82 in) W × 261 mm (10.28 in) H × 140 mm (5.51 in) D, 7.6 kg (268.1 oz) (main unit only)

Factory-installed options

Other options: refer to the detailed catalog

SSD UNIT U8331
Specify upon order, built-in type, 128 GB

DC POWER UNIT 9784
Factory-installed option - not user installable, built in on the bottom case. 10 to 28 V DC drive.

Options

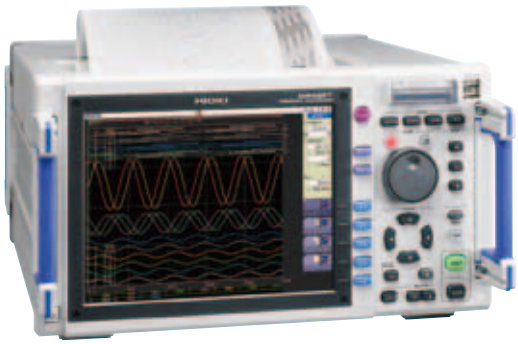
Install by inserting into the main unit. Can be replaced by user.

- ANALOG UNIT 8966
  2 ch, voltage input, 20MS/s (DC to 5 MHz)
- TEMP UNIT 8967
  2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968
  2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969
  2 ch, strain gauge type converter amp *Includes Conversion Cable L9769
- FREQ UNIT 8970
  2 ch, for measurement of frequency, rpm, pulse
- CURRENT UNIT 8971 : 2 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972
  2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973
  4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990
  2 ch, DC V input, 0.1 µV resolution, 500 times/s sampling
- HIGH VOLTAGE UNIT U8974
  2 ch, voltage input, max. 1000 V DC, 700 V AC
- ARBITRARY WAVEFORM GENERATOR UNIT U8793
  2 ch, FG function 10 mHz to 100 kHz, Arbitrary waveform generator D/A refresh rate 2 MHz, Output 15 V
- WAVEFORM GENERATOR UNIT MR8790 : 4 ch, ±10 V DC output, 1 Hz to 20 kHz sine waveform output
- PULSE GENERATOR UNIT MR8791
  8 ch, 0.1 Hz to 20 kHz pulse, pattern output

RECORDING PAPER 9231
A4 width 216 mm (8.50 in) × 30 m (98.43 ft), 6 rolls/set

Waveform Generation and Recording. Total 64ch, 32 Analog Channels + 32 Logic Channels

MEMORY HiCORDER **MR8827**



USB2.0 LAN CE 3 year Warranty

- Generate and record waveforms with a single unit
- Output previously recorded problematic waveforms and apply to devices under test to simulate potential issues
- 32 analog + 32 logic channels to 28 analog + 64 logic channels
- High-speed sampling up to 20MS/s with fully isolated inputs
- Safe measurement with all isolated analog inputs
- Large capacity memory of total 512M-words
- Measure various system signals from high voltage to ultra low voltage simultaneously

Model No. (Order Code) **MR8827** (Max. 32ch, 512MW memory, main unit only)

Note: Main unit MR8827 cannot operate alone. You must install one or more optional input modules in the unit.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Max. Number of channels	32 ch analog + 32 ch logic, or 28 ch analog + 64 ch logic (when use with built-in logic input + plug-in logic unit 8973 × 2)
Number of slots	16 slots (Max. 16)
Number of logic channels	32 ch logic (logic probe terminal GND share a common GND with chassis) Built-in logic input not available when using DVM Unit MR8990 on slots 1, 2, 9, or 10. [Limitation on using built-in logic input] (with logic measurement ON) • Measurement resolution on slots 1, 2, 9, and slot 10 is limited up to 12 bits • Cannot use Frequency Unit 8970 on slots 1, 2, 9, or 10
Measurement ranges (20 div full-scale)	[Analog Unit 8966]: 5 mV/div to 20 V/div, 12 ranges, resolution : 1/100 of range (using 12-bit A/D) [High Resolution Unit 8968]: 5 mV/div to 20 V/div, 12 ranges, resolution : 1/1600 of range (using 16-bit A/D)
Max. allowable input	400 V DC (using the 8966/8968)
Frequency characteristics	DC to 5 MHz (-3 dB, using the 8966), DC to 100 kHz (-3 dB, using the 8968)
Time axis (Memory function)	5 µs to 5 min/div, 26 ranges, at 100 points/div resolution
Measurement functions	Memory (high-speed recording), Recorder (real-time recording), X-Y recorder, FFT
Other functions	Numerical calculation, Waveform processing, Waveform judgment (at Memory, or FFT function)
Memory capacity	128M-words/ch (using 4 Analog channels) to 16M-words/ch (using 32 Analog channels), Total capacity 512MW memory
Data storage media	USB memory stick, CF card, Built-in SSD unit (option, 128GB) *Approx. 125 sec. when saving 100 MB of data, *Data of 100 MB in size can record 16,000 div waveforms across 32 channels.
Printing	[Built-in A4-size printer option]: 216 mm (8.50 in) × 30 m (98.43 ft), thermal paper roll, Recording speed : Max. 50 mm (1.97 in)/s
Display	10.4 inch TFT color LCD (SVGA, 800 × 600 dots)
External interfaces	LAN: 100BASE-TX, USB 2.0 series A receptacle 2 port (for USB memory, mouse) USB 2.0 series B receptacle (for communication with PC, mass storage)
Power supply	100 to 240 V AC, 50/60 Hz (220 VA max., when using printer: 350 VA max.)
Dimensions and mass	401 mm (15.79 in)W × 233 mm (9.17 in)H × 388 mm (15.28 in)D (including protruding parts except handle), 12.6 kg (444.4 oz) (main unit only)
Accessories	Instruction manual ×1, Power cord ×1, Application disk (CD-R) ×1, Input cord label ×1, Printer paper ×1 (when ordering printer unit), Roll paper attachment ×2 (when ordering printer unit)

Factory-installed options

Other options: refer to the detailed catalog

SSD UNIT U8330
Specify upon order, built-in type, 128 GB

PRINTER UNIT U8350
Built-in option. Printing width 200 mm (7.87 inch). Compatible recording paper: Model 9231

Options

Install by inserting into the main unit. Can be replaced by user.

- ANALOG UNIT 8966
  2 ch, voltage input, 20MS/s (DC to 5 MHz)
- TEMP UNIT 8967
  2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968
  2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969
  2 ch, strain gauge type converter amp *Includes Conversion Cable L9769
- FREQ UNIT 8970
  2 ch, for measurement of frequency, rpm, pulse
- CURRENT UNIT 8971 : 2 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972
  2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973
  4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990
  2 ch, DC V input, 0.1 µV resolution, 500 times/s sampling
- HIGH VOLTAGE UNIT U8974
  2 ch, voltage input, max. 1000 V DC, 700 V AC
- ARBITRARY WAVEFORM GENERATOR UNIT U8793
  2 ch, FG function 10 mHz to 100 kHz, Arbitrary waveform generator D/A refresh rate 2 MHz, Output 15 V
- WAVEFORM GENERATOR UNIT MR8790 : 4 ch, ±10 V DC output, 1 Hz to 20 kHz sine waveform output
- PULSE GENERATOR UNIT MR8791
  8 ch, 0.1 Hz to 20 kHz pulse, pattern output

RECORDING PAPER 9231
A4 width 216 mm (8.50 in) × 30 m (98.43 ft), 6 rolls/set

Analog Max. 108ch, inspection data transfer time to zero

MEMORY HiCORDER **MR8740T**

USB 2.0 · LAN · CE · 3 year Warranty

- Ideal for multipoint inspection of high performance boards such as ECU
- Analog 108ch to analog 96ch + logic 48ch input
- Reduce time required for saving media to Max.1 / 100 as compared with conventional
- 20 MS / s All channels simultaneous sampling
- Safe measurement with analog all channel isolated input
- Supports 4K monitor, displays multi-channel waveform without overlapping
- 4 channels can be input with 1 unit (4 ch analog unit U8975, 4 ch DVM unit U8991)
- Constant voltage, constant current, simulated resistance can be generated (VIR generator unit U8794)

Model No. (Order Code) **MR8740-50** (Max. 108ch, 1GW memory, main unit only)

Note: A special option such as an input unit is required for the main unit. Please purchase various common options such as input code separately.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of input units	Max. 27 slots
Number of channels	[Using the U8975] Max. 108 ch analog, or 96 ch analog + 48 ch logic (combination used with the U8975 + logic unit 8973) [Using the 8966] Max. 54 ch analog, or 48 ch analog + 48 ch logic (combination used with the 8966 + logic unit 8973) *Logic unit 8973 is limited to slots 25 to 27, up to 3 units, *Analog unit channels are isolated from each other and from chassis. Logic unit channels share a common GND with chassis.
Measurement ranges	100 mV to 400 V f.s., 12 ranges, resolution : 1/2000 of range (when using 8966) 4 V to 200 V f.s., 6 ranges, resolution : 1/32000 of range (when using U8975) 100 mV to 1000 V f.s., 5 ranges, resolution : 1/1000 000 of range (when using MR8990) 1 V, 10 V, 100 V f.s., 3 ranges, resolution : 1/1000 000 of range (when using U8991)
Max. allowable input	400 V DC (when using 8966; upper limit voltage that can be applied between input terminals without damage)
Max. rated voltage to earth	300 V AC/DC (input and instrument are isolated; between input channels and chassis; upper limit voltage that can be applied between input channels without damage)
Frequency characteristics	DC to 5 MHz (-3 dB, when using 8966)
Max. sampling speed	20 MS/s, all ch simultaneous, external sampling: 10 MS/s
Measurement functions	Memory (high-speed recording)
Memory capacity	Total of 1 G Word installed, 16 MW/ch (when using 8966), 8 MW/ch (when using U8975 or MR8990), 4 MW/ch (when using U8991)
Internal storage	SSD 480 GB
Removable storage	USB memory stick ×8
Monitor output	VGA, HDMI, Display Port, Recommended resolution 1920 × 1080 dot or more
External interfaces	[LAN] 1000 BASE-T, 100 BASE-TX, 10 BASE-TX (2 port) (DHCP and DNS support, FTP server/cliant, HTTP server) [USB] USB 3.0 Series A receptacle × 4, USB 2.0 ×4
Power supply	100 to 240 V AC, 50/60 Hz (400 VA max.)
Dimensions and mass	426 mm (16.77 in)W × 177 mm (6.97 in)H × 505 mm (19.88 in)D, 14.0 kg (493.8 oz) (main unit only)
Accessories	Power cord ×1,Quick Start Manual (booklet) ×1, Instruction Manual (detailed edition) (CD-R) ×1, application disk (CD-R) ×1, blank panel (blank slot only), rack installation hardware

Options

Install by inserting into the main unit. Can be replaced by user.

- ANALOG UNIT 8966
  2 ch, voltage input, 20MS/s (DC to 5 MHz)
- TEMP UNIT 8967
  2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968
  2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969
  2 ch, strain gauge type converter amp *Includes Conversion Cable L9769
- FREQ UNIT 8970
  2 ch, for measurement of frequency, rpm, pulse
- CURRENT UNIT 8971 : 2 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972
  2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973
  4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990
  2 ch, DC V input, 0.1 µV resolution, 500 times/s sampling
- DIGITAL VOLTMETER UNIT U8991
  4 ch, DC V input, 1 µV resolution, 50 times/s sampling
- HIGH VOLTAGE UNIT U8974
  2 ch, voltage input, max. 1000 V DC, 700 V AC
- 4CH ANALOG UNIT U8975
  4 ch, voltage input, 5MS/s (DC to 2 MHz)
- WAVEFORM GENERATOR UNIT MR8790 : 4 ch, ±10 V DC output, 1 Hz to 20 kHz sine waveform output
- PULSE GENERATOR UNIT MR8791
  8 ch, 0.1 Hz to 20 kHz pulse, pattern output
- VIR GENERATOR UNIT U8794
  8 ch, DC voltage, DC current, resistance (simulated output)

High-speed/Isolated Multi-channel Measurement System Recorders (rack-mounted)

MEMORY HiCORDER **MR8740, MR8741**

MR8740 (54ch Max.)

MR8741 (16ch Max.)

USB 2.0 · LAN · CE · 3 year Warranty

- Introducing the DVM Unit MR8990 with high 24-bit resolution! Perform high-speed, high-accuracy measurement without going through a scanner.
- Support for multi-channel measurement (MR8740: up to 54 ch; MR8741: up to 16 ch)
- Isolated input (between input channels; input-to-chassis isolation: maximum input-to-ground rated voltage of 300 V AC/DC)
- High-speed sampling (max. 20 MS/s; with 54-ch type, simultaneous sampling of up to 32 ch)
- Ideal for rack-mounting (4U height/within 180 mm; display-less, box-type design)
- Display waveforms and make settings on a DVI-D connected monitor and mouse
- Remote measurement via LAN using control commands from a PC

*Screen monitoring and remote operation available via Internet browser. For faster and more convenient remote operation, we recommend using the Hioki 9333 LAN Communicator.

Model No. (Order Code) **MR8740** (Max. 54ch, 864MW memory, main unit only)
MR8741 (Max. 16ch, 256MW memory, main unit only)

Note: Main unit MR8740/MR8741 requires input units and other dedicated options. Input cords not included. For more information about input cords and other common options, refer to the detailed catalog.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	MR8740	MR8741
Max. Number of channels	[Block I] 32 ch analog + 8 ch logic, or 29 ch analog + 56 ch logic (when used with built-in logic input + plug-in logic unit 8973 × 3) [Block II] 22 ch analog + 8 ch logic, or 19 ch analog + 56 ch logic (when used with built-in logic input + plug-in logic unit 8973 × 3)	16 ch analog + 16 ch logic, or 10 ch analog + 64 ch logic (when used with built-in logic input + plug-in logic unit 8973 × 3)
Number of slots	[Block I] 16 slots (Max. 16), [Block II] 11 slots (Max. 11) [Limitation on number of slots] when using the Current Unit 8971: Max. 4, When using the Logic Unit 8973: [Block I] Max. 3; cannot use slots 9 to 16 [Block II] Max. 3; cannot use slots 9 to 11	8 slots (Max. 8) [Limitation on number of slots] cannot use Current Unit 8971 When using the Logic Unit 8973: Max. 3
Number of logic channels	[Block I] 8 ch logic (Logic probe terminal GND share a common GND with chassis.) [Block II] 8 ch logic (Logic probe terminal GND share a common GND with chassis.) [Limitation on using built-in logic input] applies to both Block I and Block II (with logic measurement ON) • Measurement resolution on slots 1 and 2 is limited up to 12 bits • Cannot use Frequency Unit 8970 on slots 1 and 2 • When using the DVM Unit MR8990 on slots 1 or 2: cannot use built-in logic input	16 ch logic (Logic probe terminal GND share a common GND with chassis.) on condition that DVM Unit MR8990 is used on slots 1 and 2, cannot use built-in logic input [Limitation on using built-in logic input] (with logic measurement ON) • Measurement resolution on slots 1 and 2 is limited up to 12 bits • Cannot use Frequency Unit 8970 on slots 1 and 2
Measurement ranges (20 div full scale)	5 mV to 20 V/div, 12 ranges, resolution : 1/100 of range (when using 8966) 5 mV to 50 V/div, 5 ranges, resolution : 1/50,000 of range (when using MR8990)	
Max. allowable input	400 V DC (when using 8966; upper limit voltage that can be applied between input terminals without damage)	
Max. rated voltage to earth	300 V AC/DC (input and instrument are isolated; between input channels and chassis; upper limit voltage that can be applied between input channels without damage)	
Frequency characteristics	DC to 5 MHz (-3 dB, when using 8966)	
Time axis (MEMORY operation)	5 µs to 5 min/div; 26 ranges; time axis resolution: 100 points/div; time axis expansion: 3 stages from ×2 to ×10; compression: 13 stages from 1/2 to 1/20,000	
Measurement functions	Memory (high-speed recording), FFT, Recorder	
Memory capacity	16 MW/ch (fixed), total of 864 MW installed	16 MW/ch (fixed), total of 256 MW installed
Removable storage	USB memory stick (USB 2.0)	
Display	None (1 digital DVI terminal per block, 800 × 600 dots)	None (1 digital DVI terminal, 800 × 600 dots)
External interfaces	[LAN] 100Base-TX (DHCP and DNS support, FTP server, HTTP server) [USB] USB 2.0 Series A receptacle × 2 (mouse operation)	
Power supply	100 to 240 V AC, 50/60 Hz (250 VA max.)	100 to 240 V AC, 50/60 Hz (120 VA max.)
Dimensions and mass	426 mm (16.77 in)W × 177 mm (6.97 in)H × 505 mm (19.88 in)D, 10.8 kg (381.0 oz) (main unit only)	350 mm (13.78 in)W × 160 mm (6.30 in)H × 320 mm (12.60 in)D, 5.4 kg (190.5 oz) (main unit only)
Accessories	Instruction manual ×1, Application disk (Wave viewer Wv, Communication commands table) ×1, Power cord ×1	

Options

Install by inserting into the main unit. Can be replaced by user.

- ANALOG UNIT 8966
  2 ch, voltage input, 20MS/s (DC to 5 MHz)
- TEMP UNIT 8967
  2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968
  2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969
  2 ch, strain gauge type converter amp *Includes Conversion Cable L9769
- FREQ UNIT 8970
  2 ch, for measurement of frequency, rpm, pulse
- CURRENT UNIT 8971 : 2 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972
  2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973
  4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990
  2 ch, DC V input, 0.1 µV resolution, 500 times/s sampling
- HIGH VOLTAGE UNIT U8974
  2 ch, voltage input, max. 1000 V DC, 700 V AC
- ARBITRARY WAVEFORM GENERATOR UNIT U8793
  2 ch, FG function 10 mHz to 100 kHz, Arbitrary waveform generator D/A refresh rate 2 MHz, Output 15 V
- WAVEFORM GENERATOR UNIT MR8790 : 4 ch, ±10 V DC output, 1 Hz to 20 kHz sine waveform output
- PULSE GENERATOR UNIT MR8791
  8 ch, 0.1 Hz to 20 kHz pulse, pattern output

Portable, Easy-to-Use Pen Recorder Built for the Field

PEN RECORDER **PR8111, PR8112**

PR8112 (2 pen)

- Easily portable, compact size
- Support for three power sources, can be powered with dry-cell batteries
- Protection from dripping water and dust, ships with a drip-proof cover
- Pen-based, records data reliably
- Easy enough for anyone to use

Model No. (Order Code) **PR8111** (1 pen)
PR8112 (2 pens)

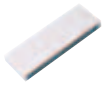
*Note: Instrument does not include input cords. Input terminals are Johnson terminals and require connection of a power supply. *Connection Cord L9257 can also be used.*

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	PR8111	PR8112
No. of pens	1 pen	2 pens
Operating method	Self-balancing, Disposable felt pen recording	
Measurement ranges	DC voltage (Isolated input channels, isolated input and frame) ±1 mV to 500 mV (9 ranges), ±1 V to 250 V (8 ranges)	
Max. allowable input	250 V DC (at V range), 30 V DC (at mV range) Max. rated voltage to earth: 300 V AC, DC CAT II	
Recording accuracy	±0.5 % of effective recording width (excluding contraction and expansion of recording paper)	
Recording width	150 mm (5.91 in)	
Chart speed	10 mm/min to 600 mm/min (8 ranges), 10 mm/hr to 600 mm/hr (8 ranges) Accuracy: ±0.25 % (at 500 mm or higher continuous recording)	
Recording paper	Fanfold plain paper: SE-10Z-2, length: 15 m (49.22 ft) Roll plain paper: SE-10, length: 20 m (65.62 ft)	
Power supply	(1) AC adapter 9418-15 (100 to 240 V, 50/60 Hz), (2) D size alkaline battery (LR20) × 6 (When used with the AC adapter, the adapter takes precedence) (3) DC power supply: 10 to 27 V DC (cable available by special order)	
Continuous use time	50 hr (based on in-house testing conditions, use LR20 batteries)	25 hr (based on in-house testing conditions, use LR20 batteries)
Max. rated power	4 VA (AC adapter, DC power) or 3 VA (dry-cell batteries)	
Dimensions and mass	292 mm (11.50 in)W × 177 mm (6.97 in)H × 182 mm (7.17 in)D, 3.9 kg (137.6 oz) (main unit only), 4.8 kg (169.3 oz) (with dry-cell batteries)	292 mm (11.50 in)W × 177 mm (6.97 in)H × 182 mm (7.17 in)D, 4.4 kg (155.2 oz) (main unit only), 5.3 kg (186.9 oz) (with dry-cell batteries)
Accessories	Felt pen P-1201A (Red) ×1, Recording paper SE-10Z-2 (fanfold) ×1, AC Adapter 9418-15 ×1, Front cover ×1, Drip-proof cover ×1, Instruction manual ×1	Felt pen P-1201A (Red) ×1, Felt pen P-1202A (Green) ×1, Recording paper SE-10Z-2 (fanfold) ×1, AC adapter 9418-15 ×1, Front cover ×1, Drip-proof cover ×1, Instruction manual ×1

Recording paper

The PR8111/PR8112 uses the same recording paper and felt pens as previous HIOKI models (the EPR-3000 series and EPR-3500 series)



RECORDING PAPER SE-10Z-2
Fanfold, 170 mm (6.69 in) width × 15 m (49.22 ft), Set of 10

RECORDING PAPER SE-10
Roll, 170 mm (6.69 in) width × 20 m (65.62 ft), Set of 10

Pens

*P-1201A is bundled with the PR8111, PR8112 *P-1202A is bundled with the PR8112
The PR8111/PR8112 uses the same recording paper and felt pens as previous HIOKI models (the EPR-3000 series and EPR-3500 series)

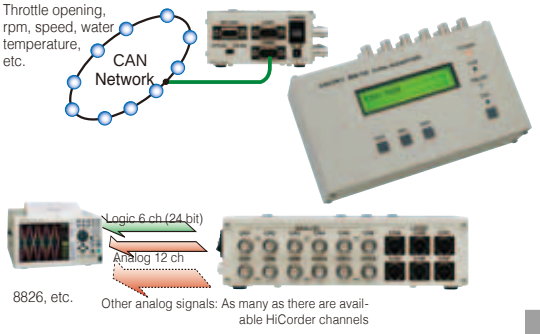
FELT PEN (RED) P-1201A
For the PR8111, INR-9000, EPR-3000 series

FELT PEN (GREEN) P-1202A
For the PR8111, INR-9000, EPR-3000 series

FELT PEN (BLUE) P-1203A
For the PR8111, INR-9000, EPR-3000 series

Record and Analyze CAN-Bus Signals

CAN ADAPTER **8910**



- Select CAN-Bus information and convert them into analog/logic signals to input into your recorder or data logger
- Record both CAN adapter analog output and actual analog data (i.e. sensor output) simultaneously

Model No. (Order Code) **8910** (For the 8841, 8826 and similar products)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Input	CAN-Bus interface 2 channel (Receive only)
No. of output channels	Up to 12 analog channels and 6 logic channels - 24 bit
Output resolution	16 bit
Output voltage	-5 to 5 V (Analog), 0 to 5 V (Logic)
Response speed	Can follow up to a 1 ms CAN-Bus refresh rate (1 kS/s max.)
Interface	RS-232C (For data selection settings only)
Functions	(1) Settings of CAN-Bus defined data (Various parameter settings to capture required data from CAN-Bus), (2) CAN-Bus signal input port settings, (3) Output channel settings (Settings to determine output channels for captured data), etc.
Power supply	AC adapter (100 to 240 V AC universal), 10 to 30 V DC (Can be supplied from a cigarette lighter socket in an automobile), Supplied from CAN-Bus signal input connector (10 to 30 V DC)
Dimension and mass	180 mm (7.09 in)W × 50 mm (1.97 in)H × 100 mm (3.94 in)D, 940 g (33.2 oz)
Accessories	Instruction manual ×1, CD-R (including 8910 Setting Software), RS-232C cable×1, AC adapter 9418-15 ×1, CAN cable 9713-01×1

Options

The 9713-01 is bundled with the 8910, and the 9323 is converts large terminal of the 9323 to miniature logic terminal.

CAN CABLE 9713-01
Unprocessed on one end, 1.8 m (5.91 ft) length

LOGIC CABLE 9714-01
Unprocessed on one end, 1.5 m (4.92 ft) length

CONVERSION CABLE 9323
Used for connecting the 9320/9321/MR9321 and the 9324 relay to the Memory HiCorder with small logic terminal models * This cable is not required for the small-terminal types 9327, 9320-01, 9321-01 and MR9321-01.

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, signal output use, 1.5 m (4.92 ft) length, not CE marked

CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, for signal output, 1.6 m (5.25 ft) length

Capture Voltage Signals from Outside the Wire Cover

NON-CONTACT AC VOLTAGE PROBE **SP3000**

- Observe waveforms with an oscilloscope or a Hioki Memory HiCorder by visualizing signals from electric equipment simply by applying the probe to the wire's insulation
- Capture LIN and other communications signals
- Ideal for applications where:
  - Miniaturization of devices and use of waterproof connectors make it impossible to establish contact with metal terminals
  - Connectors can't be removed due to reduced ability to reproduce phenomena
  - There is need to avoid tearing the wire insulation so as to prevent risk of damage to the sensor due to static electricity

Model No. (Order Code) **SP3000-01** (SP3000, SP9001 bundled model)

Connect to a Memory HiCorder's analog input terminal or oscilloscope. Both the SP3000 amplifier box and SP9001 probe head are necessary to measure. Select Model SP3000-01 for the entire system.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

[Head of probe] AC VOLTAGE PROBE SP9001	
Measurement method	Capacitive-coupled current cancellation (not suitable for use with bare conductors)
Measurable wire type	Insulated wire
Maximum input voltage	RMS : 30 Vrms or less, Peak : 42.4 Vpeak or less
Dimensions and mass	15.0 mm (0.59 in) W × 13.9 mm (0.55 in) H × 77.4 mm (3.05 in) D mm, 52 g (1.83 oz) (including cable)
[Main body measuring circuit] NON-CONTACT AC VOLTAGE PROBE SP3000	
Rated measurement voltage	5 V rms (14.14 Vp-p)
Output rate	1 V/V
Rising time	4.5 µs or less
Frequency band	10 Hz to 100 kHz (-3 dB)
Voltage measurement precision	±2.5% rdg. ±1% f.s. (0.5 Vrms to 5 Vrms)
Effects of wire under measurement	±5% rdg. (Finished outer diameter φ1.0 to 2.5 mm, in a wire rod in conformity with UL1007, UL1015, AV, AVS, AVSS)
Power supply	(1)USB bus power: USB mini receptacle: 5 V ±0.25 V DC, (2)AC Adapter Z1013: 5 V DC, 2.6 A, Rated supply voltage: 100 V to 240 V AC (50 Hz/60 Hz)
Output terminal	Insulated BNC (Measuring device connection side), Output resistance : 50 Ω
Dimensions and mass	120 mm (4.72 in) W × 25 mm (0.98 in) H × 55 mm (2.16 in) D, 160 g (5.64 oz) (including cable)
Accessories	Ground connection cable (1.5 m) ×1, Alligator clip ×1, USB cable ×1, Instruction manual ×1

Also sold separately

Non-contact AC Voltage Probe SP3000
Sold individually

AC Voltage Probe SP9001
Sold individually

Options

9804-02 can be used by being attached to the tip of the GND connection cable included in SP3000

AC ADAPTER Z1013
100 to 240 V AC

MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm (0.43 in)

CARRYING CASE C1011
Includes compartment for options

Measure High Voltages Safely

DIFFERENTIAL PROBE **P9000**

- Compact probe for CAT III 1000V environments
- Wave mode: Observe instantaneous waveforms
- RMS mode: Observe RMS value waveforms
- Principal areas of use
  1. High-voltage battery circuits in EVs, HEVs, and other automobiles
  2. High-voltage circuits in energy-related equipment such photovoltaic cells
  3. Commercial power line circuits (480 Vrms, etc.)
  4. High-voltage surge noise from inverters, motors, solenoids, etc.

Model No. (Order Code) **P9000-01** (For the Memory HiCorder series, Wave only)
P9000-02 (For the Memory HiCorder series, Wave/RMS)

Connect to a Memory HiCorder's analog input terminal. Must be powered by an AC adapter, USB bus power, or other suitable power source.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	P9000-01	P9000-02
Measurement functions	Waveform monitor output only Frequency characteristics: DC to 100 kHz, -3 dB	Waveform monitor output/AC RMS value output (switchable) Wave mode frequency characteristics: DC to 100 kHz, -3 dB RMS mode frequency characteristics: 30 Hz to 10 kHz; response time: 300 ms (rising) or 500 ms (falling)
Division ratio	1000:1 or 100:1 (user selectable)	
DC amplitude accuracy	±0.5% f.s. (f.s. = 1.0 V; voltage division ratio: 1000:1) (f.s. = 3.5 V; voltage division ratio: 100:1)	
RMS amplitude accuracy	±1% f.s. (30 Hz to 1 kHz non-inclusive, sine wave), ±3% f.s. (1 kHz to 10 kHz, sine wave)	
Input resistance, capacity	Between H and L: 10.5 MΩ, 5 pF or less (at 100 kHz)	
Max. allowable input	1000 V AC/DC	
Max. rated voltage to earth	1000 V AC/DC (CAT III)	
Operating temperature	-40 ˚C (-40 ˚F) to 80 ˚C (176˚F)	
Power supply	(1) AC Adapter Z1008 (100 to 240 V AC, 50/60 Hz), 6 VA (including AC adapter) or 0.9 VA (probe only) (2) USB bus power (5 V DC, USB Micro-B receptacle), 0.8 VA (3) External power supply (2.7 V to 15 V DC)	
Dimensions and mass	128 mm (5.04 in)W × 36 mm (1.42 in)H × 22 mm (0.87 in)D, 170 g (6.0 oz) Cord length: Input: 70 cm (2.30 ft) ; output: 1.5 m (4.92 ft)	
Accessories	Instruction manual ×1, alligator clips ×2, carrying case ×1	

Options

Can also be used with accessories such as L4936/L4937/L4931 as available for other testers.

AC ADAPTER Z1008
100 to 240V AC

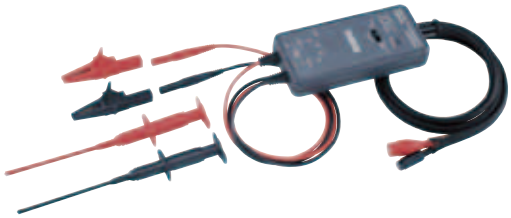
GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 196 mm (7.72 in) length, CAT III 1000 V

CONVERSION CABLE L1011
30 cm (0.98 ft) length, covert BNC to wire

CONVERSION CABLE L1011-10
2.4 m (7.87 ft) length, covert BNC to wire

3 Kinds of Measurements with a Single Probe

DIFFERENTIAL PROBE **9322**



- Floating measurement of high-voltage waveforms (DC mode)
- Detection of power supply surge noise (AC mode)
- RMS rectified output (RMS mode)
- Main Applications
  1. Measurement of potential differences included in common mode voltages, such as IGBT
  2. Measurement of commercial power line waveforms, such as on 400V power lines
  3. Measurement of high voltage surge noise waveforms
  4. Measurement of the RMS value of inverter outputs, etc.

Model No. (Order Code) **9322** (For the Memory HiCorder series)

The Differential Probe 9322 cannot be used by itself. Please use it in combination with a Hioki Memory HiCorder. The Differential Probe 9322 requires a power supply.
** For the latest information about how to power the 9322 with a Memory HiCorder, please visit the Hioki website.*

■ Basic specifications (Accuracy guaranteed for 1 year)

Measurement functions	DC mode: Waveform monitor output, DC to 10 MHz ±3 dB AC mode: Detection of power line surge noise, 1 kHz to 10 MHz ±3 dB RMS mode: Rectified RMS output of DC and AC voltages, DC, 40 Hz to 100 kHz, Response speed: 200 ms or less (400 V AC)
Output	Voltage division ratio: 1/1000, BNC terminal (DC/AC/RMS 3-mode selectable output)
DC amplitude accuracy	±1 % f.s. (1000 V DC or less), ±3 % f.s. (2000 V DC or less) (f.s.=2000 V DC)
RMS amplitude accuracy	±1 % f.s. (DC, 40 Hz to 1 kHz), ±4 % f.s. (1 kHz to 100 kHz) (f.s.=1000 VAC)
Input resistance, capacity	H-L: 9 MΩ, approx 10 pF (C at 100 kHz) H-case, L-case: 4.5 MΩ, approx 20 pF (C at 100 kHz)
Max. allowable input	600V AC/DC (CAT III), 2000 VDC, 1000 VAC (CAT II)
Max. rated voltage to earth	When using grabber clip: 600 V AC/DC (CAT III), 1500 V AC/DC (CAT II) When using alligator clip: 600 V AC/DC (CAT III), 1000 V AC/DC (CAT II)
Power supply	(1) AC adapter 9418-15 (12 V DC ±10 %) * Operating voltage range: +5 to +12 V, less than 300 mA. DC jack OD 5.5 mm (0.22 in), ID 2.1 mm (0.08 in), (2) Power supply through Power cord 9324 connected to logic terminal on Memory HiCorder, or other method
Dimensions and mass	70 mm (2.76 in)W × 150 mm (5.91 in)H × 25 mm (0.98 in)D, 350 g (12.3 oz), Cord length: Input 46 cm (1.51 ft), Output 1.3 m (4.27 ft)
Accessories	Alligator clips ×2, Grabber clip 9243 ×1, Carrying case 3853 ×1, Instruction manual ×1

■ How to power the 9322 with a Hioki Memory HiCorder

	Logic terminal on Memory HiCorder		
Main unit	Required power cord (s)	Number of Max. connectable 9322s	Max. units the logic probes when simultaneously using the 9322
MR8880-20	Power cannot be supplied from the logic terminals		
MR8875	Via the Power Cord 9328 connected to DC output power terminal on the MR8875, up to 3 × 9322 (Note) Power cannot be supplied from the logic terminals		
MR8870-20	Power cannot be supplied from the logic terminals		
MR8847-01/-51 MR8847-02/-52 MR8847-03/-53 MR8827	9324 + 9323	4 *2	9322 ×4: N/A 9322 ×3: N/A 9322 ×2: N/A 9322 ×1: 2

Power supply

Discontinuation scheduled

PROBE POWER UNIT 9687
Factory-installed option - only use with the Memory HiCorder 8860-50/8861-50, built in on the bottom case. Simultaneously power up to 8 units of Differential Probe 9322. (Max. 3 A output)

POWER CORD 9248
Power supply to the 9322 through this cord from the Probe power unit 9687, 70 cm (2.30 ft) length

AC ADAPTER 9418-15
100 to 240V AC

POWER CORD 9328
Power supply to the 9322 through this cord from the MR8875, or the 8950, 8952, 8953-10, 8955 input units for the Memory HiCorder 8855, 15 cm (0.49 ft) length

Discontinuation scheduled

POWER CORD 9324
Power supply to the 9322 through this cord from large type logic connector, 50 cm (1.64 ft) length

Discontinuation scheduled

CONVERSION CABLE 9323
Used for connecting the 9320/9321/MR9321 and the 9324 relay to the Memory HiCorder with small logic terminal models * This cable is not required for the small-terminal types 9327, 9320-01, 9321-01 and MR9321-01.

Supplied Accessories

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 196 mm (7.72 in) length, CAT III 1000 V

Discontinuation scheduled

CARRYING CASE 3853
Store with peripherals cable

Measurement support software

iPad App for Memory HiCorder **HMR Terminal**

Analyze Memory HiCorder waveforms right on your iPad

- Free app (exclusively for iPad) downloadable from the App Store
- iPad-unique gestures let you analyze measurement data any way you like
- Multi-channel support – up to 32 channels (with MR8740, MR8827) of waveform data at your fingertips
- Supports MEM data from the MR8740/8741, MR8827, MR8847/8847 and the MR8847A

Supported products:
Model MR8740, MR8741, MR8847-01/02/03, MR8847-51/52/53, MR8827, 8847
(MEM-format waveform data, computational waveforms and logical waveforms not supported)

YouTube Video: For more information, please go to:https://www.youtube.com/user/hiokiproducts

Data can be viewed by the iPad using Hioki's dedicated apps available from the App Store. Search for "HIOKI" and download the "HMR Terminal" app.

Download on the App Store

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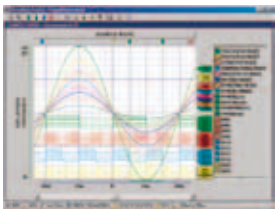
WAVE PROCESSOR **9335**

Display, convert, calculate, and print waveforms with a PC

- Display waveform screens, X-Y graphs, and numerical results
- Rich printing and hard copy functions to assist in creating reports
- Save in CSV format and export to spread-sheet application (EXCEL)



Supported products:
Model MR6000, MR8880, MR8875, MR8870, MR8847-01/-02/-03, MR8847-51/-52/-53, MR8827
Model 8861-50/8860-50 (not compatible with dual time-axis data), 8870, 8855, 8847, 8842, 8841, 8840, 8835-01, 8835, 8826, 8825, 8808, 8807, 8808-51, 8807-51 (excluding harmononic analysis function), MR8730, MR8731, MR8740, MR8741, 8730, 8731, 8720, 8715, 8714

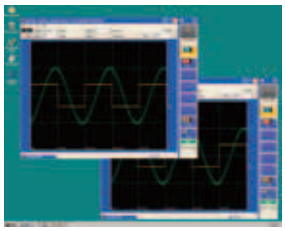
Model No. (Order Code) **9335**

Operating environment:
Computer running under Windows 10/8/7 (32/64-bit)

MEMORY HiVIEWER **9725**

Perform 8860 Series functions on your PC

- Application software enables you to perform the same data analysis on a Windows computer as on the 8860 Series Memory Hiccorders.
- No confusion, because the screens appearing on the computer are identical to those of the 8860 Series.
- Functions identical to those of the 8860 Series, such as waveform processing calculation, running on the computer.



Supported products (discontinued):
8860-51, 8861-50, 8860-50, 8861-50, 8860, 8861

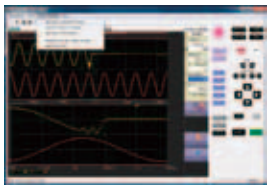
Model No. (Order Code) **9725**

Operating environment:
Computer running under Windows 8/7 (32/64-bit), Vista (32-bit), XP, 2000

LAN COMMUNICATOR **9333**

Remote control via LAN Memory HiCorders and PC Communications

- Auto save a waveform data to the PC
- Remote control with the PC via LAN
- Save in CSV format and export to spreadsheet application



Supported products:
Model MR8847-51/-52/-53, MR8827 (Ver. 1.00 or later), MR8740 (Ver. 3.12 or later), MR8741 (Ver. 2.12 or later), MR8847-01/-02/-03, 8847 (Ver. 3.07 or later), 8826 (Ver. 2.30 or later)

Model No. (Order Code) **9333**

Operating environment:
Computer running under Windows 10/8/7 (32/64-bit), Vista (32-bit), XP

Other compatible software (third party)

FlexPro

FlexPro - Advanced Software for Analysis and Presentation of Memory HiCorder Data

- Search through large amounts of data at lightning fast speeds for the MEMORY HiCORDER Series
- Use your analyses on any number of measurements at the click of a button.
- Share your analysis templates with colleagues over your network.

Supported products : MR6000, MR6000-01, MR8827, MR8740, MR8741, MR8847-51, MR8847-52, MR8847-53, MR8875

Model	FlexPro	Software (third party)

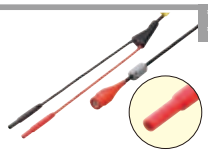
More information: Weisang GmbH (Germany)
http://www.weisang.com/

MEMORY HiCORDER Common options (1/2)

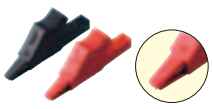
*For more information about compatible models, please see individual product catalogs.

Voltage measurement Type A

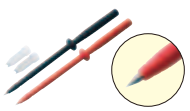
* Input voltage is limited to the specifications of the input modules in use
* Max. rated voltage to earth is limited to the specifications of the input modules in use



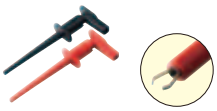
CONNECTION CORD L9790
Flexible φ 4.1 mm (0.16 in) thin dia., cable allowing for up to 600 V input. 1.8 m (5.91 ft) length
** The end clip is sold separately.*



ALLIGATOR CLIP L9790-01
Red/black set attaches to the ends of the cables L9790



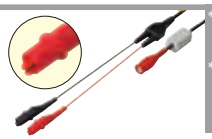
CONTACT PIN 9790-03
Red/black set attaches to the ends of the cables L9790



GRABBER CLIP 9790-02
Red/black set attaches to the ends of the cables L9790
** When this clip is attached to the end of the L9790, input is limited to 300 V. Red/black set.*

Voltage measurement Type B

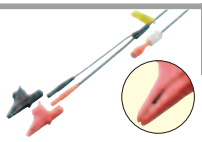
* Input voltage is limited to the specifications of the input modules in use
* Max. rated voltage to earth is limited to the specifications of the input modules in use



CONNECTION CORD L9198
φ 5.0 mm (0.20 in) dia., cable allowing for up to 300 V input. 1.7 m (5.58 ft) length, small alligator clip

Voltage measurement Type C

* Input voltage is limited to the specifications of the input modules in use
* Max. rated voltage to earth is limited to the specifications of the input modules in use



CONNECTION CORD L9197
φ 5.0 mm (0.20 in) dia., cable allowing for up to 600 V input. 1.8 m (5.91 ft) length, a detachable large alligator clips are bundled

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 196 mm (7.72 in) length, CAT III 1000 V

Voltage measurement Type D

* Max. rated voltage to earth is limited to the specifications of the input modules in use
* For a list of compatible Memory HiCorders, please see the product catalog

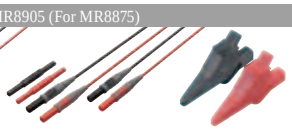
10:1 PROBE 9665
Max. rated voltage to earth is same as for input module, max. input voltage 1 kV rms (up to 500 kHz), 1.5 m (4.92 ft) length

100:1 PROBE 9666
Max. rated voltage to earth is same as for input module, max. input voltage 5 kV peak (up to 1MHz), 1.5 m (4.92 ft) length

Voltage measurement Type E

* Exclusive options for MR8905 (For MR8875)

CONNECTION CABLE SET L4940
Banana plug - banana plug, 1.5 m (4.92 ft) length, red/black each 1

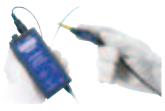


EXTENSION CABLE SET L4931
Expands the length of L4930/4940, 1.5 m (4.92 ft) length

ALLIGATOR CLIP SET L4935
Attaches to the tip of the L4930/4940, CAT IV 600V, CAT III 1000V

GRABBER CLIP 9243
Attaches to the tip of the Connection cord or cable, CAT III 1000 V, 196 mm (7.72 in) length

Non-contact Voltage measuring



NON-CONTACT AC VOLTAGE PROBE SP3000-01
5 Vrms rated, 10 Hz to 100 kHz bandwidth

NON-CONTACT AC VOLTAGE PROBE SP3000
Sold individually

AC VOLTAGE PROBE SP9001
Sold individually

High voltage measurement

* Maximum input-to-ground rated voltages fall within these products' specifications ranges (and do not affect the connected input units)

DIFFERENTIAL PROBE 9322
For up to 2 kV DC or 1 kV AC. Use with AC Adapter 9418-15

AC ADAPTER 9418-15
100 to 240 V AC

High voltage measurement

* Maximum input-to-ground rated voltages fall within these products' specifications ranges (and do not affect the connected input units)

DIFFERENTIAL PROBE P9000-01
(Waveform mode) For up to 1 kV AC, DC

DIFFERENTIAL PROBE P9000-02
(Waveform / RMS mode selectable) For up to 1 kV AC, DC

AC ADAPTER Z1008
100 to 240 V AC

Storage media

PC Card Precaution
Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

PC CARD 2G 9830
2 GB capacity

PC CARD 1G 9729
1 GB capacity

PC CARD 512M 9728
512 MB capacity

Logic measurement

LOGIC PROBE 9320-01
4-channel type, for voltage/contact signal ON/OFF detection (response pulse width 500 ns or more, miniature terminal type)

LOGIC PROBE MR9321-01
4 isolated channels, ON/OFF detection of AC/DC voltage (miniature terminal type)

LOGIC PROBE 9327
4-channel type, for voltage/contact signal ON/OFF detection (response pulse width 100 ns or more, miniature terminal type)

*The miniature terminal type can be used with the MR6000, MR8880-20, MR8875, MR8870-20, MR8847-01/-02/-03, MR8847A, MR8827, 8861-50, 8860-50, and discontinued Models 8870-20, 8855, 8847, 8807/8808 series.

*The large terminal-type 9320 and MR9321 can be connected to the discontinued models

Discontinuation scheduled

CONVERSION CABLE 9323
Used for connecting the 9320/9321/ MR9321 and the 9324 relay to the Memory HiCorder with small logic terminal models
* Relay POWER CORD 9324 for 9322 to Memory HiCorder with small logic terminal models.

Carrying cases

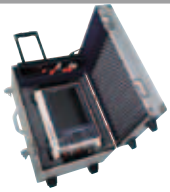
CARRYING CASE C1004
For the MR8875, includes compartment for options, hard trunk type

CARRYING CASE C1003
For the MR8880, includes compartment for options, soft case type

CARRYING CASE C1010
For the MR6000, includes compartment for options, hard trunk type

CARRYING CASE 9783
For the MR8847s/8847s, includes compartment for options, hard trunk type

CARRYING CASE 9782
For the MR8870s/8870s, LR8431s/8430s, SS7012, includes compartment for options, resin coated



CARRYING CASE 9723
For the 8860-51/8860-50/8860 hard trunk type

MEMORY HiCORDER Common options (2/2)

*For more information about compatible models, please see individual product catalogs.

For high-precision current measurement

In order to use the high precision current sensor (-05 model) , CT955x and connection cord are required separately

*The separately available Conversion Cable CT9901 is required in order to use a high-precision current sensor equipped with ME15W (12-pin) terminal (-05 type) with the Current Measuring Module 8971 (which is designed for use with the MR8847, MR8827, and MR8740).
*The separately available Conversion Cable CT9901 and Conversion Cable 9318 are required in order to use a high-precision current sensor equipped with ME15W (12-pin) terminal (-05 type) with the F/V Unit (which is designed for use with the 8860 and 8861).
*While the CT955x is not required in order to use a sensor equipped with PL23 (10-pin) terminal with the 8971 or 8940, the Conversion Cable 9318 (which comes with the 8971) is required for that setup.

Input units for current sensors

CURRENT UNIT 8971
For MR8847, MR8827, MR8740

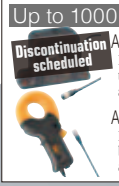
F/V UNIT 8940
For 8860/61, 8835-01, 8826/41/42, 8720

CONVERSION CABLE 9318
To connect the CT6841/43* or other to the 8971/40/51

ME15W (12pin) - PL23 (10-pin) conversion

CONVERSION CABLE CT9901
Convert ME15W (12-pin) terminal to PL23 (10-pin) terminal

Up to 1000 A (High precision)



AC/DC CURRENT SENSOR CT6865-05
High-precision pull-through type, observe waveforms from DC to distorted AC, DC to 20 kHz band width, 1000 A input, ±0.06% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6846-05
Monitor the waveforms of DC to distorted AC current, DC to 20 kHz band width, 1000 A input, ±0.31% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Up to 500 A (High precision)

AC/DC CURRENT SENSOR 9709-05
High-precision pull-through type, observe waveforms from DC to distorted AC, DC to 100 kHz band width, 500 A input, ±0.06% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6844-05
Monitor the waveforms of DC to distorted AC current, DC to 200 kHz band width, 500 A input, ±0.31% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6845-05
Monitor the waveforms of DC to distorted AC current, DC to 100 kHz band width, 500 A input, ±0.31% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Up to 200 A (High precision)

AC/DC CURRENT SENSOR CT6863-05
High-precision pull-through type, observe waveforms from DC to distorted AC, DC to 500 kHz band width, 200 A input, ±0.06% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6843-05
Monitor the waveforms of DC to distorted AC current, DC to 500 kHz band width, 200 A input, ±0.31% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

CLAMP ON SENSOR 9272-05
Observe waveforms of distorted AC (not for DC), 1 Hz to 100 kHz band width, 20/200 A input, ±0.31% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

Up to 50 A (High precision)

AC/DC CURRENT SENSOR CT6862-05
High-precision pull-through type, observe waveforms from DC to distorted AC, DC to 1 MHz band width, 50 A input, ±0.06% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6841-05
Monitor the waveforms of DC to distorted AC current, DC to 1 MHz band width, 20 A input, ±0.31% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

*A separate power supply (CT955x) is required in order to use a high-precision current sensor. *Only sensors with ME15W (12-pin) terminals (-05 type) can be connected to the CT955x. *The separately available Conversion Cable CT9900 is required in order to use a sensor with PL23 (10-pin) terminal.

POWER SUPPLY for Current Sensors

SENSOR UNIT CT9555, 1ch, with waveform output

SENSOR UNIT CT9556, 1ch, with waveform/RMS output

SENSOR UNIT CT9557, 4ch, with waveform/total waveform/total RMS output

CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, 1.6 m (5.25 ft) length

PL23 (10-pin) - ME15W (12-pin) conversion

CONVERSION CABLE CT9900
Convert PL23 (10-pin) terminal to ME15W (12-pin) terminal

Connection between Memory HiCorder and high precision current sensor

■ MR8880/MR8875/MR8870
- High precision current sensor (ME15W) + CT955x + BNC cable → MR8880
- High precision current sensor (PL23) + CT9900 + CT955x + BNC cable → MR8880

■ MR6000/MR8847A/MR8827/MR8740
- High precision current sensor (ME15W) + CT9901 + 9318 → Current Unit 8971
- High precision current sensor (ME15W) + CT955x + BNC cable → Except for Current Unit 8971
- High precision current sensor (PL23) + 9318 → Current Unit 8971
- High precision current sensor (PL23) + CT9900 + CT955x + BNC cable → Except for Current Unit 8971

■ MR8741
- High precision current sensor (ME15W) + CT955x + BNC cable → Except for Current Unit 8971
- High precision current sensor (PL23) + CT9900 + CT955x + BNC cable → Except for Current Unit 8971
*Current Unit 8971 can not use for MR8741

■ 8860/8861
- High precision current sensor (ME15W) + CT9901 + 9705 + 9318 → F/V Unit 8940
- High precision current sensor (ME15W) + CT955x + BNC cable → Except for F/V Unit 8940
- High precision current sensor (PL23) + 9705 + 9318 → F/V Unit 8940
- High precision current sensor (PL23) + CT9900 + CT955x + BNCcable → Except for F/V Unit 8940

CONVERSION CABLE 9705
0.2 m (0.66 ft) length, to connect the CT6841-6846, CT6863/6865, 9709, 9272-10 to the F/V Unit 8940, cannot be used in combination with the CT6862

For wide-band current observation

To use these current sensors, a separate power supply (3272 or other) is required

10 mA order to 500 A (High speed)

CLAMP ON PROBE 3273-50
Wide DC to 50 MHz bandwidth, 10 mA-class to 30 Arms

CLAMP ON PROBE 3276
Wide DC to 100 MHz bandwidth, 10 mA-class to 30 Arms

CLAMP ON PROBE 3274
Wide DC to 10 MHz bandwidth, max. 150 A rms

CLAMP ON PROBE 3275
Wide DC to 2 MHz bandwidth, max. 500 A rms

POWER SUPPLY *Required when using Current Probe 3270 series

POWER SUPPLY 3272
Connects to a single current probe (2 units possible depending on conditions)

POWER SUPPLY 3269
Connect up to 4 current probes

For easy measurement of AC/DC currents

To use these current sensors, a separate power supply (CT7290 or other) is required

100 to 2000 A (Medium speed)

AC/DC CURRENT SENSOR CT7631 (AUTO-ZERO CT7731)
DC, 1 Hz to 10 kHz (5 kHz), 100 A, 1 mV/A output

AC/DC CURRENT SENSOR CT7636 (AUTO-ZERO CT7736)
DC, 1 Hz to 10 kHz (5 kHz), 600 A, 1 mV/A output

AC/DC CURRENT SENSOR CT7642 (AUTO-ZERO CT7742)
DC, 1 Hz to 10 kHz (5 kHz), 2000 A, 1 mV/A output

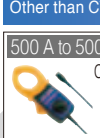
DISPLAY UNIT CM7290
Measurement, display, signal output in combination with CT 7000s

DISPLAY UNIT CM7291
Built in Bluetooth®wireless technology

For easy measurement of AC currents

Other than CT9667, separate power supply is not required

500 A to 5000 A *For commercial power lines, 50/60Hz



CLAMP ON PROBE 9018-50
Good phase characteristics, Frequency characteristics: 40 Hz to 3 kHz, 10 to 500 A AC range, output 0.2 V AC f.s.

CLAMP ON PROBE 9132-50
Frequency characteristics: 40 Hz to 1 kHz, 20 to 1000 A AC range, output 0.2 V AC f.s.

AC FLEXIBLE CURRENT SENSOR CT9667-01/-02/-03
10 Hz to 20 kHz, 5000 A/ 500 A AC, 500 mV/f.s. output, φ 100 to 254 mm (3.94 to 10.00 in), 3 loop diameters

For measurement of AC leak currents

Battery operated (Long-term observation is possible with separate power supply)

Leak Current *For commercial power lines, 50/60 Hz

CLAMP ON LEAK HiTESTER 3283
10 mA range/10 µA resolution to 200 A range, with monitor/analog output 1 V f.s.

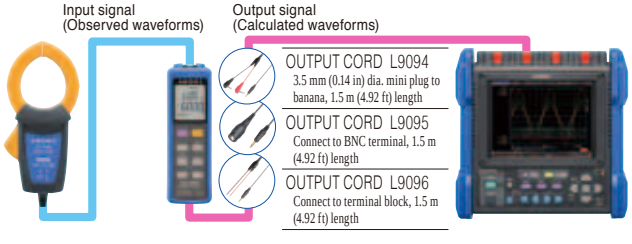
OUTPUT CORD L9094
3.5mm (0.14in) dia. mini plug to banana, 1.5m (4.92ft) length

CONVERSION ADAPTER 9199
Receiving side banana, output BNC terminal

OUTPUT CORD L9095 Connect to BNC terminal, 1.5 m (4.92 ft) length

OUTPUT CORD L9096 Connect to terminal block, 1.5 m (4.92 ft) length

AC ADAPTER 9445-02 100 to 240 V AC



Identify Fungal Growth Rate at a Glance! Prevent Fungal Occurrence in Business Critical Locations

WIRELESS FUNGAL LOGGER **LR8520**

* Humidity sensor is sold separately.
(Sensor guaranteed for 1 year.)

- High-precision ±3% rh humidity sensors
- Calculate and display fungal index*1 and growth prediction
- Measure temperature and humidity other than fungal index and growth prediction
- Compact 1ch logger (Temperature/Humidity each 1 ch input)
- Download measurement data to a tablet or computer with Bluetooth® wireless technology or capture in real time with the LR8410
- Three-way power (AC adapter, AA alkaline batteries, or external 5 to 13.5 V power supply)
- Store 500,000 data points per channel

Model No. (Order Code) **LR8520** (humidity sensor is sold separately)

*1 *Fungal index was proposed by the late Keiko Abe, Doctor of Agriculture (Japanese Patent Number 2710903).*
The LR8520 alone is not capable of making measurements - please also purchase applicable sensor.
Only the temperature and humidity sensors affect the measurement accuracy and are subject to calibration.
The LR8520 logger does not require calibration.
For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Data can be downloaded using Hioki's tablet and smartphone app (for Android devices).
Search for "HIOKI" and download the Wireless Logger Collector!

GET IT ON Google Play

■ Basic specifications

Functionality	[Used as standalone product (Data collected manually)] Windows PC or Windows tablet (CD-R with software included) Android smartphone or Android tablet terminal (Download app from Google Play) *Communication range varies with the performance of the computer or tablet (up to a line-of-sight distance of roughly 30 m) [Used as an input module (Real-time measurement)] Device can be used as an LR8410 logging module to record and display data in real time and to control up to 7 units, Communication distance: 30 m
Number of channels	1 temperature channel + 1 humidity channel (Humidity sensor Z2010 or Z2011 is required (sold separately))
Display items	Temperature, humidity, fungal index (0 to 200), growth prediction (5 levels)
Measurable range	[Temperature] -40˚C to 80˚C, Range 100˚C f.s., Max. resolution 0.1˚C [Humidity] 0% to 100% RH, Range 100% RH f.s., Max. resolution 0.1% RH
Measurement accuracy (using Z2010/Z2011)	[Temperature] ±0.5 ˚C (10˚C to 60˚C), If outside above temperature range: Add 0.015 ˚C/ ˚C (-40 ˚C to 10 ˚C) or 0.02˚ C/ ˚C (60 ˚C to 80 ˚C) [Humidity] ±3% RH (20˚C to 30 ˚C, 20% to 90% RH), Hysteresis: ±1% RH (Added to the humidity measurement accuracy)
Other functions	Measurement value, Date, Time, Number of recorded data, Maximum value, Minimum value, Average value, Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function, Free run
Recording	[Capacity] 500,000 data items for each channel [Mode] Instantaneous value [Interval] 0.5 sec to 30 sec, 1 min to 60 min, 14 selections
Power supply	AC Adapter Z2003 (100 to 240 V AC, 50 /60 Hz), AA alkaline batteries (LR6) × 2, External power 5 to 13.5 V DC (can also be supplied from USB bus power via a conversion cable)
Continuous operating time ([Capacity] 500,000 data items for each channel) (23˚C)	3.5 months (Recording interval of 1 min, Bluetooth® OFF), 20 days (Recording interval of 1 sec, Bluetooth® ON), 5 days (Recording interval of 0.5 sec, during real-time measurement with the LR8410)
Dimensions and mass	85 mm (3.35 in) W × 61 mm (2.40 in) H × 31 mm (1.22 in) D (Excluding protrusions), 95 g (3.3 oz) (Not including the battery)
Accessories	CD-R (Instruction Manual, Logger Utility, Wireless Logger Collector) ×1, Measurement Guide ×1, Caution for Using Radio Waves ×1, AA alkaline batteries (LR6) ×2 , Connection cable L1010 ×1

Other options

The L1010 is bundled with the LR8520 for alarm output.

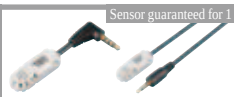
AC ADAPTER Z2003
100 to 240V AC

MAGNETIC STRAP Z5004

CONNECTION CABLE L1010
1.5 m (4.92 ft)

Measurement sensor

Sensor guaranteed for 1 year.



HUMIDITY SENSOR Z2010
50 mm (0.16 ft)

HUMIDITY SENSOR Z2011
1.5 m (4.92 ft)

Easy, wireless collection of a variety of data types, Voltage and K and T thermocouple input with a single device

WIRELESS VOLTAGE/ TEMP LOGGER **LR8515**

- A single device to measure everything from the minute voltages of pyranometers or heat flow sensors to battery voltage to temperature
- Compact, two-channel model fits where other devices don't
- Download measurement data to a tablet or computer with Bluetooth® wireless technology or capture in real time with the LR8410
- Three-way power (AC adapter, AA alkaline batteries, or external 5 to 13.5 V power supply)
- Store 500,000 data points per channel

Model No. (Order Code) **LR8515** (2 ch, sensor is sold separately)

For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Data can be downloaded using Hioki's tablet and smartphone app (for Android devices).
Search for "HIOKI" and download the Wireless Logger Collector!

GET IT ON Google Play

Other options

AC ADAPTER Z2003
100 to 240V AC

MAGNETIC STRAP Z5004

■ Basic specifications (Accuracy guaranteed for 1 year, Duration of the post-adjustment accuracy guarantee for 1 year)

Functionality	[Used as standalone product (Data collected manually)] Windows PC or Windows tablet (CD-R with software included) Android smartphone or Android tablet terminal (Software can be downloaded free of charge from Google Play.) *Communication range varies with the performance of the computer or tablet (up to a line-of-sight distance of roughly 30 m) [Used as logging module (Real-time measurement)] Device can be used as an LR8410 logging module to record and display data in real time and to control up to 7 units, Communication distance: 30 m
Number of channels	2 ch (isolated; select voltage of thermocouple for each channel), Input terminals: M3 screw type terminal block
Measurement items	Voltage/ Thermocouple (K, T)
Maximum input voltage	±50 V DC, Max. inter-channel voltage 60 V DC
Measurement range	[Voltage] ±50 mV to ±50 V , Max. resolution 0.01 mV [Thermocouple] -200 ˚C to 999.9 ˚C, Thermocouples (K, T), Max. resolution 0.1 ˚C
Measurement accuracy	[Voltage] ±0.05 mV (50 mV range) [Thermocouple] ±0.8 ˚C (Thermocouple K -100 ˚C to 999.9 ˚C) *Reference junction compensation: Switchable between internal and external *Reference junction compensation accuracy: ±0.5 ˚C (When using internal compensation, add to thermocouple measurement accuracy.) *Temperature characteristics: Add (measurement accuracy × 0.1) / ˚C to measurement accuracy.
Display items	Measurement value, date, time, number of recorded data, maximum value, minimum value, and average value
Functions	Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function, Free run
Recording	[Capacity] 500,000 data items for each channel [Mode] Instantaneous value [Interval] 0.1 to 30 sec, 1 to 60 min, 16 selections
Power source	AC Adapter Z2003 (AC100 V to 240 V, 50 Hz/60 Hz), AA alkaline batteries (LR6) ×2, External power DC5 V to 13.5 V (can also be supplied from USB bus power, with a conversion cable)
Continuous operating time ([Capacity] 500,000 data items for each channel) (23˚C)	2.5 months (Recording interval of 1 min, Bluetooth® OFF), 7 days (Recording interval of 1 sec, Bluetooth® ON), 2 days (Recording interval of 0.1 sec, during real-time measurement with the LR8410)
Dimensions and mass	85 mm (3.35 in) W × 75 mm (2.95 in) H × 38 mm (1.50 in) D, 126 g (4.4 oz) (Not including the battery)
Accessories	CD-R ×1 (Instruction Manual, Logger Utility, Wireless Logger Collector), Measurement Guide ×1, Caution for Using Radio Waves × 1, AA alkaline batteries (LR6) ×2

Easy, wireless collection of a variety of data types; ideal for managing environmental temperature and humidity at production plants and agricultural sites

WIRELESS HUMIDITY LOGGER **LR8514**

*Temperature and humudity sensor is sold separately (Sensor guaranteed for 1 year.)

- High-precision, ±3% RH humidity sensor
- Convenient for simultaneously recording and comparing temperature and humidity readings at 2 locations
- Compact, two-channel model fits where other devices don't
- Download measurement data to a tablet or computer with Bluetooth® wireless technology or capture in real time with the LR8410
- Three-way power (AC adapter, AA alkaline batteries, or external 5 to 13.5 V power supply)
- Store 500,000 data points per channel

Model No. (Order Code) **LR8514** (2 ch, sensor is sold separately)

Note: The LR8514 alone is not capable of making measurements.
Only the temperature and humidity sensors affect the measurement accuracy and are subject to calibration.
The LR8514 logger does not require calibration.
For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.
Bluetooth® is a trademark of Bluetooth SIG, Inc. and licensed for use by HIOKI E.E. CORPORATION.

■ Data can be downloaded using Hioki's tablet and smartphone app (for Android devices).
Search for "HIOKI" and download the Wireless Logger Collector!

■ Basic specifications

Functionality	[Used as standalone product (Data collected manually)] Windows PC or Windows tablet (CD-R with software included) Android smartphone or Android tablet terminal (Software can be downloaded free of charge from Google Play.) *Communication range varies with the performance of the computer or tablet (up to a line-of-sight distance of roughly 30 m) [Used as logging module (Real-time measurement)] Device can be used as an LR8410 logging module to record and display data in real time and to control up to 7 units, Communication distance: 30 m
Number of channels	2 ch for temperature + 2 ch for humidity (2 sensors can be attached)
Measurement items	Temperature, Humidity
Measurable Range	[Temperature] -40 °C to 80 °C, Range 100°C f.s., Max. resolution 0.1°C [Humidity] 0 to 100% RH, Range 100% RH f.s., Max. resolution 0.1%RH
Measurement accuracy (using Z2010/ Z2011)	[Temperature basic accuracy] ±0.5 °C (10 to 60 °C) *If outside above temperature range: Add 0.015 °C/ °C (-40 to 10 °C) or 0.02° C/ °C (60 to 80 °C) [Humidity basic accuracy] ±3% RH (20 to 30 °C, 20 to 90% RH), Hysteresis: ±1% RH (Added to the humidity measurement accuracy)
Display items	Measurement value, date, time, number of recorded data, maximum value, minimum value, and average value
Functions	Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function, Free run
Recording	[Capacity] 500,000 data items for each channel [Mode] Instantaneous value [Interval] 0.5 to 30 sec, 1 to 60 min, 14 selections
Power source	AC Adapter Z2003 (100 to 240 V AC, 50/60 Hz), AA alkaline batteries (LR6) ×2, External power 5 to 13.5 V DC (can also be supplied from USB bus power, with a conversion cable)
Continuous operating time ([Capacity] 500,000 data items for each channel) (23°C)	3.5 months (Recording interval of 1 min, Bluetooth® OFF), 20 days (Recording interval of 1 sec, Bluetooth® ON), 5 days (Recording interval of 0.5 sec, during real-time measurement with the LR8410)
Dimensions and mass	85 mm (3.35 in) W × 61 mm (2.40 in) H × 31 mm (1.22 in) D (Excluding protrusions), 95 g (3.4 oz) (Not including the battery)
Accessories	CD-R ×1 (Instruction Manual, Logger Utility, Wireless Logger Collector), Measurement Guide ×1, Caution for Using Radio Waves ×1, AA alkaline batteries (LR6) ×2

Other options

AC ADAPTER Z2003
100 to 240V AC

MAGNETIC STRAP Z5004

Measurement sensor

Sensor guaranteed for 1 year.

HUMIDITY SENSOR Z2010
50 mm (0.16 ft)

HUMIDITY SENSOR Z2011
1.5 m (4.92 ft)

Measure load current and leak current easily with clamp sensors

WIRELESS CLAMP LOGGER **LR8513**

*Clamp sensor is sold separately (Sensor guaranteed for 1 year.)

- Measure AC and DC load current and AC leak current
- Choose from many current sensors
- Place inside a distribution panel, close the cover, and monitor measured values from the outside
- Measure power easily—just set the voltage and power factor
- Compact, two-channel model fits where other devices don't
- Download measurement data to a tablet or computer with Bluetooth® wireless technology or capture in real time with the LR8410
- Three-way power (AC adapter, AA alkaline batteries, or external 5 to 13.5 V power supply)
- Store 500,000 data points per channel

Model No. (Order Code) **LR8513** (2 ch, sensor is sold separately)

Note: The LR8513 alone is not capable of making measurements.
For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.
Bluetooth® is a trademark of Bluetooth SIG, Inc. and licensed for use by HIOKI E.E. CORPORATION.

■ Data can be downloaded using Hioki's tablet and smartphone app (for Android devices).
Search for "HIOKI" and download the Wireless Logger Collector!

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Functionality	[Used as standalone product (Data collected manually)] Windows PC or Windows tablet (CD-R with software included) Android smartphone or Android tablet terminal (Software can be downloaded free of charge from Google Play.) *Communication range varies with the performance of the computer or tablet (up to a line-of-sight distance of roughly 30 m)* [Used as logging module (Real-time measurement)] Device can be used as an LR8410 logging module to record and display data in real time and to control up to 7 units, Communication distance: 30 m
Number of channels	2ch (common GND)
Measurement items	AC load current, DC load current, AC leak current (using current sensor)
Effective value calculation	Software calculates the true RMS value
Measurement range	500.0 mA to 5000 A AC, 10.00 A to 2000 A DC (By current sensor) *Current and leak current that occur intermittently cannot be measured.*
Measurement accuracy	±0.5% rdg.±5 dgt. (DC, AC 50/60 Hz) *Add the sensor's accuracy when the current sensor is connected*
Display items	Measurement value, date, time, number of recorded data, maximum value, minimum value, and average value
Functions	Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function, Free run
Recording	[Capacity] 500,000 data items for each channel [Mode] Instantaneous value, average value, maximum value [Interval] 0.5 to 30 sec, 1 to 60 min, 14 selections
Power source	AC Adapter Z2003 (100 to 240 V AC, 50/60 Hz), AA alkaline batteries (LR6) ×2, External power 5 to 13.5 V DC (can also be supplied from USB bus power, with a conversion cable)
Continuous operating time ([Capacity] 500,000 data items for each channel) (23°C)	3 months (Recording interval of 1 min, Bluetooth® OFF), 10 days (Recording interval of 1 sec, Bluetooth® ON), 5 days (Recording interval of 0.5 sec, during real-time measurement with the LR8410)
Dimensions and mass	85 mm (3.35 in) W × 75 mm (2.95 in) H × 38 mm (1.50 in) D, 130 g (4.6 oz) (excluding the battery)
Accessories	CD-R ×1 (Instruction Manual, Logger Utility, Wireless Logger Collector), Measurement Guide ×1, Caution for Using Radio Waves × 1, AA alkaline batteries (LR6) ×2

Other options

AC ADAPTER Z2003
100 to 240V AC

MAGNETIC STRAP Z5020
Extra strength

Sensor options

For more information about sensors other than those listed below that can be used with the LR8513, see the separate product catalog or Hioki website.

AC load current

CLAMP ON SENSOR CT6500 500 A AC

AC load current

CLAMP ON SENSOR 9669 1000 A AC

AC load current — Connected to an AC flexible current sensor

CM7290, CM7291
L9095
CT7044
CT7045
CT7046

AC leak current

Insulated conductor
CLAMP ON LEAK SENSOR 9657-10

AC leak current

Insulated conductor
CLAMP ON LEAK SENSOR 9675

AC/DC load current — Connected to an AC/DC auto-zero current sensor

CM7290, CM7291
L9095
CT7731
CT7736
CT7742

Clamp on Leak Sensor 9657-10, 9675: Rated primary current 5 A* AC, *Maximum measurable current when used with the LR8513

Perform Pulse Integration of Vehicle Speed or Flow Rate for Equipment Such as Air Conditioners

WIRELESS PULSE LOGGER **LR8512**

Bundled accessory (L1010)

- For pulse totalization and measuring logical ON/OFF signals or revolutions
- Compact, two-channel model fits where other devices don't
- Download measurement data to a tablet or computer with Bluetooth® wireless technology or capture in real time with the LR8410
- Three-way power (AC adapter, AA alkaline batteries, or external 5 to 13.5 V power supply)
- Store 500,000 data points per channel

Model No. (Order Code) **LR8512** (2 ch)

For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.
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■ Data can be downloaded using Hioki's tablet and smartphone app (for Android devices).
Search for "HIOKI" and download the Wireless Logger Collector!

GET IT ON Google Play

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Functionality	[Used as standalone product (Data collected manually)] Windows PC or Windows tablet (CD-R with software included) Android smartphone or Android tablet terminal (Software can be downloaded free of charge from Google Play.) **Communication range varies with the performance of the computer or tablet (up to a line-of-sight distance of roughly 30 m)* [Used as logging module (Real-time measurement)] Device can be used as an LR8410 logging module to record and display data in real time and to control up to 7 units, Communication distance: 30 m
Number of channels	2ch (common GND)
Measurement items	Integrating (cumulative/ Instant), Revolution, Logic (Records a 1/0 for each recording interval)
Supported input format	Non-voltage "a" contact (always-open contact point), open collector, or voltage input (DC 0 to 50 V)
Measurement range	[Totalization] 0 to 1000 M pulse, Max. resolution 1 pulse, [No. of revolutions] 0 to 5000/n [r/s], Max. resolution 1/n [r/s]
Display items	Measurement value, date, time, number of recorded data, maximum value, minimum value, and average value
Functions	Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function
Recording	[Capacity] 500,000 data items for each channel [Mode] Instantaneous value [Interval] 0.1 to 30 sec, 1 to 60 min, 16 selections
Power source	AC Adapter Z2003 (100 to 240 V AC, 50/60 Hz), AA alkaline batteries (LR6) ×2, External power 5 to 13.5 V DC (can also be supplied from USB bus power, with a conversion cable)
Continuous operating time ([Capacity] 500,000 data items for each channel) (23°C)	2 months (Recording interval of 1 min, Bluetooth® OFF), 14 days (Recording interval of 1 sec, Bluetooth® ON), 5 days (Recording interval of 0.1 sec, during real-time measurement with the LR8410)
Dimensions and mass	85 mm (3.35 in) W × 61 mm (2.40 in) H × 31 mm (1.22 in) D, 95 g (3.4 oz) (excluding the battery)
Accessories	CD-R ×1 (Instruction Manual, Logger Utility, Wireless Logger Collector), Measurement Guide ×1, Caution for Using Radio Waves ×1, AA alkaline batteries (LR6) ×2, Connection cable L1010 ×2

Bundled accessory

CONNECTION CABLE L1010
1.5 m (4.92 ft) length

Other options

AC ADAPTER Z2003
100 to 240V AC

MAGNETIC STRAP Z5004

Compact & Lightweight Heat Flow Logger for Analyzing the Causes of Temperature Change

HEAT FLOW LOGGER **LR8432**

- Use a heat flow sensor to measure the movement and volume of heat energy
- Measure of temperature and voltage
- Record measurement data on a USB flash drive for easy transfer to a computer
- Record to reliable Compact Flash cards during long-term measurement applications for increased peace of mind
- Ten isolated analog input channels
- 10 ms sampling and recording across all channels
- Record raw waveforms and post-calculation waveforms at the same time. (Heat transmission coefficient processing)
- Two graduations can be displayed with a double gauge

Model No. (Order Code) **LR8432-20** (10 ch, English model)

Note: The LR8432-20 is not bundled with the Battery Pack 9780. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.
Note: Use only HIOKI CF cards, which are manufactured to strict industrial standards, for long-term storage of important data. Correct operation of non-HIOKI CF cards or USB memory sticks is not guaranteed.

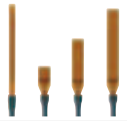
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Specialized functions for heat flow measurement	■ Easy scaling settings: directly enter the sensitivity of the heat flow sensor ■ Calculations: waveform processing function for the analysis of temperature and heat flow (Simple average, moving average, integration, heat transmission coefficient), Integration with numerical calculations
Analog inputs	[No. of channels] 10 isolated analog channels using scanning input method (M3 mm dia. screw terminal block) [Voltage measurement range] ±10 mV to ±60 V, 1-5V, Max. resolution 500 nV [Temperature : thermocouples] −200 °C to 1800 °C (depending on sensor), thermocouples (K, J, E, T, N, R, S, B), Max. resolution 0.1 °C [Humidity] not available [Max. allowable input] 60 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] 30 AC Vrms, 60 V DC (max. voltage between input channel terminals, and from terminals to chassis ground without damage)
Pulse inputs	[No. of channels] 4 pulse input channels (requires CONNECTION CABLE 9641, all pulse inputs share common ground with the main unit) [Totalized pulses] 0 to 1000M (count) (No-voltage 'a' contact, open collector or voltage input), Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s), Resolution 1/n (r/s) * n = pulses per rotation (1 to 1,000) [Max. allowable input] 0 to 10 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] Non-isolated
Recording intervals	10 ms to 1 hour, 19 selections (All input channels are scanned at high speed during every recording interval)
Selectable filters	50 Hz, 60 Hz, or OFF (digital filtering of high frequencies on analog channels)
Memory capacity	Internal storage: 3.5 M-words, External storage: CF card or USB memory stick (only HIOKI CF cards are guaranteed for correct operation)
External interface	USB 2.0 mini-B receptacle ×1; Functions: Control from a PC, Transfers files from the installed CF card to a PC (cannot transfer files from the connected USB memory stick to a PC via USB communication), Data copy between CF card and USB memory stick
Display	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Functions	Save data to the CF Card or USB memory stick in real time, Numerical Calculations, etc.
Power supply	AC Adapter Z1005: 100 to 240 VAC (50/60 Hz), 30 VA Max. (including AC adapter), 10 VA Max. (main unit only) Battery Pack 9780: Continuous use 2.5 hours (@25°C/77°F), 3 VA Max. External power source: 10 to 16 V, 10 VA Max. (please contact HIOKI distributor for cable; less than 3 m/9.84 ft cable length)
Dimensions and mass	176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 550 g (19.4 oz) (Battery Pack 9780 not installed)
Accessories	Measurement Guide ×1, CD-R (Instruction manual PDF, Logger Utility Instruction Manual PDF, Data acquisition application program Logger Utility) ×1, USB cable ×1, AC Adapter Z1005 ×1

Options

**There is also a sensor with a cable length of 5 m (16.41 ft)*

Sensor guaranteed for 1 year.



*HEAT FLOW SENSOR Z2012-01 S size, 1.5m (4.92 ft)
*HEAT FLOW SENSOR Z2013-01 M size, 1.5 m (4.92 ft)
*HEAT FLOW SENSOR Z2014-01 L size, 1.5 m (4.92 ft)
*HEAT FLOW SENSOR Z2018 SS size, 1.5m (4.92 ft)
*HEAT FLOW SENSOR Z2012 S size, 1.5m (4.92 ft)
*HEAT FLOW SENSOR Z2013 M size, 1.5 m (4.92 ft)
*HEAT FLOW SENSOR Z2014 L size, 1.5 m (4.92 ft)

CONNECTION CABLE 9641
For pulse input, 1.5 m (4.92 ft) length

BATTERY PACK 9780
NiMH, Charges while installed in the main unit

THERMALLY CONDUCTIVE TAPE Z5008
Adhesive tape for more accurate measurements, 20 sheets

Storage Media

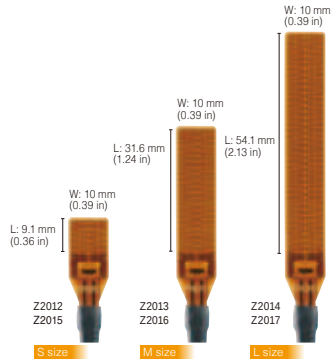
PC CARD 2G 9830
2 GB capacity
PC CARD 1G 9729
1 GB capacity
PC CARD 512M 9728
512 MB capacity

PC Card Precaution

Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

Sensor with Thermocouple that can Simultaneously Measure Temperature and Heat Flow

HEAT FLOW SENSOR **Z2012-01 to Z2017-01**



- Built-in K thermocouple in heat flow sensor, simultaneous measurement of temperature and heat flow with a single sensor
- Increased work efficiency since heat flow sensor and thermocouple can be affixed in a single step
- Measure the movement and volume of heat energy with Model LR8432 Heat Flow Logger
- Waterproof heat flow sensor that can measure curved surfaces (Minimum radius of sensor curvature 30 mm (1.18 in))

Model No. (Order Code)		
	Z2012-01	(S size, 1.5 m (4.92 ft) length)
	Z2015-01	(S size, 5 m (16.41 ft) length)
	Z2013-01	(M size, 1.5 m (4.92 ft) length)
	Z2016 -01	(M size, 5 m (16.41 ft) length)
	Z2014-01	(L size, 1.5 m (4.92 ft) length)
	Z2017-01	(L size, 5 m (16.41 ft) length)

Use with Hioki Heat Flow Logger LR8432.

■ Basic specifications

Models	Z2012-01, Z2015-01	Z2013-01, Z2016-01	Z2014-01, Z2017-01
Typical sensitivity	0.01 mV/W·m $^{-2}$	0.04 mV/W·m $^{-2}$	0.08 mV/W·m $^{-2}$
Thermocouple	K type thermocouple, Responsivity 0.3 s		
Operating temperature	Sensor part : -40 °C to 150 °C (-40.0 °F to 302.0 °F) Cable part: -25 °C to 120 °C (-13.0 °F to 248.0 °F)		
Waterproof protection	IP06, IP07 (EN60529)		
Internal resistance (including cable)	3 Ω to 500 Ω	3 Ω to 1000 Ω	3 Ω to 1500 Ω
Min. curvature radius	30 mm (1.18 in)		
Compression strength	4 MPa		
Thermal resistance	1.3 × 10 $^{-3}$ (m ^{2}·K/W)		
Repeatable precision	±2 %		
Sensor part dimensions	W: 10 mm (0.39 in) L: 9.1 mm (0.36 in) t: 0.25 mm (0.01 in)	W: 10 mm (0.39 in) L: 31.6 mm (1.24 in) t: 0.25 mm (0.01 in)	W: 10 mm (0.39 in) L: 54.1 mm (2.13 in) t: 0.25 mm (0.01 in)
Cable length	1.5 m (4.92 ft) (Z2012-01, Z2013-01, Z2014-01) 5 m (16.41 ft) (Z2015-01, Z2016-01, Z2017-01)		

Heat Flow Measurement

*For sticking Z2012 to Z2017 sensors

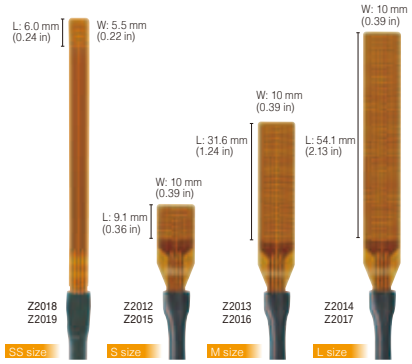
THERMALLY CONDUCTIVE TAPE Z5008
Adhesive tape for more accurate measurements, 20 sheets

Compatible products

HEAT FLOW LOGGER LR8432

Choose from 4 Sizes, Waterproof Heat Flow Sensors that can Measure Curved Surfaces

HEAT FLOW SENSOR **Z2012 to Z2019**



- SS size ideal for measurement of small parts such as electronic parts
- Measure the movement and volume of heat energy with Model LR8432 Heat Flow Logger
- Waterproof heat flow sensor that can measure curved surfaces (Minimum radius of sensor curvature 30 mm (1.18 in))
- Isolation of heat generated and dissipated in automotive parts
- Evaluate the thermal performance of building materials
- Measure the energy efficiency of consumer electronics
- Study the impact of body heat
- Index temperature fluctuation in agriculture and civil engineering

Model No. (Order Code)		
	Z2012	(S size, 1.5 m (4.92 ft) length)
	Z2015	(S size, 5 m (16.41 ft) length)
	Z2013	(M size, 1.5 m (4.92 ft) length)
	Z2016	(M size, 5 m (16.41 ft) length)
	Z2014	(L size, 1.5 m (4.92 ft) length)
	Z2017	(L size, 5 m (16.41 ft) length)
	Z2018	(SS size, 1.5 m (4.92 ft) length)
	Z2019	(SS size, 5 m (16.41 ft) length)

Use with Hioki Heat Flow Logger LR8432.

■ Basic specifications

Models	Z2012, Z2015	Z2013, Z2016	Z2014, Z2017	Z2018, Z2019
Typical sensitivity	0.01 mV/W·m $^{-2}$	0.04 mV/W·m $^{-2}$	0.08 mV/W·m $^{-2}$	0.003 mV/W·m $^{-2}$
Operating temperature	Sensor part : -40 °C to 150 °C (-40.0 °F to 302.0 °F) Cable part: -40 °C to 120 °C (-40.0 °F to 248.0 °F)			
Waterproof protection	IP06, IP07 (EN60529)			
Internal resistance (including cable)	3 Ω to 500 Ω	3 Ω to 1000 Ω	3 Ω to 1500 Ω	3 Ω to 500 Ω
Min. curvature radius	30 mm (1.18 in)			
Compression strength	4 MPa			
Thermal resistance	1.4 × 10 $^{-3}$ (m ^{2}·K/W)			1.3 × 10 $^{-3}$ (m ^{2}·K/W)
Repeatable precision	±2 %			
Sensor part dimensions	W: 10 mm (0.39 in) L: 9.1 mm (0.36 in) t: 0.28 mm (0.011 in)	W: 10 mm (0.39 in) L: 31.6 mm (1.24 in) t: 0.28 mm (0.011 in)	W: 10 mm (0.39 in) L: 54.1 mm (2.13 in) t: 0.28 mm (0.011 in)	W: 5.5 mm (0.22 in) L: 6.0 mm (0.24 in) t: 0.25 mm (0.01 in)
Cable length	1.5 m (4.92 ft) (Z2012, Z2013, Z2014, Z2018) 5 m (16.41 ft) (Z2015, Z2016, Z2017, Z2019)			

Heat Flow Measurement

*For sticking Z2012 to Z2019 sensors

THERMALLY CONDUCTIVE TAPE Z5008
Adhesive tape for more accurate measurements, 20 sheets

Compatible products

HEAT FLOW LOGGER LR8432

Logging Multi-point Data Has Never Been So Easy with a Data Wireless Logger

WIRELESS LOGGING STATION LR8410

- Capture logging data using Bluetooth® wireless technology. Install logging modules in hard-to-reach locations (over line-of-sight distances of up to 30 meters *1)
  (*1) The presence of obstructions may shorten this range
- Measurement units have built-in buffer memory so that measurement data can be saved if communication is temporarily disrupted.
- Choose an input unit based on the parameters you wish to measure (15-channel and 2-channel units are available)
- Easily add up to 7 input units wirelessly to keep your environment free of tangled wires (for a total of up to 105 channels when using 15-channel units)
- 100 msec simultaneous sampling across all channels using rapid scanning method
- Quick Set guide makes configuration a breeze

Model No. (Order Cord) **LR8410-20** (English model, main unit only)

The LR8410-20 alone is not capable of making measurements. One or more input modules are necessary to measure. The main unit and input modules are not bundled with the Battery Pack Z1007. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.
Note: Use only HIOKI SD Memory card, which is manufactured to strict industrial standards, for long-term storage of important data. Correct operation of non-HIOKI SD cards or USB memory sticks are not guaranteed.
**Models LR8512 to LR8515 may only be used in countries in which they have been certified.*
These products emit radio waves. Use of radio waves is subject to licensing requirements in certain countries. Use in countries or regions other than those listed above may constitute a violation of law, exposing the operator to legal penalties.
**The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by HIOKI E.E. CORPORATION is under license.*
**For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.*

■ LR8410-20 Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

No. of measurement channels	Connect up to seven LR8510 series units wirelessly (using Bluetooth® wireless technology) to measure or collect data from up to 105 channels.
Pulse, Digital input	2 pulse input channels or 2 digital input channels (when using the LR8512)
Recording intervals	100 ms(*2), 200 ms to 1 hour, 16 selections (All input channels are scanned within each recording interval) (*2) Setting not available when the thermocouple burnout detection setting is on
Data storage	Internal memory: 8 M-words, Data storage media: SD memory card or USB memory stick (Only data recorded to a genuine HIOKI SD memory card is guaranteed)
Interface	LAN: 100BASE-TX, USB: USB 2.0 series mini-B receptacle ×1
Display device	5.7 inch TFT color liquid crystal display (640 × 480 pixel)
Functions	Save waveform data in real time to the SD memory card or USB memory stick, Numerical value calculations, Waveform calculations, 4ch alarm output (not isolated, common ground), and others
Power supply	[AC adapter] Using the AC adapter Z1008 (100 to 240 V AC, 50/60 Hz), 45 VA Max. (including AC adapter), 15 VA Max. (exclusive of AC adapter) [Internal battery] Using the Battery Pack Z1007 (optional accessory), 3 hours of continuous use (at 23 °C reference data), 7 VA Max. [External power] 10 to 28 V DC, 15 VA Max. (Please contact your HIOKI distributor for connection cord)
Dimensions and mass	230 mm (9.06 in) W × 125 mm (4.92 in) H × 36 mm (1.42 in) D, 700 g (24.7 oz) (excluding Battery Pack)
Accessories	Instruction manual ×1, Measurement guide ×1, SD Memory Card (2GB) Z4001 ×1, CD-R (data collection software "Logger Utility") ×1, USB cable ×1, AC Adapter Z1008 ×1

■ LR8510 Basic specifications

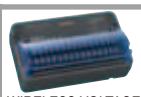
Measurement parameters	[No. of channels] 15 analog channels; isolated scanning method input (2 terminals: M3 screw type) [Voltage] ±10 mV to ±100 V, 1-5 V f.s., max. 500 nV resolution [Temperature: Thermocouples] -200 °C to 2000 °C (depends on sensor), Thermocouples (K, J, T, or other), max. 0.01 °C resolution Not available for [Pt 100, JPt 100 sensor] [Resistance] [Humidity] [Max. rated voltage between isolated input channels] 300 V DC [Max. allowable input] ±100 V DC [Max. rated voltage from isolated terminals to ground] 300 V AC, DC
Power supply	[AC adapter] Using the AC adapter Z1008 (100 to 240 V AC, 50/60 Hz), 23 VA Max. (including AC adapter), 7 VA Max. (exclusive of AC adapter) [Internal battery] Using the Battery Pack Z1007 (optional accessory), 24 hours of continuous use (at 100 ms recording interval, 23 °C reference data), 120 hours of continuous use (at 1 minute recording interval, 23 °C reference data), 0.4 VA Max. [External power] 10 to 28 V DC, 7 VA Max.

■ LR8511 Basic specifications

Measurement parameters	[No. of channels] 15 analog channels; isolated scanning method input (4 terminals: push-button type) [Voltage] ±10 mV to ±100 V, 1-5 V f.s., max. 500 nV resolution [Temperature: Thermocouples] -200 °C to 2000 °C (depends on sensor), Thermocouples (K, J, T, or other), max. 0.01 °C resolution [Temperature: Pt 100, JPt 100 sensor] -200 °C to 800 °C, max. 0.01 °C resolution (not isolated between channels) [Resistance] 0 Ω to 200 Ω f.s., max. 0.5 mΩ resolution (not isolated between channels) [Humidity] 5.0 to 95.0 % rh (use with optional sensor), 0.1 % rh resolution (not isolated between channels) [Max. rated voltage between isolated input channels] 300 V DC [Max. allowable input] ±100 V DC [Max. rated voltage from isolated terminals to ground] 300 V AC, DC
Power supply	Same as the LR8510

Input modules

*Please see the individual product catalog for more information about other LR8512 to LR8520.


WIRELESS VOLTAGE/ TEMP UNIT LR8510
2 terminals M-3 mm screw type, 5 channels, Voltage, Temperature with thermocouple


WIRELESS UNIVERSAL UNIT LR8511
4 terminals push-button type, 15 channels, Voltage, Temperature with thermocouple, Platinum Resistance temperature sensor, Humidity, or Resistance measurement


WIRELESS PULSE LOGGER LR8512
2ch, pulse/No.of revolutions/ logic measurement, for the LR8410


WIRELESS CLAMP LOGGER LR8513
2ch, AC and DC load current/AC leak current measurement


WIRELESS HUMIDITY LOGGER LR8514
2 ch temperature/ 2 ch humidity recording


WIRELESS VOLTAGE/ TEMP LOGGER LR8515
2 ch voltage / thermocouple (K, T) recording


WIRELESS FUNGAL LOGGER LR8520
Record fungal index, growth prediction, temperature and humidity

Storage media

*Z4001 is bundled with the LR8410


SD MEMORY CARD 2GB Z4001
For storing measurement data

SD Card Precaution
Use only the SD Card Z4001 sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

Input options

Sensor guaranteed for 1 year.


HUMIDITY SENSOR Z2000
3 m (9.84 ft) length

Power supply

*AC adapter is bundled with the LR8410-20, LR8510/8511


BATTERY PACK Z1007
Li-ion, Charges while installed


AC ADAPTER Z1008
100 to 240V AC

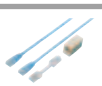
Carrying cases and stands


CARRYING CASE C1007
Holds one LR8410s and four measurement units


FIXED STAND Z1009
For wall hanging and slanted bench mounting

PC peripherals


GENNECT CROSS SF4000
Free Application for Windows, cannot communicate with Bluetooth wireless technology


LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

Featuring USB Flash Drive and Improved Accuracy! Your Personal 10-channel Logger

MEMORY HiLOGGER **LR8431**

- Record measurement data on a USB flash drive for easy transfer to a computer
- Record to reliable Compact Flash cards during long-term measurement applications for increased peace of mind
- Replace storage media during real-time recording
- Improved thermocouple measurement accuracy and reference junction compensation accuracy
- Ten isolated analog input channels
- 10 ms sampling and recording across all channels
- Noise-resistant measurement circuitry for improved readings
- Ultra-compact for convenient portability
- Widescreen, bright LCD gives excellent viewability

Model No. (Order Code) **LR8431-20** (10 ch, English model)

Note: The LR8431-20 is not bundled with the Battery Pack 9780. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.
Note: Use only HIOKI CF cards, which are manufactured to strict industrial standards, for long-term storage of important data. Correct operation of non-HIOKI CF cards or USB memory sticks is not guaranteed.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Analog inputs	[No. of channels] 10 isolated analog channels using scanning input method (M3 mm dia. screw terminal block) [Voltage measurement range] ±10 mV to ±60 V, 1-5V, Max. resolution 500 nV [Temperature : thermocouples] −200 ˚C to 1800 ˚C (depending on sensor), thermocouples (K, J, E, T, N, R, S, B), Max. resolution 0.1 ˚C [Humidity] not available [Max. allowable input] 60 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] 30 AC Vrms, 60 V DC (max. voltage between input channel terminals, and from terminals to chassis ground without damage)
Pulse inputs	[No. of channels] 4 pulse input channels (requires CONNECTION CABLE 9641, all pulse inputs share common ground with the main unit) [Totalized pulses] 0 to 1000M (count) (No-voltage 'a' contact, open collector or voltage input), Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s), Resolution 1/n (r/s) * n = pulses per rotation (1 to 1,000) [Max. allowable input] 0 to 10 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] Non-isolated
Recording intervals	10 ms to 1 hour, 19 selections (All input channels are scanned at high speed during every recording interval)
Selectable filters	50 Hz, 60 Hz, or OFF (digital filtering of high frequencies on analog channels)
Memory capacity	Internal storage: 3.5 M-words, External storage: CF card or USB memory stick (only HIOKI CF cards are guaranteed for correct operation)
External interface	USB 2.0 mini-B receptacle ×1; Functions: Control from a PC, Transfers files from the installed CF card to a PC (cannot transfer files from the connected USB memory stick to a PC via USB communication), Data copy between CF card and USB memory stick
Display	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Functions	Save data to the CF Card or USB memory stick in real time, Numerical Calculations, etc.
Power supply	AC Adapter Z1005: 100 to 240 VAC (50/60 Hz), 30 VA Max. (including AC adapter), 10 VA Max. (main unit only) Battery Pack 9780: Continuous use 2.5 hours (@25°C/77°F), 3 VA Max. External power source: 10 to 16 V, 10 VA Max. (please contact HIOKI distributor for cable; less than 3 m/9.84 ft cable length)
Dimensions and mass	176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 550 g (19.4 oz) (Battery Pack 9780 not installed)
Accessories	Measurement Guide ×1, CD-R (Instruction manual PDF, Logger Utility Instruction Manual PDF, Data acquisition application program Logger Utility) ×1, USB cable ×1, AC Adapter Z1005 ×1

Options

Other options: refer to the detailed catalog

BATTERY PACK 9780
NiMH, Charges while installed in the main unit

SOFT CASE 9812
Includes space for small items, Neoprene rubber

CARRYING CASE 9782
Includes compartment for options, Resin coated

CONNECTION CABLE 9641
For pulse inputs, 1.5 m (4.92 ft) length

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets

Storage media

PC CARD 2G 9830
2 GB capacity

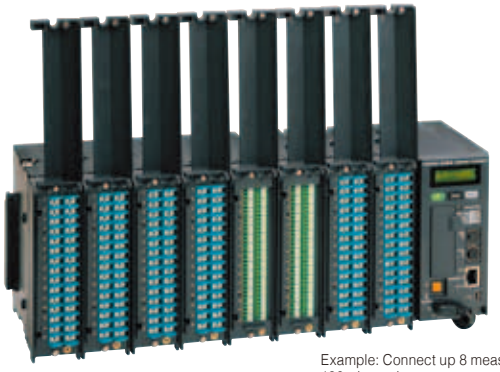
PC CARD 1G 9729
1 GB capacity

PC CARD 512M 9728
512 MB capacity

PC Card Precaution
Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

Fast 10-ms Sampling. Up to 600 Channels of Data Logging

MEMORY HiLOGGER **8423**



Example: Connect up 8 measurement modules for a 120-channel system

- Capture data with 15 to a maximum of 600 channels
- Send data to the PC in real time
- Isolated to sustain up to 600 V between modules and earth
- USB 2.0, LAN 100BASE-TX, store to 1GB PC Card
- Simultaneous fast- and low-speed sampling allows for media storage space efficiency

Model No. (Order Code) **8423** (Main unit only)

Note: 8423 cannot operate alone. You must install one or more optional input modules in the unit. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

No. of connectable units	Maximum 8 units (total 120 channels), Bundle 8 Modules together to achieve a 120-channel System, Bundle 5 Systems together to enable a maximum of 600 channels of simultaneous recording
Measurement parameters Model 8948	[No. of channels] 15 analog channels, isolated scanning method input (2 terminals: M3 screw type) [Voltage measurement range] ±150 mV to ±100 V, 1-5V, Max. resolution 5 µV, Max. allowable input: 100 VDC, between channels: 200 VDC, to earth: 600 VAC/DC [Temperature range] −200˚C to 2000˚C (depend on the sensor), thermocouples (K, J, E, T, N, R, S, B, W), Max. resolution 0.01˚C
Measurement parameters Model 8949	[No. of channels] 15 analog channels, isolated scanning method input (4 terminals: push-button type) (not isolated between channels at resistance temperature sensor & humidity sensor) [Voltage measurement range] ±150 mV to ±60 V, 1-5V, Max. resolution 5 µV, Max. allowable input: 60 VDC, between channels: 120 VDC, to earth: 600 VAC/DC [Temperature range] −200˚C to 2000˚C (depend on the sensor), thermocouples (K, J, E, T, N, R, S, B, W), Max. resolution 0.01˚C [Resistance temperature sensor range] −200˚C to 800˚C, (Pt 100, JPt 100), Max. resolution 0.01˚C [Humidity] 5.0 to 95.0% rh, (use with optional sensor 9701), resolution 0.1% rh
Measurement parameters Model 8996	[No. of channels] 15 channels, digital/pulse input (2 terminals: M3 screw type, CH1-5, CH6-10, CH11-15 are common GND, No-voltage 'a' contact, open collector or voltage input) [Totalized pulses] 0 to 1000M pulse, Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s), Resolution 1/n (r/s) *n = pulses per rotation (1 to 1,000) [Digital input] Record ON/OFF digital signal per interval [Max. allowable input] 50 VDC, between channels: 33 VACrms or 70 VDC, to earth: 600 VAC/DC, (Upper limit voltage that does not cause damage when applied between CH1-5, CH6-10, CH11-15 each channel and chassis, and between each UNITs)
Recording intervals	10ms to 1hr, 19 ranges (5s to 1hr when combined with humidity measurement), Dual sampling: Recording intervals can be specified for every input module (high-speed and low-speed)
Function	Measurement data are saved to the CF Card in real time, Trigger function, Digital filter (Input unit), Alarm output (use with the Alarm unit 8997), Data acquisition is controlled by the PC data acquisition program, FTP server function, HTTP server function
Interface	LAN: supports 100Base-TX, USB: Ver 2.0, mini-B receptacle, CF card slot
Power supply	Using the AC adapter 9418-15 (100 to 240 V, 50/60 Hz), 55 VA Max. (include AC adapter), 20 VA Max. (main unit only) (when connected with 8 units), External DC Power: 9.6 V to 15.6 VDC, 20 VA Max. (when connected with 8 units) (Please contact HIOKI for connection cord)
Dimensions and mass	67 mm (2.64 in) W × 133 mm (5.24 in) H × 125 mm (4.92 in) D, 600 g (21.2 oz) (main unit 8423 only)
Accessories	Quick start manual ×1, Instruction manual ×1, AC adapter 9418-15 ×1, USB cable ×1, CD-R (data collection software "Logger Utility") ×1, Connector cover ×1, Ferrite clamp ×1, Connection plate ×1

Other options refer to the detailed catalog

Input options

VOLTAGE/TEMP UNIT 8948
15-channles, Voltage, Thermocouple input

UNIVERSAL UNIT 8949
15-channels, Voltage, Thermocouple, Resistance temperature sensor, Humidity measurement

DIGITAL/PULSE UNIT 8996
15-channels, ON/OFF logic signal, Totalized pulses (integrated or instantaneous), Rotation count

ALARM UNIT 8997
15-channels, Open-collector output

CONNECTION CABLE 9683
For synchronization, cable length 1.5 m (4.92 ft)

Storage media

* PC CARD 2G 9830 : cannot use with the 8423

PC Card Precaution
Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

PC CARD 1G 9729
(1 GB capacity)
PC CARD 512M 9728
(512 MB capacity)

Portable Data Logger with 30 Standard Channels, Expandible to 60 Channels

MEMORY HiLOGGER **LR8400, 8401, 8402**

LAN
USB2.0
CE
3 year Warranty

- Compact size despite 30-channel standard capabilities
- Expand up to 30 additional channels
- Protected against unexpected power outages
- Write data to USB memory stick or CF card in real-time
- Built in with USB 2.0 or 100 BASE-TX LAN interfaces
- 5.7" TFT color display

Model No. (Order Code) **LR8400-20** (Built-in the Voltage/temp unit LR8500 ×2, 30 ch, English)
LR8401-20 (Built-in the Universal unit LR8501 ×2, 30 ch, English)
LR8402-20 (Built-in the Universal unit ×1, Voltage/temp unit ×1, 30 ch, English)

Caution: Built-in units cannot be removed or changed. The Battery pack Z1000 is sold separately
Model LR8400 : Built-in units are equivalent to the Votage/temp unit LR8500 ×2
Model LR8401 : Built-in units are equivalent to the Universal unit LR8501 ×2
Model LR8402 : Built-in units are equivalent to the Universal unit LR8501 (15 ch) ×1, and the Votage/temp unit LR8500 (15 ch) ×1

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Analog input Universal unit LR8501 Actual functionality will depend on combination of units installed *Note: Isolated from each channel to chassis*	[No. of channels] 15 analog channels; isolated scanning method input (4 terminals: push-button type) [Voltage] ±10 mV to ±100 V, 1-5 V f.s. Max. resolution: 500 nV, (*Isolated between channels and from each channel to chassis)* [Temperature: Thermocouples] -200 ˚C to 2000 ˚C (depends on sensor), Thermocouples (K, J, E, T, N, R, S, B, W,) Max. resolution 0.01 ˚C, (*Isolated between channels and from each channel to chassis)* [Temperature: Pt 100, JPt 100 sensor] -200 ˚C to 800 ˚C, Max. resolution 0.01 ˚C, (*Not isolated between channels)* [Resistance] 0 Ω to 200 Ω f.s. Max. resolution 0.5 mΩ, (*Not isolated between channels)* [Humidity] 5.0 to 95.0 % rh (use with optional sensor), resolution 0.1 % rh, (*Not isolated between channels nor from each channel to chassis)* [Max. rated voltage between isolated input channels] 300 V DC [Max. allowable input] ±100 V DC [Max. rated voltage from isolated terminals to ground] 300 V AC, DC
Analog input Votage/temp unit LR8500 Actual functionality will depend on combination of units installed *Note: Isolated from each channel to chassis*	[No. of channels] 15 analog channels; isolated scanning method input (2 terminals: M3 screw type) [Voltage] ±10 mV to ±100 V, 1-5 V f.s. Max. resolution: 500 nV, (*Isolated between channels and from each channel to chassies)* [Temperature: Thermocouples] -200 ˚C to 2000 ˚C (depends on sensor), Thermocouples (K, J, E, T, N, R, S, B, W), Max. resolution 0.01 ˚C, (*Isolated between channels and from each channel to chassies)* [Pt 100, JPt 100 sensor] [Resistance] Not available [Humidity] 5.0 to 95.0 % rh (use with optional sensor), resolution 0.1 % rh, (*Not isolated between channels nor from each channel to chassies)* [Max. rated voltage between isolated input channels] 250 V DC [Max. allowable input] ±100 V DC [Max. rated voltage from isolated terminals to ground] 300 V AC, DC *Caution: Max. voltage from terminals to ground without damage*
Pulse, Digital input	[No. of channels] 8 channels, pulse / digital selectable for each channel, M3 screw terminal, not isolated, common ground [Pulse totalization] 0 to 1000 M pulse, 1 range (No-voltage 'a' contact; normally open, open collector or voltage input), Max. resolution 1 pulse [Rotation count] 0 to 5000 /n (r/s) f.s. 1 range (same as Pulse totalization input signal condition), resolution 1/n (r/s) *Note: "n" is the number of sensor output pulses per revolution, 1 to 1000* [Digital input] Record logical "1" or "0" at each sampling [Max. rated voltage between input channels] Not isolated [Max. allowable input] 0 to 50 V
Recording intervals	10 ms to 50 ms, 100 ms to 1 hour, 19 selections (All input channels are scanned within each recording interval.) *Note: limited by using channels at 10 ms to 50 ms interval*
Digital filter	Select from OFF/ 50 Hz/ 60 Hz (the cut-off frequency is automatically set)
Data storage	Internal memory: 8 M-words, Data storage media: CF card or USB memory (Only data recorded to a genuine HIOKI CF card is guaranteed)
LAN interfaces	100BASE-TX, Functions: Data acquisition using bundled software or PC commands, FTP server, FTP client, HTTP server function, or E-mail system
USB interfaces	USB 2.0 High-speed capable, series mini-B receptacle Functions: Data acquisition using bundled software or PC commands, Transfer data from the CF card to a PC via USB drive mode *Note: Data transfer not possible from USB memory sticks*
Display device	5.7 inch TFT color liquid crystal display (640 × 480 pixel)
Other functions	Save waveform data in real time to the CF card or USB memory stick, Numerical value calculations, Waveform calculations, and others
AC Power supply	Using the AC adapter 9418-15 (100 to 240 V AC, 50/60 Hz), 7 VA
DC Power supply	Using the Battery pack Z1000 (optional accessory), Continuous use 5 hr, External power: 10 to 28 V DC (Please contact your HIOKI distributor for connection cord)
Dimensions and Mass	272 mm (10.71 in) W × 182.4 mm (7.18 in) H × 66.5 mm (2.62 in) D, 1.8 kg (63.5 oz), (LR8400-20 main unit, excluding the Battery Pack 370 g/ 13.1 oz)
Accessories	Instruction manual ×1, Measurement guide ×1, CD-R (data collection software "Logger Utility") ×1, USB cable ×1, AC adapter 9418-15 ×1

Add input channels!

After connecting 1 measurement unit to the LR8402-20 (example 45-ch system)

After connecting 2 measurement units to the LR8402-20 (example 60-ch system)

Input options

Sensor guaranteed for 1 year.

VOLTAGE/TEMP UNIT LR8500
2 terminals M-3 mm screw type, 15 channels, Voltage, Temperature with thermocouple, or Humidity measurement, for the LR8400 series

UNIVERSAL UNIT LR8501
4 terminals push-button type, 15 channels, Voltage, Temperature with thermocouple, Platinum Resistance temperature sensor, Humidity, or Resistance measurement, for the LR8400 series

HUMIDITY SENSOR Z2000
3 m (9.84 ft) length, for the LR8410/LR8400 series

Storage media

PC CARD 2G 9830
2 GB capacity

PC CARD 1G 9729
1 GB capacity

PC CARD 512M 9728
512 MB capacity

PC Card Precaution

Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

Power supply

*AC adapter is bundled with the LR8400-20 series

BATTERY PACK Z1000
NiMH, Charges while installed in the main unit

AC ADAPTER 9418-15
100 to 240V AC

Carrying cases and stands

CARRYING CASE C1000
Includes compartment for options

FIXED STAND Z5000
For wall hanging and slanted bench mounting

PC communication

*LOGGER UTILITY is a bundled software

LOGGER UTILITY
Control the measurement of loggers and collect data in real-time

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

High voltage measurement

* Maximum input-to-ground rated voltages fall within these products' specifications ranges (and do not affect the connected input units)

DIFFERENTIAL PROBE P9000-01
(Waveform mode) For up to 1 kV AC, DC

DIFFERENTIAL PROBE P9000-02
(Waveform / RMS mode selectable) For up to 1 kV AC, DC

AC ADAPTER Z1008
100 to 240 V AC

Options for Differential Probes

Can also be used with accessories such as L4936/L4937/L4931 as available for other testers.

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, 196 mm (7.72 in) length, CAT III 1000 V

CONVERSION CABLE L1011
30 cm (0.98 ft) length, covert BNC to wire

CONVERSION CABLE L1011-10
2.4 m (7.87 ft) length, covert BNC to wire

Custom cable

*For P9000.

Inquire with your Hioki distributor.
(1) Bus powered USB cable
(2) USB(A)- Micro B cable
(3) 3-prong cable

Transfer Data from a LR5000 Series Data Logger to PC

COMMUNICATION ADAPTER **LR5091**
DATA COLLECTOR **LR5092**

LR5091
(USB cable is bundled)

LR5092
(USB cable is bundled)

- Bring the data logger LR5000 series back from the field and transfer data to a PC
- Save data from data loggers in the built-in memory or on an SD card (LR5092-20)
- Send settings from a PC to a data logger
- Use the included software to easily graph and print data
- Use the included software to calculate maximum, minimum, and average values and more between cursors

Model No. (Order Code) **LR5091**
LR5092-20

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.
<How to use> Transferring data from the LR5000 series Logger to a PC
(1) Place the LR5000 series Logger on the Communications Adapter LR5091 and connect the adapter to the computer with a USB cable.
(2) Take the Data Collector LR5092 to the location where the Data Mini was placed and capture the data via optical communications. Transfer data from the device to a PC via the SD card or connect with a USB cable.

Storage media

For the LR5092

SD MEMORY CARD
2GB Z4001
2GB capacity

SD Card Precaution
Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

LR5000 Utility
(PC communication software; included)

Table and graph display, data analysis, data processing, transmission of settings to data loggers, print functionality, etc.
**The utility can also display data collected using the Data Logger 3630 series*

■ Basic specifications

	LR5091	LR5092-20
Function	Transfer data from a data logger to a PC Send settings and the time from a PC to a data logger.	Send data from a data logger to the internal memory or an SD card, then display a graph. Send settings and the time from the internal memory or SD card to a data logger. Send data from a data logger to a PC. Send settings and the time from a PC to a data logger.
Communication method	Between data loggers: Infrared communication With PC: USB 2.0	Between data loggers: Infrared communication With PC: USB 2.0
Display	N/A	Data logger setting conditions Collected data (as list, graph, values, etc.)
Internal memory capacity of data	N/A	60,000 data elements ×16ch (instantaneous value mode) 15,000 data elements ×16ch (statistical value mode) Data logger settings (max. 1 set)
Removable storage media	N/A	SD Memory card Save data and max. 16 items configuration
Power supply	USB bus power	DC 3 V (LR6 (AA) Alkaline battery ×2) USB bus power (12 hours or 500 times of data collection)
Dimensions and mass	83 mm (3.27 in)W × 61 mm (2.40 in) H × 19 mm (0.75 in)D, 43 g (1.5 oz)	91 mm (3.58 in)W × 141 mm (5.55 in)H × 31 mm (1.22 in)D, 215 g (7.6 oz) (excluding batteries and SD memory card)
Accessories	USB cable (1m) ×1, CD (Application software "LR5000 Utility") ×1	Instruction manual ×1, Operation guide ×1, LR6 (AA) Alkaline battery ×2, USB cable (1m) ×1, CD (Application software "LR5000 Utility") × 1

■ LR5000 Utility Specifications

Operating environment	OS: Windows 7 (32/64bit, .NET Framework 2.0 or more), Vista (32bit, SP1 or more), XP (SP2 or more) *USB interface (when using the Communication Base 3910/3911, a COM port is required)
Function	• Settings: Communicates via infrared light with LR5000 series loggers to send and receive settings. • Graph function: Displays graphs of up to 16 channels, displays statistical data, etc. • Print function: Print graphs, Print statistical data. • Export function (data CSV output, paste into Excel) • Import function (loads text files from the Clamp On Power HiTester 3169-20/-21 [only demand parameter with a recording interval of at least 1 sec.]) • Processing of data: Scaling, Power calculation, Energy cost calculation, Operating ratio calculation, Integration, Dew point temperature, Calculate between channels

Easily Record Load Current of 50Hz/60Hz Lines and Leak Current

CLAMP LOGGER **LR5051**

*Clamp sensor is sold separately
(Sensor guaranteed for 1 year.)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity compared to predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

Model No. (Order Code) **LR5051** (2ch, clamp sensor is sold separately)

Note: The Clamp Logger LR5051 may be affected by high-frequency noise while measuring leak current. Please contact Hioki for more information if you plan to use the instrument in an environment where it would be subject to the effects of high-frequency noise.

Customers using the previous Model 3636-20 Clamp Logger should note that the LR5051 can only record 15,000 points of average data, vs. 32,000 data points available in the 3636-20.
Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	AC Current 2 channels (used with the optional current sensor; load current 2ch, leak current 2ch, or load/leak each 1ch) *Caution: Current and leak current that occur intermittently cannot be measured.*
Measurement range	500.0 mA to 1000 A AC rms, 5 range (depends on current sensor in use)
Basic accuracy	±2.0% rdg. ±0.13% f.s. (main unit + current sensor accuracy, at 500.0 A range, 50/60 Hz) *Note: Basic accuracy is typical value, only main unit accuracy: ±0.5 %rdg. ±5 dgt., must added clamp sensor accuracy, refer to the detailed catalog*
Storage capacity	Instantaneous value mode: 60,000 data/ch, Statistical value mode: 15,000 data/ch
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced
Waterproof and dust-proof	N/A
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×2, Battery life: Approx. 1 year (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 1 month (Instantaneous recording, with 1-second interval at 20 °C)
Dimensions and mass	79 mm (3.11 in)W × 70 mm (2.76 in)H × 37 mm (1.46 in)D, 165 g (5.8 oz)
Accessories	LR6 (AA) Alkaline battery (built-in internal) ×2, Instruction manual ×1, Operation guide ×1

Options

(PC communication)

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/SD memory card

Other options

MAGNETIC STRAP Z5020
Extra strength

Optional sensors

AC load current
CLAMP ON SENSOR CT6500
500 A AC

AC load current
CLAMP ON SENSOR 9669
1000 A AC

AC leak current
Insulated conductor
CLAMP ON LEAK SENSOR 9657-10
Rated primary current: *5 A AC

AC leak current
Insulated conductor
CLAMP ON LEAK SENSOR 9675
Rated primary current: *5 A AC

AC load current
Insulated wire
Not CE marked
CLAMP ON SENSOR 9695-02
50 A AC, Cable 9219 required

CONNECTION CABLE 9219
Connect with the 9695-02/-03, Output BNC terminal, 3 m (9.84 ft) cord length

Clamp on Leak Sensor 9657-10, 9675: Rated primary current 5 A* AC *Maximum measurable current with used when the LR5051 (Sensor guaranteed for 1 year.)

Record Instrumentation Signals and Measure Analog Output from Sensors and other Devices

VOLTAGE LOGGER (50mV) LR5041, (5V) LR5042, (50V) LR5043

Bundled accessory (LR9802)

IP54
(splash-proof construction)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity than predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	LR5041	LR5042	LR5043
Measurement items	DC voltage 1ch	DC voltage 1ch	DC voltage 1ch
Measurement range	−50.00 to 50.00 mV	−5.000 to 5.000 V	−50.00 to 50.00 V
Accuracy	±0.5 %rdg. ±5 dgt.		
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data		
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections		
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval		
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)		
Other functions	Pre-heat function (requires external power supply during use of function), Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced		
Waterproof and dust-proof	IP54 (EN60529) (with connection cable connected, but not including cable tip)		
Interfaces	Infrared optical communications with LR5091, LR5092-20		
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 2 years (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 2 months (Instantaneous recording, with 1-second interval at 20 °C)		
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)		
Accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Connection cable LR9802 ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1		

Model No. (Order Code) **LR5041** (±50mV DC)
LR5042 (±5V DC)
LR5043 (±50V DC)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

Options (PC communication)

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

Other options

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Bundled accessory

CONNECTION CABLE LR9802
Tips 4 wires, 1 m (3.28 ft) length

For 4-20 mA Instrumentation Measurement

INSTRUMENTATION LOGGER LR5031

Bundled accessory (LR9801)

IP54
(splash-proof construction)

- 4 - 20 mA DC measurement only
- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity than predecessor (Record 60,000 data per channel)
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	For Instrumentation / 0 to 20mA DC, 1ch
Measurement range	-30.00 to 30.00 mA
Accuracy	±0.5 %rdg. ±5 dgt.
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced
Waterproof and dust-proof	IP54 (EN60529) (with connection cable connected, but not including cable tip)
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 2 years (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 2 months (Instantaneous recording, with 1-second interval at 20 °C)
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)
Accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Connection cable LR9801 ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1

Model No. (Order Code) **LR5031** (Instrumentation signal 1ch)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

Options (PC communication)

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

Other options

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Bundled accessory

CONNECTION CABLE LR9801
Tips 2 wires, 1 m (3.28 ft) length

Measure Temperature with External Sensor

TEMPERATURE LOGGER **LR5011**

Optional sensor (LR9604)
(Sensor guaranteed for 1 year.)

IP54
(splash-proof construction)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity than predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

Model No. (Order Code) **LR5011** (Temperature 1ch)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	Temperature 1ch (with optional sensor)
Measurement range	−40.0 °C to 180.0 °C *Depends on measurement range of sensor
Basic accuracy	±0.5 °C (main unit + sensor accuracy, at 0.0 to 35.0 °C) Note: Basic accuracy is typical value, refer to the detailed catalog
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced
Waterproof and dust-proof	IP54 (EN60529) (with sensor connected, but not including sensor tip)
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 2 years (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 2 months (Instantaneous recording, with 1-second interval at 20 °C)
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)
Accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1

Options

(PC communication)

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

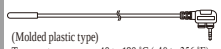
Other options

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

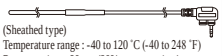
Optional sensors

Sensor guaranteed for 1 year.

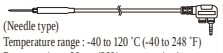


(Molded plastic type)
Temperature range : -40 to 180 °C (-40 to 356 °F)
Response time : 100 sec (90% response time)
Sensor head size: φ6 × 28 mm (0.24 in × 1.10 in)
LR9601 1 m (3.28 ft) length
LR9602 5 m (16.41 ft)
LR9603 10 m (32.81 ft)
LR9604 45 mm (1.77 in)

(Lug type)
Temperature range : -30 to 180 °C (-22 to 356 °F)
Response time : 45 sec (90% response time)
Outer diameter: φ7 mm (0.26 in)
Inner diameter: φ3.2 mm (0.13 in)
LR9611 1 m (3.28 ft) length
LR9612 5 m (16.41 ft)
LR9613 10 m (32.81 ft)



(Sheathed type)
Temperature range : -40 to 120 °C (-40 to 248 °F)
Response time : 90 sec (90% response time)
Sensor head size: φ4 × 180 mm (0.16 in × 7.09 in)
LR9621 1 m (3.28 ft) length



(Needle type)
Temperature range : -40 to 120 °C (-40 to 248 °F)
Response time : 20 sec (90% response time)
Sensor head size: φ1.3 × 25 mm (0.05 in × 0.98 in)
LR9631 1 m (3.28 ft) length

Record Temperature and Humidity Simultaneously

HUMIDITY LOGGER **LR5001**

Bundled sensor (LR9504)
(Sensor guaranteed for 1 year.)

IP54
(splash-proof construction)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
  Note: Recording is interrupted during battery replacement if the battery is very weak. After batteries are replaced, recording resumes automatically. Previously recorded data is not lost during battery replacement.
- 7 times the memory capacity than predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

Model No. (Order Code) **LR5001** (Temperature / Humidity each 1ch)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	Temperature 1ch and Humidity 1ch (Requires included or optional humidity sensor)
Measurement range	Temperature: −40.0 to 85.0 °C, Humidity: 0 to 100 % rh *at sensor environment
Basic accuracy	[Temperature] : ±0.5 °C (main unit + sensor accuracy, at 0.0 to 35.0 °C) [Humidity] : ±5 % rh (main unit + temperature / humidity sensor LR950x combination, at 20 to 30 °C / 10 to 50 % rh) *Note: Basic accuracy is typical value, refer to the detailed catalog*
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low *Note: After batteries are replaced within 30 seconds, recording resumes automatically (Recording is interrupted during battery replacement)*
Waterproof and dust-proof	IP54 (EN60529) (with sensor connected, but not including sensor tip)
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 3 months (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 20 days (Instantaneous recording, with 1-second interval at 20 °C) (typical data: Approx. 1 yeare recording with 10-minutes interval)
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)
Accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Humidity sensor LR9504 ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1

Options

(PC communication)

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

Other options

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Optional sensors

Temperature range: -40 to 85 °C
Humidity range: 0 to 100 % rh
Response time: 300 seconds (90 % response time)
Waterproof: None
Sensor size: 13×30 mm (0.51×1.18 in)

Sensor guaranteed for 1 year.(LR9504 is bundled accessory)

LR9501 1 m (3.28 ft) length
LR9502 5 m (16.41 ft)
LR9503 10 m (32.81 ft)

LR9504 40 mm (1.57 in) length

Choose from 5 Models

A complete product line to fully meet your measurement frequency and applications.

Photo: IM7581

IMPEDANCE ANALYZER IM7580A

Measurement frequency	1 MHz to 300 MHz
Measurement range	L : 0.0531 nH to 0.795 mH C : 0.1061 pF to 1.59 µF (Depending on the measurement frequency)
Measurement signal level	-40.0 dBm to +7.0 dBm
Basic accuracy	Z : 0.72% rdg. θ: 0.41°

IMPEDANCE ANALYZER IM7581

Measurement frequency	100 kHz to 300 MHz
Measurement range	L : 0.0531 nH to 7.95 mH C : 0.1061 pF to 15.9 µF (Depending on the measurement frequency)
Measurement signal level	-40.0 dBm to +7.0 dBm
Basic accuracy	Z : 0.72% rdg. θ: 0.41°

IMPEDANCE ANALYZER IM7583

Measurement frequency	1 MHz to 600 MHz
Measurement range	L : 0.0265 nH to 0.795 mH C : 0.0531 pF to 1.59 µF (Depending on the measurement frequency)
Measurement signal level	-40.0 dBm to +1.0 dBm
Basic accuracy	Z : 0.65% rdg. θ: 0.38°

Photo: IM7585

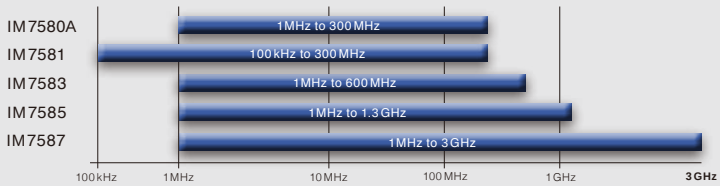
IMPEDANCE ANALYZER IM7585

Measurement frequency	1 MHz to 1.3 GHz
Measurement range	L : 0.0123 nH to 0.795 mH C : 0.0245 pF to 1.59 µF (Depending on the measurement frequency)
Measurement signal level	-40.0 dBm to +1.0 dBm
Basic accuracy	Z : 0.65% rdg. θ: 0.38°

IMPEDANCE ANALYZER IM7587

Measurement frequency	1 MHz to 3 GHz
Measurement range	L : 0.0053 nH to 0.795 mH C : 0.011 pF to 1.59 µF (Depending on the measurement frequency)
Measurement signal level	-40.0 dBm to +1.0 dBm
Basic accuracy	Z : 0.65% rdg. θ: 0.38°

A rich lineup covering a wide range of measurement frequencies



3 GHz High Frequency Testing

IMPEDANCE ANALYZER IM7587

LAN
USB2.0
GP-IB option
RS-232C option
CE
3 year Warranty

- 1 MHz to 3 GHz testing source frequency
- Fastest test speed of 0.5 msec (Analog measurement time)
- 0.07% measured value variability (When measuring a 1 nH coil at 3 GHz)
- ±0.65% rdg. basic accuracy
- Half-rack size body and palm-sized test head
- Comprehensive contact check (via DCR testing, Hi-Z reject or waveform judgment)
- Make frequency sweeps, level sweeps and time interval measurements in Analyzer Mode

Model No. (Order Code) **IM7587-01** (Connection cable 1 m is bundled)
IM7587-02 (Connection cable 2 m is bundled)

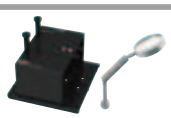
The instrument does not ship with a test fixture or probe. A test fixture designed specifically for use with the Impedance Analyzer is required.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Analyzer mode (sweeps with measurement frequency and measurement level), Continuous measurement mode
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q
Measurable range	100 mΩ to 5 kΩ
Display range	Z: 0.00 m to 9.99999 GΩ / Rs, Rp, X: ± (0.00 m to 9.99999 GΩ) Ls, Lp: ± (0.00000 n to 9.99999 GH) / Q: ± (0.00 to 9999.99) θ: ± (0.000° to 180.000°), Cs, Cp: ± (0.00000 p to 9.99999 GF) D: ± (0.00000 to 9.99999), Y: (0.000 n to 9.99999 GS) G, B: ± (0.000 n to 9.99999 GS), Δ%: ± (0.000 % to 999.999 %)
Basic accuracy	Z: ±0.65 % rdg. θ: ±0.38°
Measurement frequency	1 MHz to 3 GHz (100 kHz setting resolution)
Measurement signal level	Power: -40.0 dBm to +1.0 dBm Voltage: 4 mV to 502 mVrms Current: 0.09 mA to 10.04 mArms
Output impedance	50 Ω (at 10 MHz)
Display	8.4-inch color TFT with touch screen
Measurement speeds	FAST: 0.5 ms (Analog measurement time, typical value)
Functions	Contact check, Comparator, BIN measurement (classification), Panel loading/saving, Memory function, Equivalent circuit analysis, Correlation compensation
Interfaces	EXT I/O (Handler), USB communication, USB memory, LAN, RS-232C (optional), GP-IB (optional)
Power supply	100 to 240 V AC, 50/60 Hz, 70 VA max.
Dimensions and mass	Main unit: 215 mm (8.46 in) W × 200 mm (7.87 in) H × 348 mm (13.70 in) D, 8.0 kg (282.2 oz) Test head: 90 mm (3.54 in) W × 64 mm (2.52 in) H × 24 mm (0.94 in) D, 300 g (10.58 oz)
Accessories	Test head ×1, Connection cable ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1, Power cord ×1

Probe and Test fixtures

SMD TEST FIXTURE
IM9201
Combination use with the IM9200



TEST FIXTURE STAND
IM9200
Includes magnifying glass

ADAPTER(3.5mm/7mm)
IM9906
3.5 mm (0.14 in) male to 7 mm (0.28 in) conversion

CALIBRATION KIT
IM9905
Open/Short/Load set

PC communication

GP-IB INTERFACE
Z3000

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

RS-232C INTERFACE
Z3001

RS-232C CABLE 9637
For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length

Fastest Measurement Time of 0.5ms and Measurement Stability of 0.07% to Boost Your Production Volume

IMPEDANCE ANALYZER **IM7585**

LAN
USB2.0
GP-IB option
RS-232C option
CE
3 year Warranty

- 1 MHz to 1.3 GHz testing source frequency
- Fastest test speed of 0.5 msec (Analog measurement time)
- 0.07% measured value variability (when measuring at 1GHz)
- ±0.65% rdg. basic accuracy
- Half-rack size body and palm-sized test head
- Comprehensive contact check (via DCR testing, Hi-Z reject or waveform judgment)
- Make frequency sweeps, level sweeps and time interval measurements in Analyzer Mode

Model No. (Order Code) **IM7585-01** (Connection cable 1 m is bundled)
IM7585-02 (Connection cable 2 m is bundled)

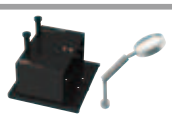
The instrument does not ship with a test fixture or probe. A test fixture designed specifically for use with the Impedance Analyzer is required.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Analyzer mode (sweeps with measurement frequency and measurement level), Continuous measurement mode
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q
Measurable range	100 mΩ to 5 kΩ
Display range	Z: 0.00 m to 9.99999 GΩ / Rs, Rp, X: ± (0.00 m to 9.99999 GΩ) Ls, Lp: ± (0.00000 n to 9.99999 GH) / Q: ± (0.00 to 9999.99) θ: ± (0.000° to 180.000°), Cs, Cp: ± (0.00000 p to 9.99999 GF) D: ± (0.00000 to 9.99999), Y: (0.000 n to 9.99999 GS) G, B: ± (0.000 n to 9.99999 GS), Δ%: ± (0.000 % to 999.999 %)
Basic accuracy	Z: ±0.65 % rdg. θ: ±0.38°
Measurement frequency	1 MHz to 1.3 GHz (100 kHz setting resolution)
Measurement signal level	Power: -40.0 dBm to +1.0 dBm Voltage: 4 mV to 502 mVrms Current: 0.09 mA to 10.04 mArms
Output impedance	50 Ω (at 10 MHz)
Display	8.4-inch color TFT with touch screen
Measurement speeds	FAST: 0.5 ms (Analog measurement time, typical value)
Functions	Contact check, Comparator, BIN measurement (classification), Panel loading/saving, Memory function, Equivalent circuit analysis, Correlation compensation
Interfaces	EXT I/O (Handler), USB communication, USB memory, LAN, RS-232C (optional), GP-IB (optional)
Power supply	100 to 240 V AC, 50/60 Hz, 70 VA max.
Dimensions and mass	Main unit: 215 mm (8.46 in) W × 200 mm (7.87 in) H × 348 mm (13.70 in) D, 8.0 kg (282.2 oz) Test head: 90 mm (3.54 in) W × 64 mm (2.52 in) H × 24 mm (0.94 in) D, 300 g (10.58 oz)
Accessories	Test head ×1, Connection cable ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1, Power cord ×1

Probe and Test fixtures

SMD TEST FIXTURE IM9201
Use in combination with the IM9200



TEST FIXTURE STAND IM9200
Includes magnifying glass

ADAPTER(3.5mm/7mm) IM9906
3.5 mm male to 7 mm conversion

CALIBRATION KIT IM9905
Open/Short/Load set

PC communication

GP-IB INTERFACE Z3000

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

RS-232C INTERFACE Z3001

RS-232C CABLE 9637
For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length

Fastest Measurement Time of 0.5ms to Boost Your Production Volume

IMPEDANCE ANALYZER **IM7583**

LAN
USB2.0
GP-IB option
RS-232C option
CE
3 year Warranty

- 1 MHz to 600 MHz testing source frequency
- Fastest test speed of 0.5 msec (Analog measurement time)
- ±0.65% rdg. basic accuracy
- Half-rack size body and palm-sized test head
- Comprehensive contact check (via DCR testing, Hi-Z reject or waveform judgment)
- Make frequency sweeps, level sweeps and time interval measurements in Analyzer Mode

Model No. (Order Code) **IM7583-01** (Connection cable 1 m is bundled)
IM7583-02 (Connection cable 2 m is bundled)

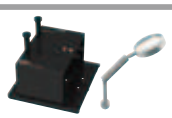
The instrument does not ship with a test fixture or probe. A test fixture designed specifically for use with the Impedance Analyzer is required.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Analyzer mode (Sweeps with measurement frequency and measurement level), Continuous measurement mode
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q
Measurable range	100 mΩ to 5 kΩ
Display range	Z: 0.00 m to 9.99999 GΩ / Rs, Rp, X: ± (0.00 m to 9.99999 GΩ) Ls, Lp: ± (0.00000 n to 9.99999 GH) / Q: ± (0.00 to 9999.99) θ: ± (0.000° to 180.000°), Cs, Cp: ± (0.00000 p to 9.99999 GF) D: ± (0.00000 to 9.99999), Y: (0.000 n to 9.99999 GS) G, B: ± (0.000 n to 9.99999 GS), Δ%: ± (0.000 % to 999.999 %)
Basic accuracy	Z: ±0.65 % rdg. θ: ±0.38°
Measurement frequency	1 MHz to 600 MHz (100 kHz setting resolution)
Measurement signal level	Power: -40.0 dBm to +1.0 dBm Voltage: 4 mV to 502 mVrms Current: 0.09 mA to 10.04 mArms
Output impedance	50 Ω (at 10 MHz)
Display	8.4-inch color TFT with touch screen
Measurement speeds	FAST: 0.5 ms (Analog measurement time, typical value)
Functions	Contact check, Comparator, BIN measurement (classification), Panel loading/saving, Memory function, Equivalent circuit analysis, Correlation compensation
Interfaces	EXT I/O (Handler), USB communication, USB memory, LAN, RS-232C (optional), GP-IB (optional)
Power supply	100 to 240 V AC, 50/60 Hz, 70 VA max.
Dimensions and mass	Main unit: 215 mm (8.46 in) W × 200 mm (7.87 in) H × 348 mm (13.70 in) D, 8.0 kg (282.2 oz) Test head: 90 mm (3.54 in) W × 64 mm (2.52 in) H × 24 mm (0.94 in) D, 300 g (10.58 oz)
Accessories	Test head ×1, Connection cable ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1, Power cord ×1

Probe and Test fixtures

SMD TEST FIXTURE IM9201
Use in combination with the IM9200



TEST FIXTURE STAND IM9200
Includes magnifying glass

ADAPTER(3.5mm/7mm) IM9906
3.5 mm male to 7 mm conversion

CALIBRATION KIT IM9905
Open/Short/Load set

PC communication

GP-IB INTERFACE Z3000

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

RS-232C INTERFACE Z3001

RS-232C CABLE 9637
For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length

100kHz to 300MHz Measurement Frequency at High Speeds with Superior Repeatability

IMPEDANCE ANALYZER **IM7581**

LAN
USB2.0
GP-IB option
RS-232C option
CE
3 year Warranty

- 100 kHz to 300 MHz testing source frequency
- Fastest test speed of 0.5 msec (Analog measurement time)
- ±0.72% rdg. basic accuracy
- Half-rack size body and palm-sized test head
- Comprehensive contact check (via DCR testing, Hi-Z reject or waveform judgment)
- Make frequency sweeps, level sweeps and time interval measurements in Analyzer Mode

Model No. (Order Code) **IM7581-01** (Connection cable 1 m is bundled)
IM7581-02 (Connection cable 2 m is bundled)

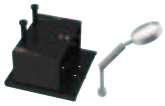
The instrument does not ship with a test fixture or probe. A test fixture designed specifically for use with the Impedance Analyzer is required.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Analyzer mode (Sweeps with measurement frequency and measurement level), Continuous measurement mode
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q
Measurable range	100 mΩ to 5 kΩ
Display range	Z: 0.00 m to 9.99999 GΩ / Rs, Rp, X: ± (0.00 m to 9.99999 GΩ) Ls, Lp: ± (0.00000 n to 9.99999 GH) / Q: ± (0.00 to 9999.99) θ: ± (0.000° to 180.000°), Cs, Cp: ± (0.00000 p to 9.99999 GF) D: ± (0.00000 to 9.99999), Y: (0.000 n to 9.99999 GS) G, B: ± (0.000 n to 9.99999 GS), Δ%: ± (0.000 % to 999.999 %)
Basic accuracy	Z: ±0.72 % rdg. θ: ±0.41°
Measurement frequency	100.00 kHz to 300.00 MHz (5 digits resolution)
Measurement signal level	Power: -40.0 dBm to +7.0 dBm Voltage: 4 mV to 1001 mVrms Current: 0.09 mA to 20.02 mArms User-configured power, voltage, and current
Output impedance	50 Ω
Display	8.4-inch color TFT with touch screen
Measurement speeds *1	FAST: 0.5 ms / MED: 0.9 ms / SLOW: 2.1 ms / SLOW2: 3.7 ms *1 Analog measurement time
Functions	Contact check, Comparator, BIN measurement (classification), Panel loading/saving, Memory function, Equivalent circuit analysis, Correlation compensation
Interfaces	Handler, USB, LAN, GP-IB (optional), RS-232C (optional)
Power supply	100 to 240 V AC, 50/60 Hz, 70 VA max.
Dimensions and mass	Main unit: 215 mm (8.46 in) W × 200 mm (7.87 in) H × 268 mm (10.55 in) D, 6.5 kg (229.3 oz) Test head: 61 mm (2.40 in) W × 55 mm (2.17 in) H × 24 mm (0.94 in) D, 175 g (6.2 oz)
Accessories	Test head ×1, Connection cable ×1, Power cord ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1

Probe and Test fixtures

SMD TEST FIXTURE **IM9201**
Use in combination with the IM9200



TEST FIXTURE STAND **IM9200**
Includes magnifying glass

ADAPTER(3.5mm/7mm) **IM9906**
3.5 mm male to 7 mm conversion

CALIBRATION KIT **IM9905**
Open/Short/Load set

PC communication

GP-IB INTERFACE **Z3000**

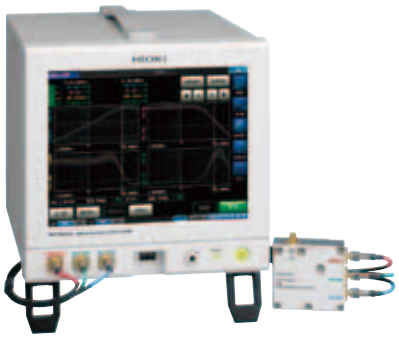
GP-IB CONNECTOR CABLE **9151-02**
2 m (6.56 ft) length

RS-232C INTERFACE **Z3001**

RS-232C CABLE **9637**
For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length

1MHz to 300MHz Measurement Frequency at High Speeds with Superior Repeatability

IMPEDANCE ANALYZER **IM7580A**



LAN
USB2.0
GP-IB option
RS-232C option
CE
3 year Warranty

- 1 MHz to 300 MHz testing source frequency
- Fastest test speed of 0.5 msec
- ±0.72% rdg. basic accuracy
- Half-rack size body and palm-sized test head
- Comprehensive contact check (via DCR testing, Hi-Z reject or waveform judgment)
- Make frequency sweeps, level sweeps and time interval measurements in Analyzer Mode

Model No. (Order Code) **IM7580A-1** (Connection cable 1 m is bundled)
IM7580A-2 (Connection cable 2 m is bundled)

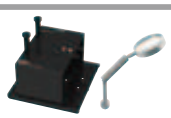
The instrument does not ship with a test fixture or probe. A test fixture designed specifically for use with the Impedance Analyzer is required.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Analyzer mode (Sweeps with measurement frequency and measurement level), Continuous measurement mode
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q
Measurable range	100 mΩ to 5 kΩ
Display range	Z: 0.00 m to 9.99999 GΩ / Rs, Rp, X: ± (0.00 m to 9.99999 GΩ) Ls, Lp: ± (0.00000 n to 9.99999 GH) / Q: ± (0.00 to 9999.99) θ: ± (0.000° to 180.000°), Cs, Cp: ± (0.00000 p to 9.99999 GF) D: ± (0.00000 to 9.99999), Y: (0.000 n to 9.99999 GS) G, B: ± (0.000 n to 9.99999 GS), Δ%: ± (0.000 % to 999.999 %)
Basic accuracy	Z: ±0.72 % rdg. θ: ±0.41°
Measurement frequency	1.0000 MHz to 300.00 MHz (5 digits resolution)
Measurement signal level	Power: -40.0 dBm to +7.0 dBm Voltage: 4 mV to 1001 mVrms Current: 0.09 mA to 20.02 mArms
Output impedance	50 Ω
Display	8.4-inch color TFT with touch screen
Measurement speeds	FAST: 0.5 ms (Analog measurement time, typical value)
Functions	Contact check, Comparator, BIN measurement (classification), Panel loading/saving, Memory function, Equivalent circuit analysis, Correlation compensation
Interfaces	EXT I/O (Handler), USB communication, USB memory, LAN, RS-232C (optional), GP-IB (optional)
Power supply	100 to 240 V AC, 50/60 Hz, 70 VA max.
Dimensions and mass	Main unit: 215 mm (8.46 in) W × 200 mm (7.87 in) H × 268 mm (10.55 in) D, 6.5 kg (229.3 oz) Test head: 61 mm (2.40 in) W × 55 mm (2.17 in) H × 24 mm (0.94 in) D, 175 g (6.2 oz)
Accessories	Test head ×1, Connection cable ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1, Power cord ×1

Probe and Test fixtures

SMD TEST FIXTURE **IM9201**
Use in combination with the IM9200



TEST FIXTURE STAND **IM9200**
Includes magnifying glass

ADAPTER(3.5mm/7mm) **IM9906**
3.5 mm male to 7 mm conversion

CALIBRATION KIT **IM9905**
Open/Short/Load set

PC communication

GP-IB INTERFACE **Z3000**

GP-IB CONNECTOR CABLE **9151-02**
2 m (6.56 ft) length

RS-232C INTERFACE **Z3001**

RS-232C CABLE **9637**
For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length

For R & D applications of Electrochemical Components and Materials, Batteries, and EDLCs

CHEMICAL IMPEDANCE ANALYZER **IM3590**

USB2.0
LAN option
GP-IB option
RS-232C option
CE
3 year Warranty

- Broad 1 mHz to 200 kHz signal source range supports measurements of ion behavior and solution resistance
- Continuous measuring and high-speed testing of LCR and sweep measurements with a single instrument
- Measure internal impedance of batteries with no load
- Perform high-speed sweep measurements in as little as 2 ms
- Basic accuracy of ±0.05% is ideal for applications from component testing to R&D
- Measure LCR impedance for Cole-Cole plots and equivalent-circuit analyses of electro-chemical components and materials

Model No. (Order Code) **IM3590** (For electrochemical components)

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately.
For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C Cable 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Continuous measurement mode (LCR mode / Analyzer mode), Analyzer mode (Sweeps with measurement frequency and measurement level, temperature characteristics, equivalent circuit analysis)
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, Rdc (DC resistance), X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q, T, σ (conductivity), ε (dielectric constant)
Measurement range	100 mΩ to 100 MΩ, 10 ranges (All parameters are determined according to Z)
Display range	Z, Y, Rs, Rp, Rdc, X, G, B, Ls, Lp, Cs, Cp, σ, ε : ±(0.00000 [unit] to 9.99999G [unit], Absolute value display for Z and Y only θ : ±(0.000° to 180.000°), D : ±(0.00000 to 9.99999) Q : ±(0.00 to 99999.9), Δ % : ±(0.0000% to 999.999%) T : -10.0°C to 99.9°C σ, ε :±(0.00000f [unit] to 999.999G [unit]
Basic accuracy	Z: ±0.05% rdg. θ: ±0.03°
Measurement frequency	1 mHz to 200 kHz (5 digits setting resolution, minimum resolution 1 mHz)
Measurement signal level	Normal mode: V mode/CV mode: 5 mV to 5 Vrms, 1 mVrms steps CC mode: 10 μA to 50 mArms, 10 μArms steps Low impedance high accuracy mode: V mode/CV mode: 5 mV to 2.5 Vrms, 1 mVrms steps CC mode:10 μA to 100 mArms, 10 μArms steps
Output impedance	Normal mode: 100 Ω, Low impedance high accuracy mode: 25 Ω
Display	5.7-inch color TFT, display can be set to ON/OFF
Measurement time	2 ms (1 kHz, FAST, display OFF, representative value)
Functions	DC bias measurement, DC resistance temperature compensation (converted reference temperature is displayed), Temperature measurement, Battery mesurement (Automatic DC biasing system), Comparator, BIN measurement (classification), Panel loading/saving, Memory function
Interfaces	EXT I/O (Handler), USB communication (high-speed), USB memory Optional: Choose 1 from RS-232C, GP-IB, or LAN
Power supply	100 to 240 V AC, 50/60 Hz, 50 VA max.
Dimensions and mass	330 mm (12.99 in) W × 119 mm (4.69 in) H × 168 mm (6.61 in) D, 3.1 kg (109.3 oz)
Accessories	Power cord ×1, Instruction manual ×1, CD-R (Communication instruction manual and sample software [Communications control, accuracy calculation, and screen capture functionality]) ×1

Shared options for IM3590, IM3533, IM3523

**Please see the individual product catalog for more information*

Probe and Test fixtures

SMD TEST FIXTURE IM9110
Direct connection two-terminal measurement type for measuring SMDs, DC to 1 MHz, measurable sample sizes: 008004 (EIA)

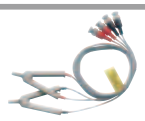
SMD TEST FIXTURE IM9100
Direct connection type, For measuring SMDs with electrodes on the bottom, DC to 8 MHz, measurable sample sizes: 01005 to 0402 (EIA), 0402 to 1005 (JIS)

4-TERMINAL PROBE L2000
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 5 mm (0.20 in)

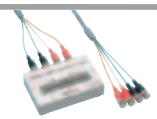
PINCHER PROBE L2001
Cable length 73 cm (28.74 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)

CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

CONTACT TIPS IM9902
To replace the tip on the L2001, small size



4-TERMINAL PROBE 9140-10
Cable length 1 m (3.28 ft), DC to 200 kHz, 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 5 mm (0.20 in)



TEST FIXTURE 9261-10
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 1.5 mm (0.06 in)

TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)

4-TERMINAL PROBE 9500-10
Cable length 1 m (3.28 ft), DC to 200 kHz, impedance characteristics of 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)

SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high

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

DC BIAS VOLTAGE UNIT 9268-10
Direct connection type, 40 Hz to 8 MHz, maximum applied voltage of DC ±40 V

DC BIAS CURRENT UNIT 9269-10
Direct connection type, 40 Hz to 2 MHz, maximum applied current of DC 2 A

Temperature probe

**Use with only for the IM3590, IM3533*

SHEATH TYPE TEMPERATURE PROBE 9478
Pt100, Tip dia. φ2.3 mm (0.09 in), Cord length 1 m (3.28 ft), Waterproof construction

PC communication

GP-IB INTERFACE Z3000

RS-232C INTERFACE Z3001

LAN INTERFACE Z3002

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Single Device Solution for High Speed Testing and Frequency Sweeping

IMPEDANCE ANALYZER **IM3570**

LAN
USB2.0
GP-IB
RS-232C
CE
3 year Warranty

- LCR measurement, DCR measurement, sweep measurement, continuous measurement and high-speed testing achieved with one instrument
- High-speed testing, achieving maximum speeds of 1.5ms (1 kHz) and 0.5ms (100kHz) in LCR mode
- High-accuracy measurements, basic accuracy of Z parameter: ± 0.08%
- Perfect impedance analyzer for testing the resonance characteristics of piezoelectric elements, C-D and low ESR measurement of functional polymer capacitors, DCR and L-Q measurement of inductors (coils and transformers)
- Perform frequency sweeps, level sweeps, and time interval measurements in analyzer mode

Model No. (Order Code) **IM3570**

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately.
For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C CABLE 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR mode, Analyzer mode (Sweeps with measurement frequency and measurement level), Continuous measurement mode
Measurement parameters	Z, Y, θ, Rs (ESR), Rp, Rdc (DC resistance), X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q
Measurement range	100 mΩ to 100 MΩ, 12 ranges (All parameters are determined according to Z)
Display range	Z, Y, Rs, Rp, Rdc, X, G, B, Ls, Lp, Cs, Cp : ±(0.000000 [unit] to 9.999999G [unit], Absolute value display for Z and Y only θ : ±(0.000° to 180.000°), D : ±(0.000000 to 9.999999) Q : ±(0.00 to 99999.99), Δ % : ±(0.0000% to 999.9999%)
Basic accuracy	Z ±0.08% rdg. θ: ±0.05°
Measurement frequency	4 Hz to 5 MHz (5 digits setting resolution, minimum resolution 10 mHz)
Measurement signal level	Normal mode: V mode/CV mode: 5 mV to 5 Vrms (up to 1 MHz) 10 mV to 1 Vrms (1.0001 MHz to 5 MHz), 1 mVrms steps CC mode: 10 μA to 50 mArms (up to 1 MHz) 10 μA to 10 mArms (1.0001 MHz to 5 MHz), 10 μArms steps Low impedance high accuracy mode: V mode/CV mode: 5 mV to 1 Vrms (up to 100 kHz), 1 mVrms steps CC mode:10 μA to 100 mArms (100 mΩ and 1Ω ranges of up to 100 kHz), 10 μArms steps
Output impedance	Normal mode: 100 Ω, Low impedance high accuracy mode: 10 Ω
Display	5.7-inch color TFT, display can be set to ON/OFF
Measurement time	0.5 ms (100 kHz, FAST, display OFF, representative value)
Functions	DC bias measurement, Comparator, BIN measurement (classification), Panel loading/saving, Memory function
Interfaces	EXT I/O (handler), RS-232C, GP-IB, USB communication, USB memory, LAN
Power supply	90 to 264 V AC, 50/60 Hz, 150 VA max.
Dimensions and mass	330 mm (12.99 in) W × 119 mm (4.69 in) H × 307 mm (12.09 in) D, 5.8 kg (204.6 oz)
Accessories	Power cord ×1, Instruction manual ×1, CD-R (Communication instruction manual and sample software) ×1

LCR Meters

Probe and Test fixtures

SMD TEST FIXTURE IM9110
Direct connection two-terminal measurement type for measuring SMDs, DC to 1 MHz, measurable sample sizes: 008004 (EIA)

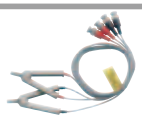
SMD TEST FIXTURE IM9100
Direct connection type, For measuring SMDs with electrodes on the bottom, DC to 8 MHz, measurable sample sizes: 01005 to 0402 (EIA), 0402 to 1005 (JIS)

4-TERMINAL PROBE L2000
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 5 mm (0.20 in)

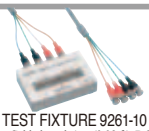
PINCHER PROBE L2001
Cable length 73 cm (28.74 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)

CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

CONTACT TIPS IM9902
To replace the tip on the L2001, small size



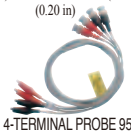
4-TERMINAL PROBE 9140-10
Cable length 1 m (3.28 ft), DC to 200 kHz, 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 5 mm (0.20 in)



TEST FIXTURE 9261-10
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 1.5 mm (0.06 in)

TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)



4-TERMINAL PROBE 9500-10
Cable length 1 m (3.28 ft), DC to 200 kHz, impedance characteristics of 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)

SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high

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

DC BIAS VOLTAGE UNIT 9268-10
Direct connection type, 40 Hz to 8 MHz, maximum applied voltage of DC ±40 V

DC BIAS CURRENT UNIT 9269-10
Direct connection type, 40 Hz to 2 MHz, maximum applied current of DC 2 A

Factory-installed option

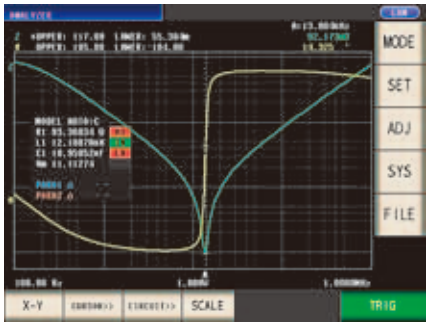
Note: Customers who have purchased the Impedance Analyzer IM3570 can add the Equivalent Circuit Analysis Firmware IM9000 function. Please contact your local HIOKI representative.

EQUIVALENT CIRCUIT ANALYSIS FIRMWARE
IM9000 For the IM3570 (Factory-installed option)

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Simple Circuit Analysis & Detailed Acceptance/Rejection Decision-Making

EQUIVALENT CIRCUIT ANALYSIS FIRMWARE **IM9000**



- The IM9000 can automatically select the equivalent circuit model from the five typical models to minimize the differences between the measured values and the ideal frequency characteristics derived from the analysis results
- An acceptance/rejection decision can be made for the L, C, and R elements comprising a part and the resonance sharpness (mechanical quality coefficient)
- A detailed decision can be made on the elements using the resonance of a piezoelectric element or inductor

Model No. (Order Code) **IM9000** (Factory option firmware for the IM3570)

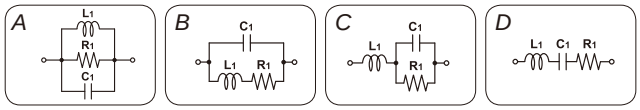
Note: The IM9000 is not included in the standard package. To use the IM9000 function, specify the option upon purchase. Customers who have purchased the Impedance Analyzer IM3570 can add the Equivalent Circuit Analysis Firmware IM9000 function. Please contact your local HIOKI representative.

■ Basic specifications

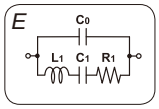
Three-element model	Equivalent circuit model: Four models for Coil, Resistance, Capacitor Measurement items: L1 (Inductance), C1 (Capacitance), R1 (Resistance), Qm (Resonance sharpness), fr (Resonance frequency) / fa (Anti-resonance frequency)
Four-element model	Equivalent crcuit model: One model for Piezoelectric element Measurement items: L1 (Inductance), C1 (Capacitance), R1 (Resistance), C0 (Parallel capacitance), Qm (Resonance sharpness or mechanical quality coefficient) fr (Resonance frequency), fa (Anti-resonance frequency), fs (Series resonance frequency), fp (Parallel resonance frequency), fm (Maximum admittance frequency), fn (Minimum admittance frequency), f1 (Maximum susceptance frequency), f2 (Minimum susceptance frequency)
Other functions	Simulation: Enables displaying and comparing the ideal frequency characteristics graph derived from the analysis results or the values specified by the user Comparator: Runs a comparator on the analysis results and outputs the decision results to screen, EXT. I/O
X-Y display	Cole-Cole plot, Admittance circle display

● Equivalent Circuit Model and Measurement Items

Three-element model



Four-element model



Measurement Frequency from DC, 4Hz to 8MHz

LCR METER **IM3536**

LAN
USB2.0
GP-IB
RS-232C
CE
3 year Warranty

- DC, 4Hz to 8MHz measurement frequency
- High-speed measurement of 1ms (fastest time)
- High-precision measurement of ±0.05% rdg. (representative value)
- Guaranteed accuracy range from 1 mΩ, low-impedance measurement with unmatched repeatability
- DC bias function: Measure under conditions simulating actual use or in accordance with industry standards
- Exceptional specifications and cost-performance for a wide range of applications, from R&D to production lines

Model No. (Order Code) **IM3536**

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately. All probes are constructed with a 1.5D-2V coaxial cable. For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C CABLE 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR (Measurement with single condition), Continuous testing (Continuous measurement under saved conditions)
Measurement parameters	Z, Y, θ, X, G, B, Q, Rdc (DC resistance), Rs (ESR), Rp, Ls, Lp, Cs, Cp, D (tanδ), σ, ε
Measurement range	100 mΩ to 100 MΩ, 10 ranges (All parameters are determined according to Z)
Display range	Z: 0.00 m to 9.99999 GΩ, Y: 0.000 n to 9.99999 GS, θ: ± (0.000° to 180.000°), Q: ± (0.00 to 9999.99), Rdc: ± (0.00 m to 9.99999 GΩ), D: ± (0.00000 to 9.99999), Δ%: ± (0.000 % to 999.999 %), or other
Basic accuracy	Z ±0.05% rdg. θ: ±0.03° (representative value, Measurable range: 1 mΩ to 200 MΩ)
Measurement frequency	4 Hz to 8 MHz (5 digits setting resolution, minimum resolution 10 mHz)
Measurement signal level	[Normal mode: V mode/CV mode] 4 Hz to 1.0000 MHz: 10 mV to 5 Vrms (maximum 50 mArms) 1.0001 MHz to 8 MHz: 10 mV to 1 Vrms (maximum 10mArms) [Low impedance high accuracy mode: V mode/CV mode] 4 Hz to 1.0000 MHz: 10 mV to 1 Vrms (maximum 100 mArms) [Normal mode: CC mode] 4 Hz to 1.0000 MHz: 10 µA to 50 mArms (maximum 5 Vrms) 1.0001 MHz to 8 MHz: 10 µA to 10 mArms (maximum 1 Vrms) [Low impedance high accuracy mode: CC mode] 4 Hz to 1.0000 MHz: 10 µA to 100 mArms (maximum 1 Vrms) [DC resistance measurement] Measurement signal level: Fixed at 1 V
DC bias measurement	Generating range: DC voltage 0 V to 2.50 V (10 mV resolution) In low Z high accuracy mode: 0 V to 1 V (10 mV resolution)
Output impedance	Normal mode: 100 Ω, Low impedance high accuracy mode: 10 Ω
Display	5.7-inch color TFT with touch panel
Functions	Comparator, BIN measurement (10 categories for 2 measurement parameters), Trigger function, Open/short compensation, Contact check, Panel loading/saving, Memory function
Interfaces	EXT. I/O(HANDLER) ,USB, USB flash drive, LAN, GP-IB, RS-232C, BCD
Power supply	100 to 240 V AC, 50/60 Hz, 50 VA max.
Dimensions and mass	330 mm (12.99 in) W × 119 mm (4.69 in) H × 230 mm (9.06 in) D, 4.2 kg (148.1 oz)
Accessories	Power cord ×1, Instruction manual ×1, LCR application disc (Communications user manual) ×1

Probe and Test fixtures

SMD TEST FIXTURE IM9110
Direct connection two-terminal measurement type for measuring SMDs, DC to 1 MHz, measurable sample sizes: 008004 (EIA)

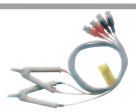
SMD TEST FIXTURE IM9100
Direct connection type, For measuring SMDs with electrodes on the bottom, DC to 8 MHz, measurable sample sizes: 01005 to 0402 (EIA), 0402 to 1005 (JIS)

4-TERMINAL PROBE L2000
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 5 mm (0.20 in)

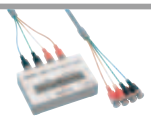
PINCHER PROBE L2001
Cable length 73 cm (28.74 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)

CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

CONTACT TIPS IM9902
To replace the tip on the L2001, small size



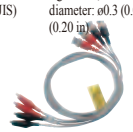
4-TERMINAL PROBE 9140-10
Cable length 1 m (3.28 ft), DC to 200 kHz, 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 5 mm (0.20 in)



TEST FIXTURE 9261-10
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 1.5 mm (0.06 in)

TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)



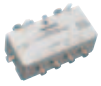
4-TERMINAL PROBE 9500-10
Cable length 1 m (3.28 ft), DC to 200 kHz, impedance characteristics of 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)

SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high

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

DC BIAS VOLTAGE UNIT 9268-10
Direct connection type, 40 Hz to 8 MHz, maximum applied voltage of DC ±40 V



DC BIAS CURRENT UNIT 9269-10
Direct connection type, 40 Hz to 2 MHz, maximum applied current of DC 2 A

PC communication

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

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Ideal for Production Lines of Electronic Parts and Automated Testing

LCR METER **IM3523**

USB2.0
LAN option
GP-IB option
RS-232C option
CE
3 year Warranty

- ±0.05% accuracy with wide measurement range (DC, 40Hz to 200kHz, 5mV to 5V, 10uA to 50mA)
- Non-stop testing over mixed measurement conditions such as C-D(120 Hz) and ESR(100 kHz) at 10 times the speed of previous models (compared with Model 3532-50)
- Built-in comparator and BIN functions
- Rapid 2msec test time

Model No. (Order Code) **IM3523**

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately. All probes are constructed with a 1.5D-2V coaxial cable. For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C CABLE 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement modes	LCR (Measurement with single condition), Continuous testing (Continuous measurement under saved conditions)
Measurement parameters	Z, Y, θ, X, G, B, Q, Rdc (DC resistance), Rs (ESR), Rp, Ls, Lp, Cs, Cp, D (tanδ), σ, ε
Measurement range	100 mΩ to 100 MΩ, 10 ranges (All parameters defined in terms of Z.)
Displayable range	Z, Y, Rs, Rp, Rdc, X, G, B, Ls, Lp, Cs, Cp : ± (0.00000 [unit] to 9.99999G [unit]) Real value display for Z and Y only θ: ± (0.000° to 180.000°), D: ± (0.00000 to 9.99999) Q: ± (0.00 to 99999.9), Δ%: ± (0.0000% to 999.999%)
Basic accuracy	Z : ±0.05% rdg. θ: ±0.03°
Measurement frequency	40 Hz to 200 kHz (5 digits setting resolution)
Measurement signal level	V mode, CV mode: 5 mV to 5 Vrms, 1 mVrms steps CC mode: 10 µA to 50 mArms, 10 µArms steps
Output impedance	100 Ω
Display	Monochrome LCD
Measurement time	2 ms (1 kHz, FAST, representative value)
Functions	Comparator, BIN measurement (classify function), Panel loading/saving, Memory function
Interfaces	EXT I/O (handler), USB communication (high-speed) Optional: Choose 1 from RS-232C, GP-IB, or LAN
Power supply	100 to 240 V AC, 50/60 Hz, 50 VA max
Dimensions and mass	260 mm (10.24 in) W × 88 mm (3.46 in) H × 203 mm (7.99 in) D, 2.4 kg (84.7 oz)
Accessories	Power cord ×1, Instruction manual ×1, CD-R (Includes PC commands and sample software) ×1

IM3590, IM3533, IM3523 shared options

Please see shared options for model IM3590

From R&D Applications to Windings, Coil and Transformer Manufacturing

LCR METER IM3533

USB2.0
LAN option
GP-IB option
RS-232C option
CE
3 year Warranty

- ±0.05% accuracy with wide measurement range (DC, 1mHz to 200kHz, 5mV to 5V, 10uA to 50mA)
- Non-stop testing over mixed measurement conditions such as C-D and ESR at 10 times the speed of previous models
- Built-in low impedance high precision mode effective for testing low inductance or the ESR of aluminum electrolysis capacitance
- Dedicated modes for measuring transformer winding ratio, mutual inductance and temperature compensated DCR
- Frequency sweep testing (IM3533-01 only)
- 2m/4m cable setting in addition to the standard 0m/1m
- Touch screen with intuitive operation

Model No. (Order Code) **IM3533**
IM3533-01 (Advanced function model)

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately. All probes are constructed with a 1.5D-2V coaxial cable.
For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C CABLE 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	IM3533	IM3533-01
Measurement modes	LCR (Measurement with single condition), Transformer testing (N, M, ΔL), Continuous testing(Continuous measurement under saved conditions) (LCR mode)	LCR (Measurement with single condition), Transformer testing (N, M, ΔL), Analyzer (sweep testing), Continuous Testing (LCR/Analyzer mode)
Measurement parameters	Z, Y, θ, X, G, B, Q, Rdc (DC resistance), Rs (ESR), Rp, Ls, Lp, Cs, Cp, D (tanδ), N, M, ΔL, T	
Measurement range	100 mΩ to 100 MΩ, 10 ranges (All parameters defined in terms of Z.)	
Displayable range	Z, Y, Rs, Rp, Rdc, X, G, B, Ls, Lp, Cs, Cp : ± (0.00000 [unit] to 9.99999G [unit]) Real value display for Z and Y only θ: ± (0.000° to 180.000°), D: ± (0.00000 to 9.99999) Q: ± (0.00 to 99999.9), Δ%: ± (0.0000% to 999.999%), T: -10.0°C to 99.9°C	
Basic accuracy	Z : ±0.05% rdg. θ: ±0.03°	
Measurement frequency	1 mHz to 200 kHz (5 digits setting resolution, minimum resolution 1 mHz)	
Measurement signal level	[Normal mode] V mode, CV mode: 5 mV to 5 Vrms, 1 mVrms steps CC mode: 10 µA to 50 mArms, 10 µArms steps [Low impedance high accuracy mode] V mode, CV mode: 5 mV to 2.5 Vrms, 1 mVrms steps CC mode: 10 µA to 100 mArms, 10 µArms steps	
Output impedance	Normal mode: 100 Ω, Low impedance high accuracy mode: 25 Ω	
Display	5.7-inch touch-screen color TFT, display can be set to ON/OFF	
Measurement time	2 ms (1 kHz, FAST, display OFF, representative value)	
Functions	DC bias measurement, DC resistance temperature compensation (converted reference temperature display), Comparator, BIN measurement (classify function), Panel loading/saving, Memory function	
Interfaces	EXT I/O (Handler), USB communication (high-speed), USB memory Optional: Choose 1 from RS-232C, GP-IB, or LAN	
Power supply	100 to 240 V AC, 50/60 Hz, 50 VA max	
Dimensions and mass	330 mm (12.99 in) W × 119 mm (4.69 in) H × 168 mm (6.61 in) D, 3.1 kg (109.3 oz)	
Accessories	Power cord ×1, Instruction manual ×1, CD-R (Includes PC commands and sample software) ×1	

IM3590, IM3533, IM3523 shared options

Please see shared options for model IM3590

Compact & Powerful Dedicated LCR Measurement in 5 msec Timeframes

LCR HiTESTER 3511-50

GP-IB
RS-232C
CE
3 year Warranty

- High speed measurement: 5 ms (1 kHz) or 13 ms (120 Hz)
- Built-in high-speed comparator
- Measurement frequency: 1 kHz/120 Hz selectable
- From minute measurement with a maximum resolution of 0.001 pF (depending on measurement frequency) to high-capacity measurement up to 1 F
- Print measured values and comparator results with the Printer 9442 (option)

Model No. (Order Code) **3511-50** (Measurement frequencies: 120 Hz and 1 kHz)

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately. For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C CABLE 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Measurement parameters	|Z|, θ, R, C, L, D (tanδ), Q
Measurement range	|Z|, R: 10 mΩ to 200.00 MΩ θ: -90.00° to +90.00° C (at 120 Hz): 9.40 pF to 999.99 mF, C (at 1 kHz): 0.940 pF to 99.999 mF L (at 120 Hz): 14.00 µH to 200.00 kH, L (at 1 kHz): 1.600 µH to 20.000 kH D: 0.0001 to 1.9900, Q: 0.85 to 999.99
Basic accuracy	|Z| : ±0.08 % rdg. θ: ±0.05°
Measurement frequency	120 Hz or 1 kHz
Measurement signal level	50 mV, 500 mV, 1 V rms
Output impedance	50 Ω
Display	LED (5-digit display, full-scale count depends on range)
Measurement time	Fast: 13 msec, Normal: 90 msec, Slow: 400 msec. (at 120 Hz) Fast: 5 msec, Normal: 60 msec, Slow: 300 msec. (at 1 kHz)
DC bias	DC voltage/DC current can be superimposed on the measurement signal. (Requires optional unit and external constant voltage source/constant current source.)
Functions	Panel save and load function, Comparator, External input/Output (EXT. I/O), GP-IB (option) or RS-232C interface
Power supply	Selectable 100, 120, 220 or 240V AC ±10%, 50/60Hz, 20VA max.
Dimensions and mass	210 mm (8.27 in)W × 100 mm (3.94 in)H × 168 mm (6.61 in)D, 2.5 kg (88.2 oz)
Accessories	Instruction manual ×1, Power cord ×1, Spare fuse ×1

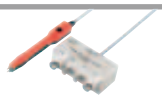
PC Communication

GP-IB INTERFACE 9518-01 — Built into rear panel
GP-IB CONNECTOR CABLE 9151-02 — 2 m (6.56 ft) length

Probe and Test fixtures

SMD TEST FIXTURE IM9110
Direct connection two-terminal measurement type for measuring SMDs, DC to 1 MHz, measurable sample sizes: 008004 (EIA)

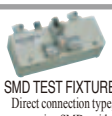
SMD TEST FIXTURE IM9100
Direct connection type, For measuring SMDs with electrodes on the bottom, DC to 8 MHz, measurable sample sizes: 01005 to 0402 (EIA), 0402 to 1005 (JIS)



PINCHER PROBE L2001
Cable length 73 cm (28.74 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)

CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

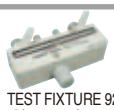
CONTACT TIPS IM9902
To replace the tip on the L2001, small size



SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high

SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)



TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

TEST FIXTURE 9261
DC to 8 MHz, 1 m (3.28 ft) length, impedance characteristics of 75 Ω

4-TERMINAL PROBE 9140
DC to 100 kHz, 1 m (3.28 ft) length, impedance characteristics of 75 Ω

Note: The 9268-01 cannot be used with the 3511-50, use with the 9268/9269, Not CE marked

DC BIAS CURRENT UNIT 9269
42 Hz to 100 kHz, Max. allowable current: ±2A DC

DC BIAS VOLTAGE UNIT 9268
42 Hz to 5 MHz, Max. allowable voltage: ± 40 V DC

CONNECTION CORD 9166
Metal BNC to clip, 1.5 m (4.92 ft) length

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, use at metallic terminal, 1.5 m (4.92 ft) length

Printer options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

CONNECTION CABLE 9444
For the Printer 9442, 9 pin - 9 pin, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

High-speed 1MHz C Tester Delivering Super Precise Measurements Even from Low Capacitance Levels

C METER 3506-10

GP-IB
RS-232C
CE
3 year Warranty

- High-speed analog test time of 0.6 ms (at 1 MHz)
- Improved noise resistance and enhanced repeatability in measurement precision even for production lines
- 1 kHz and 1 MHz measurement frequency supports stable low capacitance testing with taping machines
- BIN function, for easy component screening

Model No. (Order Code) **3506-10** (Measurement frequencies: 1 kHz and 1 MHz)

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately.
For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C cable 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement parameters	C (Capacitance), D (loss coefficient, tan δ), Q (1/tan δ)
Measurement range	C: 0.001 fF to 15.0000 μF, D: 0.00001 to 1.99999, Q: 0.0 to 19999.9
Basic accuracy	(Typ.) C: ±0.14 % rdg., D: ±0.0013
Measurement frequency	1 kHz, 1 MHz
Measurement signal level	500 mV, 1 V rms
Output impedance	1 Ω (at 1 kHz in 2.2 μF and higher ranges), 20 Ω (in ranges other than the above)
Display	LED (six digits, full scale count depends on measurement range)
Measurement time	1.5 ms: 1 MHz, 2.0 ms: 1 kHz (Typ. value. Depends on measurement configuration settings)
Functions	BIN (measurement values can be classified by rank), Trigger-synchronous output, Setting configurations can be stored, Comparator, Averaging, Low-C reject (bad contact detection), Chatter detection, Current detection circuit monitoring, Applied voltage value monitoring, EXT. I/O, RS-232C, GP-IB
Power supply	Selectable from 100, 120, 220 or 240 V AC ±10 %, 50/60 Hz 40 VA max.
Dimensions and mass	260 mm (10.24 in) W × 100 mm (3.94 in) H × 298 mm (11.73 in) D, 4.8 kg (169.3 oz)
Accessories	Power cord ×1, Instruction manual ×1, Spare fuse ×1

Printer options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

RECORDING PAPER 1196
112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

CONNECTION CABLE 9444
9 pin - 9 pin straight, 1.5 m (4.92 ft) length

AC ADAPTER 9443-02
For the Printer 9442, EU type

PC communication

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

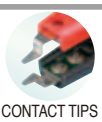
Probe and Test fixtures

SMD TEST FIXTURE IM9110
Direct connection two-terminal measurement type for measuring SMDs, DC to 1 MHz, measurable sample sizes: 008004 (EIA)

SMD TEST FIXTURE IM9100
Direct connection type, For measuring SMDs with electrodes on the bottom, DC to 8 MHz, measurable sample sizes: 01005 to 0402 (EIA), 0402 to 1005 (JIS)

4-TERMINAL PROBE L2000
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 5 mm (0.20 in)

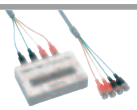
PINCHER PROBE L2001
Cable length 73 cm (2.40 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)



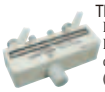
CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

CONTACT TIPS IM9902
To replace the tip on the L2001, small size

4-TERMINAL PROBE 9140-10
Cable length 1 m (3.28 ft), DC to 200 kHz, 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 5 mm (0.20 in)



TEST FIXTURE 9261-10
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: ø0.3 (0.01 in) to 1.5 mm (0.06 in)

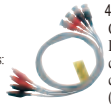


TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)

SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)

SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high



4-TERMINAL PROBE 9500-10
Cable length 1 m (3.28 ft), DC to 200 kHz, impedance characteristics of 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 2 mm (0.08 in)

High-speed, Large-capacitance MLCC Inspection with Constant Voltage

C HiTESTER 3504

GP-IB
RS-232C
CE
3 year Warranty

- High speed measurement of 2ms
- Supports C measurements with voltage dependency characteristics through the use of constant voltage testing (CV)
- Model 3504-60 can detect contact failure on all 4 terminals for increased reliability
- BIN function on the 3504-60/-50 is ideal for sorting machines
- Model 3504-40 offers high speed and affordability, perfect for integrating into taping machines
- In all models, contact error is constantly monitored during measurement, contributing to increased yield

Model No. (Order Code) **3504-40** (Built-in RS-232C interface)
3504-50 (Built-in GP-IB, RS-232C)
3504-60 (Built-in GP-IB, RS-232C)

This product is not supplied with measurement probes or test fixtures. Please select and purchase the measurement probe or test fixture options appropriate for your application separately. For an RS-232C connection: A crossover cable for interconnection can be used. You can use the RS-232C CABLE 9637 without hardware flow control.

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Measurement parameters	C (capacitance), D (loss coefficient tan δ)
Measurement range	C: 0.9400 pF to 20.0000 mF, D: 0.00001 to 1.99999
Basic accuracy	(Typ.) C: ±0.09 % rdg. ±10 dgt., D: ±0.0016
Measurement frequency	120 Hz, 1 kHz
Measurement signal level	100 mV (3504-60 only), 500 mV, 1 V rms CV 100 mV Measurement range: up to 170 μF range (Source frequency 1 kHz), up to 1.45 mF range (Source frequency 120 Hz) CV 500 mV Measurement range : up to 170 μF range (Source frequency 1 kHz), up to 1.45 mF range (Source frequency 120 Hz) CV 1V Measurement range : up to 70 μF range (Source frequency 1 kHz), up to 700 μF range (Source frequency 120 Hz)
Output impedance	5Ω (In open terminal voltage mode outside of the CV measurement range)
Display	LED (six digits, full scale count depends on measurement range)
Measurement time	2 ms (Typ. value. Depends on measurement configuration settings)
Functions	4-terminal contact check function (3504-60 only) BIN (measurement values can be classified by rank) (3504-50, 3504-60), Trigger-synchronous output, Setting configurations can be stored, Comparator, Averaging, Low-C reject (bad contact detection), Chatter detection, EXT. I/O, RS-232C GP-IB (3504-50, 3504-60)
Power supply	Selectable from 100, 120, 220 or 240 V AC ±10 %, 50/60 Hz, 110 VA max.
Dimensions and mass	260 mm (10.24 in)W × 100 mm (3.94 in)H × 220 mm (8.66 in)D, 3.8 kg(134.0 oz)
Accessories	Power cord ×1, Instruction manual ×1, Spare fuse ×1

Printer options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

RECORDING PAPER 1196
112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

CONNECTION CABLE 9444
9 pin - 9 pin straight, 1.5 m (4.92 ft) length

AC ADAPTER 9443-02
For the Printer 9442, EU type

PC communication

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

Probe and Test fixtures

PINCHER PROBE L2001
Cable length 73 cm (2.40 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)

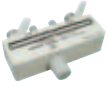
CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

CONTACT TIPS IM9902
To replace the tip on the L2001, small size

SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high

SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)



TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

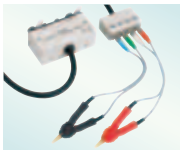
TEST FIXTURE 9261
DC to 8 MHz, 1 m (3.28 ft) length, impedance characteristics of 75 Ω

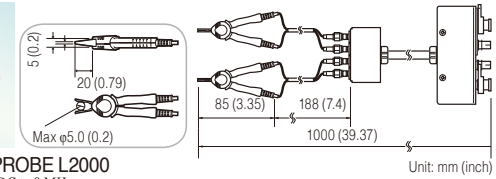
4-TERMINAL PROBE 9140
DC to 100 kHz, 1 m (3.28 ft) length, impedance characteristics of 75 Ω

For LCR Meters and Impedance Analyzers
Probes & Test Fixtures and Applicable SMD size

Please use the probes specified below. For probe characteristic impedance of 50 Ω, a 50 Ω coaxial cable is used. For probe characteristic impedance of 75 Ω, a 75 Ω coaxial cable is used.

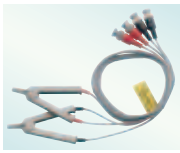
Probes and Test Fixtures for Lead Components

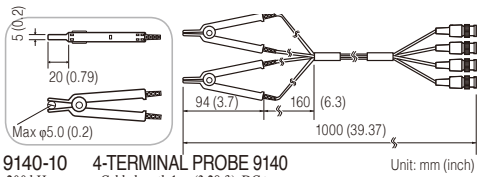




Unit: mm (inch)

FOUR-TERMINAL PROBE L2000
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: φ0.3 (0.01 in) to 5 mm (0.20 in)

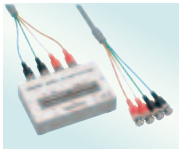




Unit: mm (inch)

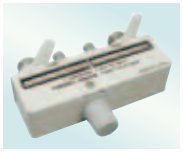
4-TERMINAL PROBE 9140-10
Cable length 1 m (3.28 ft), DC to 200 kHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: φ0.3 (0.01 in) to 5 mm (0.20 in)

4-TERMINAL PROBE 9140
Cable length 1 m (3.28 ft), DC to 100 kHz, impedance characteristics of 75 Ω, 4-terminal configuration, measurable conductor diameter: φ0.3 (0.01 in) to 5 mm (0.20 in)



TEST FIXTURE 9261-10
Cable length 1 m (3.28 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, measurable conductor diameter: φ0.3 (0.01 in) to 1.5 mm (0.06 in)

TEST FIXTURE 9261
Impedance characteristics of 75 Ω, 4-terminal configuration, Other specifications are the same as for the 9261-10



TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: φ0.3 (0.01 in) to 2 mm (0.08 in)

Test Fixtures for SMDs

Applicable SMD size

✓ : Measurable
▲ : May not be measurable depending on the shape.

SMD type		Length: L	Width: W	IM9201	IM9110	IM9100	L2001 with tip IM9901	L2001 with tip IM9902	9699	9677	9263
JIS CODE	EIA CODE										
0201	008004	0.25 mm (0.01 in)	0.125 mm (0.005 in)		✓						
0402	01005	0.40 mm (0.02 in)	0.20 mm (0.01 in)			✓				▲	
0603	0201	0.60 mm (0.02 in)	0.30 mm (0.01 in)	✓		✓		✓		▲	
1005	0402	1.00 mm (0.04 in)	0.50 mm (0.02 in)	✓		✓		✓		✓	
1608	0603	1.60 mm (0.06 in)	0.80 mm (0.03 in)	✓			✓	✓	✓	✓	▲
2012	0805	2.00 mm (0.08 in)	1.25 mm (0.05 in)	✓			✓	✓	✓	▲	✓
3216	1206	3.20 mm (0.13 in)	1.60 mm (0.06 in)	✓			✓	✓	▲		✓
3225	1210	3.20 mm (0.13 in)	2.50 mm (0.10 in)	✓			✓	✓	▲		✓
4532	1812	4.50 mm (0.18 in)	3.20 mm (0.13 in)				✓	✓			✓
5750	2220	5.70 mm (0.22 in)	5.00 mm (0.20 in)				✓	✓			✓

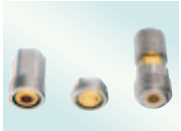
SMD TEST FIXTURE IM9201, IM9200
Direct connection two-terminal measurement type DC to 3 GHz, measurable sample sizes: 0201 to 1210 (EIA)

Use in combination

SMD TEST FIXTURE IM9201
Use in combination with the IM9200

TEST FIXTURE STAND IM9200
Includes magnifying glass

ADAPTER(3.5mm/7mm) IM9906
3.5 mm (0.14 in) male to 7 mm (0.28 in) conversion

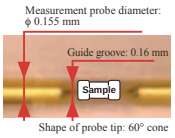


CALIBRATION KIT IM9905
Open/Short/Load set

SMD TEST FIXTURE IM9110
Direct connection two-terminal measurement type for measuring SMDs, DC to 1 MHz, measurable sample sizes: 008004 (EIA)

Probe contact

Advanced contact technology delivers highly reproducible measurement results.



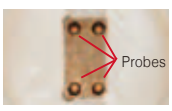
SMD TEST FIXTURE IM9100
Direct connection type, SMDs with electrodes on the bottom, DC to 8 MHz, Measurable sample sizes: 01005 to 0402 (EIA)

SMD positioning mechanism

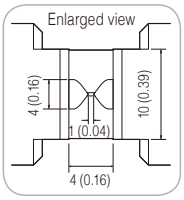
Test pieces can be positioned easily and reliably using templates and guide grooves for various SMD sizes.

High-precision four-terminal measurement

The fixture uses stable, high-precision four-terminal measurement to reliably apply four probes to the SMD's small electrodes.

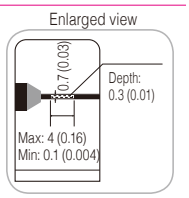


SMD TEST FIXTURE 9699
Direct connection type, For measuring SMDs with electrodes on the bottom; DC to 120 MHz, test sample dimensions: 1.0 mm (0.04 in) to 4.0 mm (0.16 in) wide, max. 1.5 mm (0.06 in) high

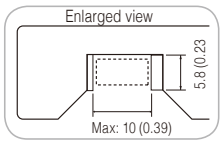


Unit: mm (inch)

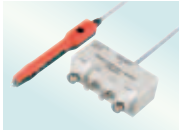
SMD TEST FIXTURE 9677
Direct connection type, For measuring SMDs with electrodes on the side; DC to 120 MHz, test sample dimensions: 3.5 mm ±0.5 mm (0.14 in ±0.02 in)



SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, Test sample dimensions: 1 mm (0.04 in) to 10 mm (0.39 in)



Unit: mm (inch)



PINCHER PROBE L2001
Cable length 73 cm (2.40 ft), DC to 8 MHz, impedance characteristics of 50 Ω, 4-terminal pair configuration, tip electrode spacing: 0.3 (0.01 in) to 6 mm (0.24 in)

CONTACT TIPS IM9901
To replace the tip on the L2001, regular size, bundled with the L2001

CONTACT TIPS IM9902
To replace the tip on the L2001, small size

High-precision Portable Resistance Meter Measures from μΩ to MΩ

RESISTANCE METER **RM3548**

USB2.0 CE 3 year Warranty

- 0.02 % basic accuracy, 0.1 μΩ max. resolution, 1A max. testing current
- Measure from 0.0 μΩ (testing current 1 A) to 3.5 MΩ
- Easily record up to 1,000 data points in memory simply by applying the instrument's probes
- Smoothly capture temperature-rise test data using interval measurement
- Portable design is ideal for maintenance and testing of large equipment

Model No. (Order Code) **RM3548**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

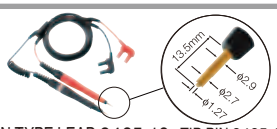
Resistance range	3 mΩ (3.5000 mΩ display max., 0.1 μΩ resolution) to 3 MΩ range (3.5000 MΩ display max., 100 Ω resolution), 10 steps Measurement accuracy: ±0.020 % rdg. ±0.007 % f.s.
Testing current	[at 3 mΩ range] 1 A DC to [at 3 MΩ range] 500 nA DC
Open-terminal voltage	5.5 V DC max.
Temperature measurement	-10.0°C to 99.9°C, accuracy: ±0.5°C (Temperature Sensor Z2002 and RM3548 combined accuracy)
Measurement speed	Fixed
Display refresh rate	Without OVC: approx. 100ms, With OVC: approx. 230ms
Functions	Temperature correction, temperature conversion, offset voltage compensation (OVC), comparator (ABS/REF%), length conversion, judgment sound setting, auto hold, auto power save (APS), Averaging, panel store/panel load, USB communication interface (RM3548 internal memory is recognized as a mass storage device when connected to a PC)
Memory storage	Number of recordable data points: (manual/auto) Up to 1,000, (interval) Up to 6,000; Interval: 0.2s to 10.0s (0.2s steps); Acquisition of data from memory: display, USB mass storage (CSV, TXT files)
Power supply	LR6 (AA) Alkaline batteries ×8, Continuous use: 10 hours (Under our company's conditions), Rated power consumption: 5 VA max.
Dimensions and mass	192 mm (7.56 in) W × 121 mm (4.76 in) H × 55 mm (2.17 in) D, 770 g (27.2 oz)
Accessories	Clip type lead L2107 ×1, Temperature sensor Z2002 ×1, LR6 Alkaline battery ×8, Instruction manual ×1, USB Cable(A-to-mini B type) ×1, Strap ×1, Spare fuse ×1

*The L2107, Z2002 are bundled with the RM3548

Measurement Leads

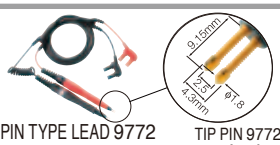
CLIP TYPE LEADS L2107
A: 130 mm (5.12 in), B:84 mm (3.31 in), L:1.1 m (3.61 ft), 70 V DC

FOUR TERMINAL LEAD 9453
A:280 mm (11.02 in), B:118 mm (4.65 in), L:1.36 m (4.46 ft), 60 V DC



PIN TYPE LEAD 9465-10
A: (red) 100 mm (3.94 in), (black) Max. 550 mm (21.65 in), B: 121 mm (4.76 in), L: 1883 mm (6.18 ft)

TIP PIN 9465-90
To replace the tip on the 9465-10, (one piece)



PIN TYPE LEAD 9772
A: (red) 100 mm (3.94 in), (black) Max. 550 mm (21.65 in), B: 118 mm (4.65 in), L: 1880 mm (6.17 ft)

TIP PIN 9772-90
To replace the tip on the 9772, L2100, (one piece)

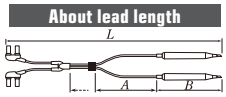
LARGE CLIP TYPE LEAD 9467
A: 300 mm (11.81 in), B: 131 mm (5.16 in), L: 1310 mm (4.30 ft), tip ϕ 28 mm (1.10 in), 50 V DC

TEMPERATURE SENSOR Z2002
100 mm (3.94 in) length

LED COMPARATOR ATTACHMENT L2105
2 m (6.56 ft) length

ZERO ADJUSTMENT BOARD 9454
For the L2100, 9465-10, 9465, 9461

About lead length



A: From junction to probe
B: Probe length
L: Overall length

Note: For L2107, length "A" can be extended by roughly 0.8 m (2.62 ft) by cutting the binding tube. Length "A" for all other leads cannot be extended.

Case

CARRYING CASE C1006
For the RM3548

Featuring Super-high Accuracy and Multi-channel Capabilities (20 channels with 4-terminal measurement)

RESISTANCE METER **RM3545**

GP-IB RM3545-01 RS-232C USB2.0 CE 3 year Warranty

- 0.006% basic accuracy, 0.01 μΩ max. resolution, 1A max. testing current
- Measure from 0.00 μΩ (testing current 1 A) to 1200 MΩ
- Multiplexer Unit Z3003 (option) provides 20-channels of 4-terminal measurements for a complete assessment of multi-point signals (RM3545-02 only)
- Low-power resistance measurement with an open voltage not exceeding 20 mV
- High-speed, comprehensive productivity support delivers decisions in as little as 2.0 ms from start to finish

Model No. (Order Code) **RM3545**
RM3545-01 (Built-in GP-IB interface)
RM3545-02 (Support for the multiplexer unit)

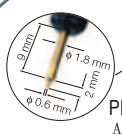
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Resistance range	10 mΩ (12.00000 mΩ display max., 10 nΩ resolution) to 1000 MΩ range (1200.0 MΩ display max., 100 kΩ resolution), 12 steps [LP ON] 1000 mΩ (1200.00 mΩ display max., 10 μΩ resolution) to 1000 Ω range (1200.00 Ω display max., 10 mΩ resolution), 4 steps Measurement accuracy: ±0.006 % rdg. ±0.001 % f.s.
Testing current	1 A DC to 100 nA DC [LP ON] 1 mA to 5 μA DC
Open-terminal voltage	20 V DC max. (10 kΩ range or more), 5.5 V DC max. (1000 Ω range or less) [LP ON] 20 mV DC max.
Temperature measurement	-10.0°C to 99.9 °C, accuracy: ±0.5 °C (Temperature Sensor Z2001 and RM3545 combined accuracy), -99.9°C to 999.9°C (analog input)
Measurement speed	FAST (2.0ms) / MED (50Hz: 22ms, 60Hz: 19ms) / SLOW1 (102ms) / SLOW2 (202ms) * Measurement speed is different at each range, 2.0 ms is the fastest value
Functions	Temperature correction, temperature conversion, offset voltage compensation (OVC), comparator (ABS/ REF%), BIN, key-lock (OFF, menu lock, all lock), display digit count selection function (7- digit/ 6-digit/ 5-digit), automatic power supply frequency settings (AUTO/ 50Hz/ 60Hz), scaling, judgment sound setting, auto hold, averaging, statistical calculations, panel store/panel load, D/A output.
Multiplexer	[Only RM3545-02] Support unit: Z3003 (Install up to 2 units)
Communication interfaces	Select from GP-IB (RM3545-01 only), RS-232C, PRINTER (RS-232C), or USB . Remote function, communications monitor function, data output function, memory (50)
Power supply	100 V to 240 V AC, 50 Hz/60 Hz, Rated power consumption: 40 VA max.
Dimensions and mass	215 mm (8.46 in) W × 80 mm (3.15 in) H × 306.5 mm (12.07 in) D [RM3545/RM3545-01] 2.5 kg (88.2 oz), [RM3545-02] 3.2 kg (112.9 oz)
Accessories	Power cord ×1, Clip type lead L2101 ×1, temperature sensor Z2001 ×1, Male EXT I/O connector ×1, Instruction manual ×1, Application disc ×1, USB cable (A-to-B type) ×1, Spare fuse ×1

*The L2101, Z2001 are bundled with the RM3545 series

Measurement Leads / Input scanner

CLIP TYPE LEAD L2101
A: 250 mm (9.84 in), B:84 mm (3.31 in), L:1.5 m (4.92 ft)



PIN TYPE LEAD L2102
A: 250 mm (9.84 in), B:178 mm (7.01 in), L:1.5 m (4.92 ft)

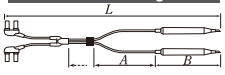
PIN TYPE LEAD L2103
A: 250 mm (9.84 in), B:176 mm (6.93 in), L:1.5 m (4.92 ft)

4 -TERMINAL LEAD L2104
A: 280 mm (11.02 in), B:149 mm (5.87 in), L:1.5 m (4.92 ft)

TEMPERATURE SENSOR Z2001
1.75 m (5.74 ft) length
(RM3545/RM3545-01/ RM3545-02 Bundled accessory, RM3544/RM3544-01 Option)

LED COMPARATOR ATTACHMENT L2105
2 m (6.56 ft) length

About lead length



A: From junction to probe
B: Probe length
L: Overall length

Note: For L2101 to L2104, length "A" can be extended by roughly 1.1 m (3.61 ft) by cutting the binding tube.

for RM3545-02

MULTIPLEXER UNIT Z3003
4-wire 10ch or 2-wire 21ch input scanning

PC Communication

*The 9151-02 is only for the RM3545-01

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

Discontinued

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

Long-Selling Model for Low Resistance Measurement

RESISTANCE METER **RM3544**

USB 2.0 RM3544-01
RS-232C RM3544-01
CE
3 year Warranty

- 0.02 % basic accuracy, 1 µΩ max. resolution, 300 mA max. measurable current
- Measure from 0.000 mΩ (testing current 300 mA) to 3.5 MΩ
- Probe for guard jack use and increased measurement current yield an instrument that's more resistant to noise
- Optional LED COMPARATOR ATTACHMENT and high-volume judgment tones combine to ensure PASS/FAIL judgments are communicated reliably in the noisy environment of the production floor
- EXT I/O interface with NPN/PNP support can accommodate a variety of automated production lines (-01 model)

Model No. (Order Code) **RM3544** (No interfaces)
RM3544-01 (Built-in EXT I/O, RS-232C, USB)

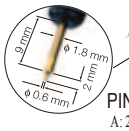
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

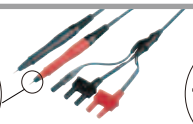
Resistance range	30 mΩ (35.000 mΩ display max., 1 µΩ resolution) to 3 MΩ range (3.5000 MΩ display max., 100 Ω resolution), 9 steps Measurement accuracy: ±0.020 % rdg. ±0.007 % f.s.
Testing current	[at 30 mΩ range] 300 mA DC to [at 3 MΩ range] 500 nA DC
Open-terminal voltage	5.5 V DC max.
Temperature measurement	-10.0 °Cto 99.9°C, accuracy: ±0.5 °C (Temperature Sensor Z2001 and RM3544 combined accuracy)
Measurement speed	FAST (50Hz: 21ms, 60Hz: 18ms) / MED (101ms) / SLOW (401ms)
Display refresh rate	N/A
Functions	Temperature correction, comparator (ABS/REF%), key-lock (OFF, menu lock, all lock), display digit count selection function (5 digits/ 4 digits), automatic power supply frequency settings (AUTO/50Hz/60Hz), scaling, judgment sound setting, auto hold, averaging, panel store/panel load
Memory storage	N/A
Communication interfaces	[Only RM3544-01] Select from RS-232C, PRINTER (RS-232C), or USB Remote function, communications monitor function, data output function
Power supply	100 V to 240 V AC, 50 Hz/60 Hz, Rated power consumption: 15 VA max.
Dimensions and mass	215 mm (8.46 in) W × 80 mm (3.15 in) H × 166 mm (6.54 in) D [RM3544] 0.9 kg (31.7 oz), [RM3544-01] 1.0 kg (35.3 oz)
Accessories	[RM3544] Power cord ×1, Clip type lead L2101 ×1, Instruction manual ×1, Spare fuse ×1 [RM3544-01] Power cord ×1, Clip type lead L2101 ×1, Male EXT I/O connector ×1, Instruction manual ×1, Application disc ×1, USB cable (A-to-B type) ×1, Spare fuse ×1

*The L2101 is bundled with the RM3544 series

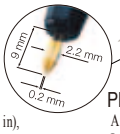
Measurement Leads / Input scanner

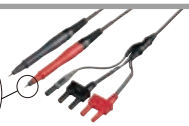
CLIP TYPE LEAD L2101
A: 250 mm (9.84 in), B:84 mm (3.31 in), L:1.5 m (4.92 ft)





PIN TYPE LEAD L2102
A: 250 mm (9.84 in), B:178 mm (7.01 in), L:1.5 m (4.92 ft)





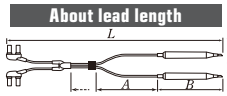
PIN TYPE LEAD L2103
A: 250 mm (9.84 in), B:176 mm (6.93 in), L:1.5 m (4.92 ft)

4 -TERMINAL LEAD L2104
A: 280 mm (11.02 in), B:149 mm (5.87 in), L:1.5 m (4.92 ft)

TEMPERATURE SENSOR Z2001
1.75 m (5.74 ft) length

LED COMPARATOR ATTACHMENT L2105
2 m (6.56 ft) length

About lead length



A: From junction to probe
B: Probe length
L: Overall length

Note: For L2101 to L2104, length "A" can be extended by roughly 1.1 m (3.61 ft) by cutting the binding tube.

PC Communication

*For the RM3544-01

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

Resistance Meter for Ultra-low and Low Shunt Resistance

RESISTANCE HiTESTER **RM3543**

GP-IB RM3543-01
RS-232C
CE
3 year Warranty

- Advanced enough to measure 0.1 mΩ shunts with room to spare at ±0.16% accuracy & 0.01µΩ resolution performance
- Superb repeatable measurement accuracy
- Advanced contact-check, comparator, and data export functions
- Intuitive user interface and strong noise immunity are ideal for automated systems

Model No. (Order Code) **RM3543**
RM3543-01 (Built-in GP-IB interface)

Test fixtures are not supplied with the unit. Select an optional test fixture when ordering.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement method	Four-terminal, constant-current DC
Resistance range	10 mΩ (max. 12.00000 mΩ, 0.01 µΩ resolution) to 1000 Ω range (max. 1200.000 Ω, 1 mΩ resolution), 6 steps
Display	Monochrome graphic LCD 240 × 64 dot, white LED backlight
Measurement accuracy	[at 10 mΩ range, with SLOW mode, average 16 times settings] ±0.060 % rdg. ±0.001 % f.s.
Testing current	[at 10 mΩ range] 1 A DC to [at 1000 Ω range] 1 mA DC
Open-terminal voltage	20 V DC max. *Note: Voltage when not measuring is 20 mV or less, with current mode set at PULSE and Contact Improver Setting set at OFF/PULSE (measured with a voltmeter having 10 MΩ)*
Sampling rate	FAST, MEDIUM, SLOW, 3 settings
Integration time	[at 10 mΩ range, default value] FAST 2.0 ms, MED 5.0 ms, SLOW 1 PLC, Setting range: 0.1 ms to 100.0 ms, or 1 to 5 PLC at 50 Hz, 1 to 6 PLC at 60 Hz *Note: PLC = one power line cycle (mains wave-form period)*
Other functions	Comparator (compare setting value with measurement value), Delay, OVC (offset voltage compensation), Average, Measurement fault detection, Probe short-circuit detection, Improve contact, Current mode setting (A pulse application function that applies current only during measurement), Auto-memory, Statistical calculations, Settings monitor (when using two instruments, a difference in settings causes warning notification), Retry, Trigger function. etc,.
Interfaces	External I/O, RS-232C, Printer (RS-232C), GP-IB (Model RM3543-01)
External I/O	Trigger, Hold input, Comparator output, Settings monitor terminal, Service power output +5V, +12V, etc.
Power supply	100 V to 240 V AC, 50 Hz/60 Hz, 40 VA max.
Dimensions and mass	260 mm (10.24 in) W × 88 mm (3.46 in) H × 300 mm (11.81 in) D, 3.0 kg (105.8 oz)
Accessories	Power cord ×1, EXT I/O male connector ×1, Instruction manual ×1, Operation guide ×1

Probe and Test fixtures

4-TERMINAL PROBE 9500
DC to 1 MHz, 1 m (3.28 ft) length

4-TERMINAL PROBE 9140
DC to 100 kHz, 1 m (3.28 ft) length, impedance characteristics of 75 Ω

TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, Test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

High-Speed Resistance Meter Ideal for Automated Lines; Compatible with Super-Small Electronic Components

RESISTANCE METER **RM3542A**

GP-IB RM3542-51
RS-232C
CE
3 year Warranty

- Applied voltage limit function lets you switch the detection voltage to 5 V or less
- Contact improvement function suppresses rush current to aid in probing of super-small components
- Extensive selection of measurement ranges ensures the right detection voltage and delivers stable measurement
- Scaling function corrects for mounting state and test stage differences

Model No. (Order Code) **RM3542-50**
RM3542-51 (Built-in GP-IB interface)

Test fixtures are not supplied with the unit. Please select an optional test fixture when ordering.

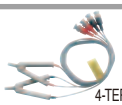
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Resistance range	[at Low Power OFF] 100 mΩ range (max. 120.0000 mΩ, 0.1 μΩ resolution) to 100 MΩ range (max. 120.0000 MΩ, 100 Ω resolution), 16 steps [at Low Power ON] 1000 mΩ range (max. 1200.000 mΩ, 1 μΩ resolution) to 1000 Ω range (max. 1200.000 Ω, 1 mΩ resolution), 6 steps
Display	Monochrome graphic LCD 240 × 64 dot, white LED backlight
Measurement accuracy	[with SLOW mode, at 100 mΩ range] ±0.015 % rdg. ±0.002 % f.s. [with SLOW mode, at 1000 Ω range] ±0.006 % rdg. ±0.001 % f.s. (best case)
Testing current	[at 100 mΩ range] 100 mA DC to [at 100 MΩ range] 100 nA DC
Open-terminal voltage	20 V DC max. (with applied voltage limit function enabled: 10 V DC max.)
Sampling rate	FAST, MEDIUM, SLOW, 3 settings
Measurement times	[at 100 Ω / 300Ω / 1000 Ω ranges, with Low Power OFF] FAST: 0.9 ms, MED: 3.6 ms, SLOW: 17 ms (minimum time)
Integration time	0.1 ms to 100.0 ms, or 1 to 5 PLC at 50 Hz, 1 to 6 PLC at 60 Hz *Note: PLC = one power line cycle (mains wave-form period)*
Other functions	Comparator (compare setting value with measurement value), Delay (set to allow for mechanical delay of trigger input and probing, or set to allow for measurement object response), Applied Voltage Limit Function, Scaling Function, OVC (offset voltage compensation), Measurement fault detection, Probe short-circuit detection, Improve contact, Auto-memory, Statistical calculations, Settings monitor (when using two instruments, a difference in settings causes warning notification), Retry, Trigger function, Sample printing. etc,.
Interfaces	RS-232C, Printer (RS-232C), GP-IB (Model RM3542-51)
External I/O	Trigger, Hold input, Comparator output, Settings monitor terminal
Power supply	100 V to 240 V AC, 50 Hz/60 Hz, 30 VA max.
Dimensions and mass	260 mm (10.24 in) W × 88 mm (3.46 in) H × 300 mm (11.81 in) D, 2.9 kg (102.3 oz)
Accessories	Power cord ×1, EXT. I/O male connector ×1, Instruction manual ×1, Operation guide ×1

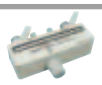
Other options: refer to the detailed catalog

Probe and Test fixtures

SMD TEST FIXTURE IM9100
Direct connection type, For measuring SMDs with electrodes on the bottom, DC to 8 MHz, Measurable sample sizes: 01005 to 0402 (EIA), 0402 to 1005 (JIS)



4-TERMINAL PROBE 9140-10
Cable length 1 m (3.28 ft), DC to 200 kHz, 50 Ω, measurable conductor diameter: φ0.3 mm (0.01 in) to 5 mm (0.20 in)



TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, Test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

Measure in as Fast as 0.9 ms, Optimized for Automated Systems

RESISTANCE HiTESTER **RM3542**

GP-IB RM3542-01
RS-232C
CE
3 year Warranty

- High speed and accuracy maximize productivity in automated systems
- Multiple checking functions ensure proper contact for reliable measurements
- Low-power resistance mode measures chip inductors and EMC suppression components
- Supports sample inspections during the manufacturing process

Model No. (Order Code) **RM3542**
RM3542-01 (Built-in GP-IB interface)

Test fixtures are not supplied with the unit. Please select an optional test fixture when ordering.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Resistance range	[at Low Power OFF] 100 mΩ range (max. 120.0000 mΩ, 0.1 μΩ resolution) to 100 MΩ range (max. 120.0000 MΩ, 100 Ω resolution), 10 steps [at Low Power ON] 1000 mΩ range (max. 1200.000 mΩ, 1 μΩ resolution) to 1000 Ω range (max. 1200.000 Ω, 1 mΩ resolution), 4 steps
Display	Monochrome graphic LCD 240 × 64 dot, white LED backlight
Measurement accuracy	[with SLOW mode, at 100 mΩ range] ±0.015 % rdg. ±0.002 % f.s. [with SLOW mode, at 1000 Ω range] ±0.006 % rdg. ±0.001 % f.s. (the best case)
Testing current	[at 100 mΩ range] 100 mA DC to [at 100 MΩ range] 100 nA DC
Open-terminal voltage	20 V DC max.
Sampling rate	FAST, MEDIUM, SLOW, 3 settings
Measurement times	[at 100 Ω /1000 Ω ranges, with Low Power OFF] FAST: 0.9 ms, MED: 3.6 ms, SLOW: 17 ms (minimum time)
Integration time	0.1 ms to 100.0 ms, or 1 to 5 PLC at 50 Hz, 1 to 6 PLC at 60 Hz *Note: PLC = one power line cycle (mains wave-form period)*
Other functions	Comparator (compare setting value with measurement value), Delay (set to allow for mechanical delay of trigger input and probing, or set to allow for measurement object response), OVC (offset voltage compensation), Measurement fault detection, Probe short-circuit detection, Improve contact, Auto-memory, Statistical calculations, Settings monitor (when using two instruments, a difference in settings causes warning notification), Retry, Trigger function. etc,.
Interfaces	RS-232C, Printer (RS-232C), GP-IB (Model RM3542-01)
External I/O	Trigger, Hold input, Comparator output, Settings monitor terminal
Power supply	100 V to 240 V AC, 50 Hz/60 Hz, 30 VA max.
Dimensions and mass	260 mm (10.24 in) W × 88 mm (3.46 in) H × 300 mm (11.81 in) D, 2.9 kg (102.3 oz)
Accessories	Power cord ×1, EXT. I/O male connector ×1, Instruction manual ×1, Operation guide ×1

Other options: refer to the detailed catalog

Probe and Test fixtures

4-TERMINAL PROBE 9140
DC to 100 kHz, 1 m (3.28 ft) length, impedance characteristics of 75 Ω

TEST FIXTURE 9262
Direct connection type, DC to 8 MHz, measurable conductor diameter: ø0.3 (0.01 in) to 2 mm (0.08 in)

SMD TEST FIXTURE 9263
Direct connection type, DC to 8 MHz, Test sample dimensions:1 mm (0.04 in) to 10 mm (0.39 in)

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

Packed with Features to Ensure Accuracy in Multi-channel Battery Testing

SWITCH MAINFRAME SW1001, SW1002

- Switch between voltmeter and battery tester while testing
- SW1001: max. 66 channels (2-wire) to max. 18 channels (4-terminal pair)
- SW1002: max. 264 channels (2-wire) to max. 72 channels (4-terminal pair)
- Circuit-design-friendly for impedance measurements that minimize errors between channels (Effect: 0.01% f.s.*)
  * For BT4560 100 mΩ range, R measurements, and a measurement frequency of 1 kHz
- For OCV measurement, internal resistance measurement, and external potential measurement of battery cells
- Measure battery modules up to 60 V DC

Model No. (Order Code) **SW1001** (3 slots)
SW1002 (12 slots)

Note: Multiplexer Modules not included with the Switch Mainframe SW1001 / SW1002. Modules must be purchased separately.

■ Basic specifications

	SW1001	SW1002
Slots	3 slots	12 slots
Supported modules	MULTIPLEXER MODULE SW9001 (2-wire/4-wire) MULTIPLEXER MODULE SW9002 (4-terminal pair)	
Connectable instruments	Max. 2 units, 2-wire × 1 + 4-wire × 1, or 2-wire × 1 + 4-terminal pair × 1	
Max. input voltage	60 V DC (Cannot connect to battery packs in excess of 60 V DC), 30 V AC rms, 42.4 V peak, Maximum rated voltage to ground: 60 V DC	
Communication I/F	LAN, USB, RS-232C (for host, for measurement instruments)	
Functions	Channel switching, wiring method, scan function, communication command transmission, etc.	
Power supply	100 to 240 V AC / 30 VA (50/60 Hz)	
Dimensions and mass	215 mm (8.46 in) W × 132 mm (5.20 in) H × 420 mm (16.54 in) D, 3.7 kg (130.5 oz)	430 mm (16.93 in) W × 132 mm (5.20 in) H × 420 mm (16.54 in) D, 6.0 kg (211.6 oz)
Accessories	Power cord ×1, instruction manual ×1, usage precautions ×1, USB driver CD ×1	

■ Basic specifications for MULTIPLEXER MODULE

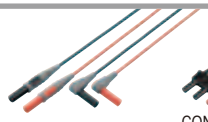
	SW9001	SW9002
Wiring method	2-wire or 4-wire	4-terminal pair (6-wire) or 2-wire
No. of channels	22 channels (2-wire) / 11 channels (4-wire)	6 channels (4-terminal pair) / 6 channels (2-wire)
Contact method	Armature relays	
Channel switching time	11 ms (excluding measurement time)	
Max. allowable voltage	60 V DC, 30 V AC rms, 42.4 V peak	
Max. allowable current	1 A DC, 1 A AC rms	1 A DC, 1 A AC rms (Sense), 2 A DC, 2 A AC rms (Source, Return)
Max. allowable power	30 W (resistive load)	
Max. rated voltage to ground	60 V DC	
Dimensions and mass	25.5 mm (1.00 in) W × 110 mm (4.33 in) H × 257 mm (10.12 in) D, 210 g (7.4 oz)	25.5 mm (1.00 in) W × 110 mm (4.33 in) H × 257 mm (10.12 in) D, 196 g (6.9 oz)
Accessories	Instruction manual ×1	

Modules

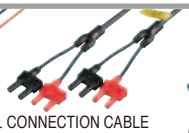
MULTIPLEXER MODULE
SW9001
2-wire/4-wire

MULTIPLEXER MODULE
SW9002
4-terminal pair

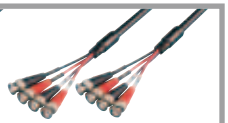
Connection Cables



CONNECTION CABLE SET
L4930
1.2 m (3.94 ft) length

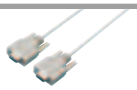


CONNECTION CABLE
L2108
4-Terminal banana, 0.84 m (2.76 ft) length

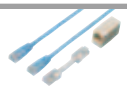


CONNECTION CABLE
L2004
BNC, 0.91 m (2.99 ft) length

Interface Cables



RS-232C CABLE 9637
For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length



LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

USB CABLE(A-B)
L1002
1 m (3.28 ft) length

Compatible products

PRECISION DC VOLTMETER
DM7276

BATTERY HiTESTER
BT3562

BATTERY IMPEDANCE METER
BT4560

CHEMICAL IMPEDANCE ANALYZER
IM3590

Achieve Long Service Life Battery Modules by Measuring Reaction Resistance

BATTERY IMPEDANCE METER BT4560

- Low-frequency AC-IR measurement* : Measure the reaction resistance of a battery
  *The BT4560 ensures battery cell quality by measuring internal impedance at a low frequency of 1 Hz or below
- Extremely reliable measurements for low-impedance batteries
  *The BT4560 uses a testing current of 1.5 A at the 3mΩ range, which improves the S/N ratio
- Circuit configuration highly tolerant of contact and wire resistance to provide stable measurements
- Voltage measurement function equivalent to 6-digit DMM (± 0.0035% rdg.)

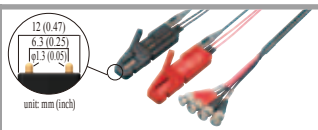
Model No. (Order Code) **BT4560**

Note: This product is not supplied with measurement probes. Please select and purchase the measurement probe options appropriate for your application separately.

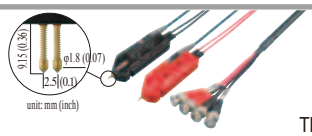
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Allowable input voltage	Up to 5 V
Measured information	Impedance, voltage, temperature
Impedance measurement	Parameters: R, X, Z, θ, Frequency: 0.1 Hz to 1050 Hz, Measurement ranges: 3.0000 mΩ, 10.0000 mΩ, 100.000 mΩ Testing current: 3 mΩ range: 1.5 Arms, 10 mΩ range: 500 mArms, 100 mΩ range: 50 mArms
Voltage measurement	Measurement range: 5.00000 V (single range), Measurement time: 0.1 s (Fast) to 1.0 s (Slow)
Temperature measurement	Range: -10.0 °C to 60.0 °C, Measurement time: 2.3 s
Basic accuracy	Z: ±0.4% rdg. θ: ±0.1 °, V: ±0.0035% rdg. ±5 dgt. , Temperature: ±0.5 °C (at 10.0 to 40.0 °C)
Functions	Comparator, self-calibration, sample delay, average, contact check, measurement current error, and other
Interfaces	RS-232C/USB (virtual COM port) * Cannot be used simultaneously EXT. I/O (NPN/PNP can be switched)
Power supply	100 to 240 V AC, 50/60 Hz, 80 VA max
Dimensions and mass	330 mm (12.99 in) W × 80 mm (3.15 in) H × 293 mm (11.54 in) D, 3.7 kg (130.5 oz)
Accessories	Power cord ×1, Instruction manual ×1, Zero-adjustment board ×1, USB cable (A-B type) ×1, CD-R (communication instruction manual, PC application software, USB driver) ×1

Measurement Probes, Sensors



CLIP TYPE PROBE L2002
Cable length 1.5 m (4.92 ft) length



PIN TYPE PROBE L2003
Cable length 1.5 m (4.92 ft) length

TEMPERATURE SENSOR
Z2005
Cable length 1 m (3.28 ft) length

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

1000V Maximum Input Voltage, High-Voltage Battery Tester for Measuring EV and PHEV Battery Packs

BATTERY HiTESTER **BT3564**

- Measure high-voltage battery packs up to 1000V
- Production line testing of high-voltage battery packs for EV, PHEV
- 0.1 μΩ to 3000 Ω internal resistance range (pack total resistance, bus bar resistance)
- Spark discharge reduction function
- Analog output function
- Optional measurement probe available for 1000 V and high-voltage battery packs

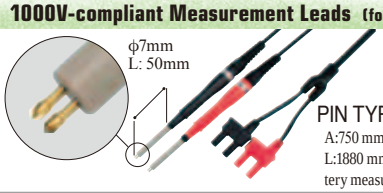
Model No. (Order Code) **BT3564**

Note: Measurement leads are not included. Purchase the appropriate lead option for your application separately. The male (system side) of the EXT I/O connector is also available. Please inquire with your Hioki distributor.

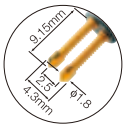
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Max. applied measurement voltage	± 1000 VDC rated input voltage ± 1000 VDC max. rated voltage to earth
Resistance measurement ranges	3 mΩ (max. display 3.1000 mΩ, resolution 0.1 μΩ) to 3000 Ω (max. display 3100.0 Ω, resolution 0.1 Ω), 7 ranges Accuracy: ±0.5 % rdg. ±5 dgt. (30 mΩ to 3000 Ω range), ±0.5 % rdg. ±10 dgt. (3 mΩ range) Testing source frequency: 1 kHz ±0.2 Hz, testing current: 100 mA (3 mΩ range) to 10 μA (3000 Ω range) Open terminal Voltage: 25 V peak (3/30 mΩ ranges), 7 V peak (300 mΩ range), 4 V peak (3 Ω to 3000 Ω range)
Voltage measurement ranges	10 V DC (resolution: 10 μV) to 1000V DC (resolution: 1 m V), 3 ranges Accuracy: ±0.01 % rdg. ±3 dgt.
Display	31000 full digits (resistance), 999999 full digits (voltage, 1000 V range: 999999 or 110000), LED
Sampling time	FAST: 12 ms, MEDIUM: 35 ms, SLOW: 253 ms (Typ., sampling time depends on supply frequency settings and function.)
Total measurement time	Response time + sampling time (Response time for both resistance and voltage are reference value of about 700 ms, depends on measurement object.)
Comparator functions	Judgment result: Hi/IN/Lo (resistance and voltage judged independently) Setting: Upper and lower limit, Deviation (%) from reference value Logical ANDed result: PASS/FAIL, calculates the logical AND of resistance and voltage judgment results. Result display, beeper, or external I/O output (open-collector, 35 V, 50 mA DC max.)
Analog output	Measured resistance (displayed value, from 0 to 3.1 V DC)
Interfaces	External I/O, RS-232C, Printer (RS-232C), GP-IB
Power supply	100 to 240 V AC, 50/60 Hz, 30 VA max.
Dimensions and mass	215 mm (8.46 in) W × 80 mm (3.29 in) H × 295 mm (12.95 in) D, 2.4 kg (84.7 oz)
Accessories	Instruction manual ×1, Power cord ×1 , Operating Precautions ×1

1000V-compliant Measurement Leads (for BT3564)



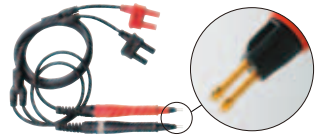
PIN TYPE LEAD L2110
A:750 mm (29.53 in), B:215 mm (8.46 in), L:1880 mm (9.17 ft), for high voltage battery measurements, 1000 V DC max.



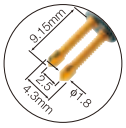
TIP PIN 9772-90
To replace the tip on the Pin type lead 9772, L2100/L2110, (one piece)

BT3564/BT3563/BT3562 Series Shared Options

Measurement Leads A (for measuring high voltage batteries)

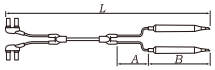


PIN TYPE LEAD L2100
A:300 mm (11.81 in), B:172 mm (6.77 in), L:1400 mm (4.59 ft), for high voltage battery measurements, 1000 V DC max.



TIP PIN 9772-90
To replace the tip on the Pin type lead 9772, L2100/L2110, (one piece)

About probe length



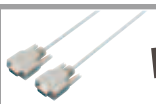
A: From junction to probe
B: Probe part
L: Whole length

Option

Can not be used for PIN TYPE LEAD 9770, 9771

0 ADJ BOARD Z5038
For L2110, L2020, 9465-10, 9772

PC communication



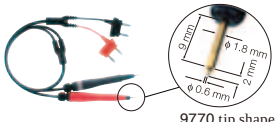
RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Measurement Leads B (for measuring batteries up to 60 V)

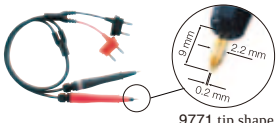
1.8 mm dia. single-axis type for measuring small electrodes



9770 tip shape

PIN TYPE LEAD 9770
A:260 mm (10.24 in), B:140 mm (5.51 in), L:850 mm (2.79 ft), 70V DC

0.2 mm parallel pyramid-type pins for measuring at thru holes and sub-millimeter objects



9771 tip shape

PIN TYPE LEAD 9771
A:260 mm (10.24 in), B:138 mm (5.43 in), L:850 mm (2.79 ft), 70V DC

Measurement Leads C (for measuring batteries up to 60 V)

CLIP TYPE LEAD L2107
A:130 mm (5.12 in), B:83 mm (3.27 in), L:1100 mm (3.61 ft), 70 VDC

FOUR TERMINAL LEAD 9453
A:280 mm (11.02 in), B:118 mm (4.65 in), L:1360 mm (4.46 ft), 60V DC

LARGE CLIP TYPE LEAD 9467
A: 300 mm (11.81 in), B: 131 mm (5.16 in), L: 1310 mm (4.30 ft), tip ϕ 29 mm (1.14 in), 50 V DC

High-speed Measurement from Large-cell to High-voltage Battery Testing

BATTERY HiTESTER **BT3563, BT3562**

GP-IB
BT3563-01,BT3562-01
RS-232C
CE
3 year Warranty

- Measure high-voltage battery packs up to 300V (BT3563)
- Measure the voltage of battery packs up to 60 V (BT3562)
- Production line testing of high-voltage battery packs and battery modules
- Large (low-resistance) cell testing
- Choice of PC interfaces for full remote operation

Note: The comparison threshold values depend on the battery manufacturer, type, and capacity, and these must be established by the user.

Model No. (Order Code) **BT3563**
BT3563-01 (Built-in GP-IB and analog output)
BT3562
BT3562-01 (Built-in GP-IB and analog output)

Note: Measurement leads are not included. Purchase the appropriate lead option for your application separately. The male (system side) of the EXT I/O connector is also available. Please inquire with your Hioki distributor.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	BT3563/BT3563-01	BT3562/BT3562-01
Max. applied measurement voltage	± 300 VDC rated input voltage ± 300 VDC max. rated voltage to earth	± 60 VDC rated input voltage ± 70 VDC max. rated voltage to earth
Resistance measurement ranges	3 mΩ (max. display 3.1000 mΩ, resolution 0.1 μΩ) to 3000 Ω (max. display 3100.0 Ω, resolution 100 mΩ), 7 ranges Accuracy: 30 mΩ to 3000 Ω ranges, ± 0.5% rdg. ± 5 dgt. (Add ± 3 dgt. for EX.FAST, or ± 2 dgt. for FAST and MEDIUM) 3 mΩ range, ± 0.5% rdg. ± 10 dgt. (Add ± 30 dgt. for EX.FAST, or ± 10 dgt. for FAST, or ± 5 dgt. for MEDIUM) Testing source frequency: 1 kHz ± 0.2 Hz, testing current: 100 mA (3 mΩ range) to 10 μA (3000 Ω range) Open terminal Voltage: 25 V peak (3/30 mΩ ranges), 7 V peak (300 mΩ range), 4 V peak (3 Ω to 3000 Ω ranges)	
Voltage measurement ranges	6 VDC (resolution 10 μV) to 300 VDC (resolution 1 mV), 3 ranges	6 VDC (resolution 10 μV) to 60 VDC (resolution 100 μV), 2 ranges
	Accuracy: ± 0.01% rdg. ± 3 dgt. (Add ± 3 dgt. for EX.FAST, or ± 2 dgt. for FAST and MEDIUM)	
Display	31000 full digits (resistance), 600000 full digits (voltage), LED	
Sampling rate	Four steps, 4 ms (Extra-FAST), 12 ms (FAST), 35 ms (Medium), 150 ms (Slow) (Typ., sampling time depends on supply frequency settings and function.)	
Measurement time	Response time + sampling rate, approx. 10 ms for measurements (Response time depends on reference values and the measurement object.)	
Comparator functions	Judgment result: Hi/IN/Lo (resistance and voltage judged independently) Setting: Upper and lower limit, Deviation (%) from reference value Logical ANDed result: PASS/FAIL, calculates the logical AND of resistance and voltage judgment results. Result display, beeper, or external I/O output, Open-collector (35 V, 50 mA DC max.)	
Analog output	Measured resistance (displayed value, from 0 to 3.1 V DC, -01 suffix models only)	
Interfaces	External I/O, RS-232C, Printer (RS-232C), GP-IB (-01 suffix models only)	
Power supply	100 to 240 VAC, 50/60 Hz, 30 VA max.	
Dimensions and mass	215 mm (8.46 in) W × 80 mm (3.15 in) H × 295 mm (11.61 in) D, 2.4 kg (84.7 oz)	
Accessories	Instruction manual ×1, Power cord ×1	

For High-speed Production Line Testing of Small Battery Packs

BATTERY HiTESTER **3561**

GP-IB
3561-01
RS-232C
CE
3 year Warranty

- High-speed testing for production lines of small battery packs for mobile and portable communications devices
- Measure internal resistance and battery voltage
- For process control such as in high-speed automated assembly lines

Note: The comparison threshold values depend on the battery manufacturer, type, and capacity, and these must be established by the user

Model No. (Order Code) **3561**
3561-01 (Built-in GP-IB interface)

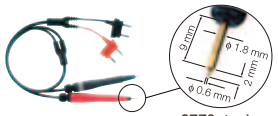
Note: Measurement leads are not included. Purchase the appropriate lead option for your application separately. The male (system side) of the EXT I/O connector is also available. Please inquire with your Hioki distributor.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Max. applied measurement voltage	±22 V DC ±70 V DC maximum rated voltage above ground
Resistance measurement ranges	300 mΩ (max. display 310.00 mΩ, resolution 10 μΩ) to 3 Ω (max. display 3.1000 Ω, resolution 100 μΩ), 2 ranges Accuracy: ±0.5 % rdg. ±5 dgt. (Add ±3 dgt. for EX.FAST, or ±2 dgt. for FAST and MEDIUM) Testing source frequency: 1 kHz ±0.2 Hz, testing current: 10 mA (300 mΩ range), 1 mA (3 Ω range) Open terminal Voltage: 7 V peak
Voltage measurement ranges	DC 20 V, resolution 0.1 mV, Accuracy: ±0.01 % rdg. ±3 dgt. (Add ±3 dgt. for EX.FAST, or ±2 dgt. for FAST and MEDIUM)
Display	31000 full digits (resistance), 199999 full digits (voltage), LED
Sampling rate	Four steps, 4 ms (Extra-FAST), 12 ms (FAST), 35 ms (Medium), 150 ms (Slow) (Typ., sampling time depends on supply frequency settings and function.)
Measurement time	Response time + sampling rate, approx. 3 ms for measurements (Response time depends on reference values and the measurement object.)
Comparator functions	Judgment result: Hi/IN/Lo (resistance and voltage judged independently) Setting: Upper and lower limit, Deviation (%) from reference value Logical ANDed result: PASS/FAIL, calculates the logical AND of resistance and voltage judgment results. Result display, beeper, or external I/O output, Open-collector (35 V, 50 mA DC max.)
Interfaces	External I/O, RS-232C, Printer (RS-232C), GP-IB (-01 suffix models only)
Power supply	100 to 240 V AC, 50/60 Hz, 30 VA max.
Dimensions and mass	215 mm (8.46 in) W × 80 mm (3.15 in) H × 295 mm (11.61 in) D, 2.4 kg (84.7 oz)
Accessories	Instruction manual ×1, Power cord ×1

Measurement Leads B (for measuring batteries up to 60 V)

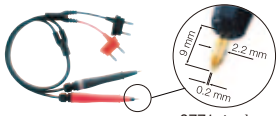
1.8 mm dia. single-axis type for measuring small electrodes



9770 tip shape

PIN TYPE LEAD 9770
A:260 mm (10.24 in), B:140 mm (5.51 in), L:850 mm (2.79 ft), 70V DC

0.2 mm parallel pyramid-type pins for measuring at thru holes and sub-millimeter objects

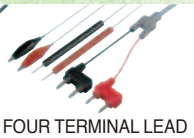


9771 tip shape

PIN TYPE LEAD 9771
A:260 mm (10.24 in), B:138 mm (5.43 in), L:850 mm (2.79 ft), 70V DC

Measurement Leads C (for measuring batteries up to 60 V)

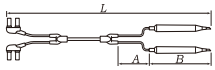
CLIP TYPE LEAD L2107
A:130 mm (5.12 in), B:83 mm (3.27 in), L:1100 mm (3.61 ft), 70 VDC



FOUR TERMINAL LEAD 9453
A:280 mm (11.02 in), B:118 mm (4.65 in), L:1360 mm (4.46 ft), 60V DC

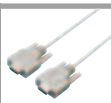
LARGE CLIP TYPE LEAD 9467
A: 300 mm (11.81 in), B: 131 mm (5.16 in), L: 1310 mm (4.30 ft), tip φ 29 mm (1.14 in), 50 V DC

About probe length



A: From junction to probe
B: Probe part
L: Whole length

PC communication



RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Even Speedier Diagnosis of the Deterioration of Lead-acid Batteries Including UPS

BATTERY TESTER **BT3554**

USB 2.0 | CE | 3 year Warranty | Bluetooth

BT3554-01, -11

- Measure and save data in as fast as 2 seconds, a 60% improvement from the legacy 3554
- Instantaneously diagnose battery degradation (PASS, WARNING, FAIL) by measuring internal resistance and voltage
- Noise reduction technology improves noise resistance
- Analyze battery health in real time using Bluetooth® wireless technology
- New protector delivers better ergonomic hold and durability in the field.

Model No. (Order Code)		
	BT3554	(Bundled Pin Type Lead 9465-10)
	BT3554-01	(Bundled Pin Type Lead 9465-10, built-in Bluetooth® wireless technology)
	BT3554-10	(Bundled Pin Type Lead L2020)
	BT3554-11	(Bundled Pin Type Lead L2020, built in Bluetooth® wireless technology)

Note (1) The thresholds for determining the pass/fail condition of a battery depends on the specifications and standards of the battery manufacturer, battery type, capacity, etc. It is important and necessary to always conduct battery testing against the internal resistance and terminal voltage of a new or reference battery.
Note (2) In some cases, it may be difficult to determine the deterioration state of traditional open type (liquid) lead-acid or alkaline batteries which demonstrate smaller changes in internal resistance than sealed lead acid batteries.
For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.
Bluetooth® is a trademark of Bluetooth SIG, Inc. and licensed for use by HIOKI E.E. CORPORATION.

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. (BT3554-01, -11 only) Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play | Download on the App Store

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	BT3554, BT3554-10	BT3554-01, BT3554-11
Resistance measurement range	3 mΩ (max. display 3.100 mΩ, resolution 1 μΩ) to 3 Ω (max. display 3.100 Ω, resolution 1 mΩ), 4 ranges Accuracy: ±0.8 % rdg. ±6 dgt. (3 mΩ range: ±1.0 % rdg. ±8 dgt.) Testing source frequency: 1 kHz ±30 Hz, With function for avoiding noise frequency enabled: 1 kHz ±80 Hz, Testing current: 160 mA (3m/30 mΩ range), 16 mA (300 mΩ range), 1.6 mA (3 Ω range), Open terminal Voltage: 5 V peak	
Voltage measurement range	± 6 V (max. display ±6.000 V, resolution: 1 mV) to ± 60 V (max. display ±60.00 V, resolution: 10 mV), 2 ranges, Accuracy: ±0.08 % rdg. ±6 dgt.	
Absolute max. input voltage	60 V DC max. (No AC input)	
Display update rate	Approx. 3 times/s	
Comparator functions	Resistance warning limit / failure limit, and voltage warning limit setting; Number of comparator setting: 200 sets, Beeper sound, PASS/WARNING or FAIL	
Data storage	Max. storable data: 6000 sets. (Saved items: Date, time, resistance value, voltage value, temperature, comparator setting values, and comparator judgement.)	
Communication interface	Via USB (forward the data to the PC, bundled software) No Bluetooth® Wireless technology	Via USB (forward the data to the PC, bundled software) Built-in Bluetooth® 4.0 LE, supports tablets and smart phones with iOS 10 or Android™4.3 or later GENNECT Cross (Freeware): Display list of measured values, generate reports, or display the trend (on the PC only)
Other functions	Temperature measurement (-10.0 to 60.0 °C), Zero-adjustment, Hold, Auto-hold, Auto-memory, Auto-power-save, Clock	
Power supply	LR6 (AA) Alkaline dry battery ×8, Continuous operating time: 8.5 hr	
Dimensions and mass	199 mm (7.83 in)W × 132 mm (5.20 in)H × 60.6 mm (2.39 in)D (with protector), 937 g (33.1 oz) (including batteries and protector)	199 mm (7.83 in)W × 132 mm (5.20 in)H × 60.6 mm (2.39 in)D (with protector), 947 g (33.4 oz) (including batteries and protector)
Accessories	Zero adjustment board ×1, Instruction manual ×1, Application software CD ×1, Power-on option sticker ×1, Carrying case ×1, LR6 (AA) alkaline batteries ×8, Spare fuse ×1, USB cable ×1, Neck strap ×1, Protector ×1	
	Pin Type Lead 9465-10 ×1 (Bundled with the BT3554), Pin Type Lead L2020 ×1 (Bundled with the BT3554-10)	Precautions concerning use of equipment that emits radio waves ×1, Pin Type Lead 9465-10 ×1 (Bundled with the BT3554-01), Pin Type Lead L2020 ×1 (Bundled with the BT3554-11)

Measurement Leads A

Primarily for use with lead acid batteries, easy 4-terminal measurement, 2.7 mm dia. single-axis type

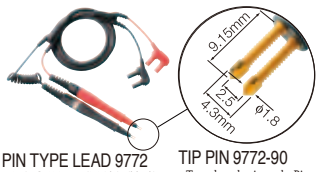
PIN TYPE LEAD L2020
A: 70 mm (2.76 in) (Red), 150 mm (5.91 in) (Black, up to 630 mm (24.8 in)), B: 164 mm (6.46 in), L: 1941 mm (76.42 in) (Red)

TIP PIN 9465-90
To replace the tip on the 9465-10, L2020, (one piece)

PIN TYPE LEAD 9465-10
A: (red) 100 mm (3.94 in), (black) Max. 550 mm (21.65 in), B: 121 mm (4.76 in), L: 1883 mm (6.18 ft)

Measurement Leads B

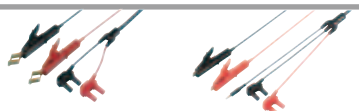
Primarily for use with lead acid batteries, large angle of probe application, 2.5 mm pitch 2-axis pin type



PIN TYPE LEAD 9772
A: (red) 100 mm (3.94 in), (black) Max. 550 mm (21.65 in), B: 118 mm (4.65 in), L: 1880 mm (6.17 ft)

TIP PIN 9772-90
To replace the tip on the Pin type lead 9772, L2100/L2110, (one piece)

Measurement Leads C



LARGE CLIP TYPE LEAD 9467
A: 300 mm (11.81 in), B: 131 mm (5.16 in), L: 1310 mm (4.30 ft), tip φ 29 mm (1.14 in), 50 V DC

CLIP TYPE LEAD WITH TEMPERATURE SENSOR 9460
For the 3554, 3540, A:300 mm (11.81 in), B:106 mm (4.17 in), L:2268 mm (7.44 ft)

REMOTE CONTROL SWITCH 9466
Can hold the values while measuring them, for the BT3554 (use with the L2020), 9772, 9465-10

Option

Use commercially available hook-and-loop fasteners when securing to the carrying case.

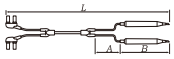
0 ADJ BOARD Z5038
For L2110, L2020, 9465-10, 9772

PC peripherals

For the BT3554-01, BT3554-11 only

GENNECT Cross SF4071, SF4072
Mobile app for iOS, Android

About probe length



A: From junction to probe
B: Probe part
L: Whole length

Test System Ideal for MLCC Leakage Current Measurement

SUPER MΩ HiTESTER SM7810

GP-IB
RS-232C
Not CE Marked
3 year Warranty

- Test the leakage current of MLCCs at the fastest speed of 6.8ms simultaneously over 8 channels
- Conduct high-speed leakage current testing of large-capacity MLCCs in the high current range (1mA)
- Improve testing reliability using the contact check function
- Build a flexible system by making best use of the individual settings of each channel

Model No. (Order Code) **SM7810** (100/110V AC power supply)
SM7810-20 (220V AC power supply)

*The Super MΩ HiTESTER SM7810 is produced to order. An input/output terminal connection cable*1 is required separately. Please contact your local HIOKI representative.*
**1 Input/output terminal connector/plug and connection cable*
• Current input terminal connector and voltage output terminal plug are not included. Voltage input terminal connector is included.
• Input/output terminal connection cables are available in various lengths to suit HIOKI measurement systems. Please consult with your HIOKI representative.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of channels	8 channels (parallel and simultaneous measurement)
Applied voltage	Supply voltage from external power source (voltage input terminal on the rear panel)
Measurement range	Current: 1 pA to 1 mA, Ranges: 100 pA/ 1 nA/ 10 nA/ 100 nA/ 1 µA/ 10 µA/ 100 µA/ 1 mA Resistance: 1×10^2 Ω to 1×10^{15} Ω
Measurement speed INDEX typical time	FAST: 6.8 ms, MED: 26.0 ms, SLOW: 100.0 ms, SLOW2: 320.0 ms
Basic measurement accuracy (1µA range, FAST)	Current accuracy: ±(2.0+ (0.5 µA / (Measured current value))) % Resistance accuracy: Current accuracy + Voltage generation accuracy of external power supply
Testing voltage setting	0.1 V to 1000.0 V (Resolution: 0.1 V)
Contact check	Judges the contact state by comparing the measured capacitance to a reference value
Other functions	Trigger delay, averaging, contact check, jig capacity open correction, Measured value comparison and judgment, jig resistance open correction functions
Interfaces	GP-IB, RS-232C, EXT I/O
Power supply	SM7810: AC 100 V/110 V, 50/60 Hz, 30 VA SM7810-20: AC 220 V, 50/60 Hz, 30 VA
Dimensions and mass	425 mm (16.73 in) W × 99 mm (3.90 in) H × 488 mm (19.21 in) D, 10.5 kg (370.4 oz)
Accessories	Power cord ×1, Instruction manual ×1, Voltage input connector L2220 ×1, Spare fuse (built into inlet) ×1, Rubber feet ×4

Input/Output Cables

MEASURING LEAD (RED) 0GA00007 1 m (3.28 ft) length	MEASURING LEAD (BLACK) 0GA00008 1 m (3.28 ft) length	MEASURING LEAD (BLACK) 0GA00016 5 m (16.41 ft) length	MEASURING LEAD (RED) 0GA00019 1 m (3.28 ft) length
MEASURING LEAD (RED) 0GA00021 2 m (6.56 ft) length	MEASURING LEAD (RED) 0GA00027 5 m (16.41 ft) length		

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Bundled Accessories

CONNECTOR L2220
Voltage input connector for SM7810

The Power Source Unit Ideal for MLCC Leakage Current Measurement

POWER SOURCE UNIT SM7860 series

GP-IB
RS-232C
Not CE Marked
3 year Warranty

Combination example of the SM7610

- Support for multi-channel systems up to 32-channel output
- 8-channels or 16-channels dual-line output voltage setting
- Positive and negative polarities required for the MLCC test line included in a single unit
- Output ON/OFF and current limitation can be performed for each channel
- Support for the discharge of the charge capacitor
- Output voltage of 1 kV is available
- Large current output of 50 mA */channel allows for reducing the number of backup charges

** Output voltage of 1 kV is limited to 10 mA/channel*

Model No. (Order Code) **SM7860-51 /-52 /-53 /-54 /-55 /-56 /-57 /-58** (100V AC power supply)
SM7860-61 /-62 /-63 /-64 /-65 /-66 /-67 /-68 (220V AC power supply)

*The Power Source Unit SM7860 is produced to order. An output terminal connection cable*2 is required separately. Please contact your local HIOKI representative, or if you need to use a power supply voltage other than 100VAC or 220VAC.*
**2 Output terminal cable*
•Voltage output terminal connection cables are available in various lengths to suit HIOKI measurement systems. Please consult with your HIOKI representative.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Supported device	Super MΩ HiTester SM7810 Object to which voltage is applied: MLCC (the Multilayer Ceramic Capacitor)
Generation accuracy	Output voltage accuracy: ±2% of set value ± 0.5 V (with no load) Inter-channel error: ± 0.01 V or less (between outputs on the same line with no load)
Interfaces	GP-IB, RS-232C, EXT I/O
Power supply	SM7860-51 to -58: 100 V AC, SM7860-61 to -68: 220 V AC, 50/60 Hz, 860 VA
Dimensions and mass	425 mm (16.73 in) W × 249 mm (9.80 in) H × 581 mm (22.87 in) D, 47 kg (1657.9 oz) [SM7860-57 / -67] : 34 kg (1199.3 oz)
Accessories	Power cable ×1, Instruction manual ×1, Operating precautions ×1

Other

CONNECTOR L2221
Voltage output connector for SM7860

SM7860 Functions & output channel configuration

SM7860-XX*1		-51 / -61	-52 / -62	-53 / -63	-54 / -64	-55 / -65	-56 / -66	-57 / -67	-58 / -68
OUT1 to 4 output content	OUT1 / OUT2	+500V / +500V	+1kV / +1kV	+500V / +500V	+1kV / +1kV	+500V / discharge	+1kV / discharge	+10V / +10V	+500V / +500V
	OUT3 / OUT4	+500V / +500V	+1kV / +1kV	-500V / -500V	-1kV / -1kV	-500V / discharge	-1kV / discharge	+10V / discharge	+500V / discharge
Overview (Total number of channels and output voltage)		32ch + 500V	32ch + 1000V	32ch ±500V	32ch ±1000V	32ch ±500V, discharge	32ch ±1000V, discharge	32ch + 10V, discharge	32ch + 500V, discharge
Line A	Number of OUT1 channels	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT1 output voltage range *2	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	+1.0 V to +10.0 V	+1.0 V to +500.0 V
	Number of OUT2 channels	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT2 output voltage range *2	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	discharge	discharge	+1.0 V to +10.0 V	+1.0 V to +500.0 V
	Current limitation	±50 mA/ch	±10 mA/ch	±50 mA/ch	±10 mA/ch	±50 mA/ch	±10 mA/ch	±50 mA/ch	±50 mA/ch
	Maximum output current *2	430 mA (200 VA)	100 mA (100 VA)	430 mA (200 VA)	100 mA (100 VA)	430 mA (200 VA)	100 mA (100 VA)	430 mA (4 VA)	430 mA (200 VA)
Line B	Number of OUT3 channels	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT3 output voltage range *2	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	-1.0 V to -500.0 V	-250.0 V to -1000.0 V	-1.0 V to -500.0 V	-250.0 V to -1000.0 V	+1.0 V to +10.0 V	+1.0 V to +500.0 V
	Number of OUT4 channels	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT4 output voltage range *2	+1.0 V to +500.0 V	+250.0 V to +1000.0 V	-1.0 V to -500.0 V	-250.0 V to -1000.0 V	discharge	discharge	discharge	discharge
	Current limitation	±50 mA/ch	±10 mA/ch	±50 mA/ch	±10 mA/ch	±50 mA/ch	±10 mA/ch	±50 mA/ch	±50 mA/ch
	Maximum output current *3	430 mA (200 VA)	100 mA (100 VA)	430 mA (200 VA)	100 mA(100 VA)	430 mA (200 VA)	100 mA (100 VA)	430 mA (4 VA)	430 mA (200 VA)

*1 SM7860-51to -58: Power supply 100 V AC, SM7860-61to -68: Power supply 220 V AC *2 The resolution of the output voltage range is 0.1 V.
*3 Only when the operating conditions as stated in the restriction warnings of the specifications are met.

Min. 6.4 ms Measurement of Super Megohm or Very Small Current

SUPER MEGOHM METER **SM7110, SM7120**

- 300 times better noise resistance
- Max. 2000 V output : SM7120
- Max. 1000 V output : SM7110
- Max. 2 × 10^{19} Ω display
- Min. 0.1 fA resolution
- Built-in EXT I/O, RS-232C, GP-IB and USB
- Flexible, Multipurpose Design, High Resistance Meter/Electrometer/ Picoammeter/IR Meter
- Measure resistance of materials by combining with optional electrode

Model No. (Order Code) **SM7110** (1 ch, 1000 V)
SM7120 (1 ch, 2000 V)

Note: Measurement leads are not included. Purchase the appropriate lead option for your application separately.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of channels	1 ch
DC current measurement	20 pA range (0.1 fA resolution), Accuracy: ±(2.0 % of rdg. +30 dgt.) 200 pA range (1.0 fA resolution), Accuracy: ±(1.0 % of rdg. +30 dgt.) 2 nA range (10 fA resolution), Accuracy: ±(0.5 % of rdg. +20 dgt.) 20 nA range (100 fA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 200 nA range (1 pA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 2 µA range (10 pA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 20 µA range (100 pA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 200 µA range (1 nA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) *2 mA range (1 nA resolution), Accuracy: ±(0.5 % of rdg. +30 dgt.) (1) Measurement speed SLOW2 (internal integration time 13PLC) (2) At a temperature of 23 °C ±5 °C with humidity of 85% rh (3) 2 mA range (Measurement speed FAST only)
Resistance measurement capabilities	50 Ω to 2 × 10^{19} Ω *Note: Resistance measurement accuracy is defined by the current range accuracy and voltage setting accuracy.*
Setting voltage range (Accuracy)	0.1 to 100.0 V, 100 mV resolution, Accuracy: ±0.1 % of setting ±0.05% f.s. 100.1 to 1000 V, 1 V resolution, Accuracy: ±0.1 % of setting ±0.05% f.s.
	[SM7120 only] 1000 to 2000 V,1 V resolution, Accuracy: ±0.2 % of setting ±0.10% f.s.
Current Limiter	0.1 to 250.0 V: 5/ 10/ 50 mA, 251 to 1000 V: 5/ 10 mA, to 2000 V:1.8 mA
Measurement time setting	Delay: 0 to 9,999 ms
Functions	Comparator, averaging, self-calibration, jig Capacity open correction, cable length correction, surface resistivity, volume resistivity, voltage monitor, contact check
Program function	10 types of discharge, charge, measure and measurement sequence discharge patterns can be programmed.
Display	LCD (8 lines of 30 characters), with backlight, High voltage warning indicator
Interfaces	USB, RS-232C, GP-IB, EXT I/O (NPN/PNP can be switched)
Power supply	100 to 240V AC , 50/60 Hz, 45 VA
Dimensions and mass	330 mm (12.99 in)W × 80 mm (3.15 in)H × 450 mm (17.72 in)D, 5.9 kg (208.1 oz)
Accessories	Power cord ×1, Instruction manual ×1, CD-R (Communications command instruction manual, USB driver) ×1, EXT I/O male connector ×1, Short plug ×1

4ch Micro Current Model /Perfect for Automated-Systems Integration

SUPER MEGOHM METER **SM7420**

- 300 times better noise resistance
- 6000 ps/minute - ideal for mass production
- Channel-independent low capacity contact check
- Perfect for equipping on automated machines
- Max. 2 × 10^{19} Ω display
- Min. 0.1 fA resolution
- Built-in EXT I/O, RS-232C, GP-IB and USB
- Ideal for mounting in automated lines, easy to construct MLCC leakage current inspection lines

Model No. (Order Code) **SM7420** (4ch, Dedicated micro current measurement)

Note: Measurement leads are not included. Purchase the appropriate lead option for your application separately.

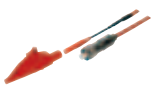
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Number of channels	4ch
DC current measurement	20 pA range (0.1 fA resolution), Accuracy: ±(2.0 % of rdg. +30 dgt.) 200 pA range (1.0 fA resolution), Accuracy: ±(1.0 % of rdg. +30 dgt.) 2 nA range (10 fA resolution), Accuracy: ±(0.5 % of rdg. +20 dgt.) 20 nA range (100 fA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 200 nA range (1 pA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 2 µA range (10 pA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 20 µA range (100 pA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) 200 µA range (1 nA resolution), Accuracy: ±(0.5 % of rdg. +10 dgt.) *2 mA range (1 nA resolution), Accuracy: ±(0.5 % of rdg. +30 dgt.) (1) Measurement speed SLOW2 (internal integration time 13PLC) (2) At a temperature of 23 °C ±5 °C with humidity of 85% rh (3) 2 mA range (Measurement speed FAST only)
Resistance measurement capabilities	50 Ω to 2 × 10^{19} Ω *Note: Resistance measurement accuracy is defined by the current range accuracy and voltage setting accuracy.*
Measurement time setting	Delay: 0 to 9,999 msec
Functions	CH independent low capacity contact checks, CH independent cable length correction, CH independent jig capacity open compensation, comparator
Display	LCD (8 lines of 30 characters), with backlight, high voltage warning indicator
Interfaces	USB, RS-232C, GP-IB, EXT I/O (NPN/PNP can be switched)
Power supply	100 to 240V AC , 50/60 Hz, 45 VA
Dimensions and mass	330 mm (12.99 in)W × 80 mm (3.15 in)H × 450 mm (17.72 in)D, 6.5 kg (229.3 oz)
Accessories	Power cord ×1, Instruction manual ×1, CD-R (Communications command instruction manual, USB driver) ×1, EXT I/O male connector ×1

Shared options with the SUPER MEGOHM METER SM7110, SM7120 and SM7420

Measurement Leads

PIN TYPE LEAD (RED) L2230
1 m (3.28 ft) length



CLIP TYPE LEAD (RED) L2232
1 m (3.28 ft) length

OPEN LEAD (RED) L2234
3 m (9.84 ft) length

PIN TYPE LEAD (BLACK) L2231
1 m (3.28 ft) length

CLIP TYPE LEAD (BLACK) L2233
1 m (3.28 ft) length

OPEN LEAD (BLACK) L2235
3 m (9.84 ft) length

Humidity sensor

HUMIDITY SENSOR Z2011
1.5 m (4.92 ft) cord length

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Other

For the SM7110, SM7120

Interlock Connection Cable DSM8104F
0.1 m (0.33 ft) length
Note: Other measurement electrodes are available

Super Megohm Measurement in Any Field

SUPER MEGOHMMETER SM-8213/8215/8220

RS-232C

Not CE Marked

SM-8220

- Ultra megohm measurement
- Digital/analog display on LCD
- Compatible for measurement of several sample types with electrodes & other devices

Model No. (Order Code)		
	SM-8213	(Max. 2 × 10^{12} Ω)
	SM-8215	(Max. 2 × 10^{13} Ω)
	SM-8220	(Max. 2 × 10^{16} Ω)

Note: RS-232C connection cable: The optional RS-232C Cable 9637 cannot be used with this product. Use a commercially available straight 9-pin/9-pin cable.

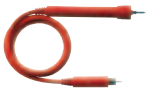
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

		SM-8213	SM-8215	SM-8220
Measuring resistance range	5 V	2.5 ×10^4 - 1 ×10^{11} Ω		
	10 V	5 ×10^4 - 2 ×10^{11} Ω		5 ×10^4 - 2 ×10^{14} Ω
	15 V	7.5 ×10^4 - 3 ×10^{11} Ω		
	25 V	1.25 ×10^5 - 5 ×10^{11} Ω		1.25 ×10^5 - 5 ×10^{14} Ω
	50 V	2.5 ×10^5 - 1 ×10^{12} Ω	2.5 ×10^5 - 1 ×10^{12} Ω	2.5 ×10^5 - 1 ×10^{15} Ω
	100 V	5 ×10^5 - 2 ×10^{12} Ω	5 ×10^5 - 2 ×10^{12} Ω	5 ×10^5 - 2 ×10^{15} Ω
	250 V		1.25 ×10^6 - 5 ×10^{12} Ω	1.25 ×10^6 - 5 ×10^{15} Ω
	500 V		2.5 ×10^6 - 1 ×10^{13} Ω	2.5 ×10^6 - 1 ×10^{16} Ω
	1000 V		5 ×10^6 - 2 ×10^{13} Ω	5 ×10^6 - 2 ×10^{16} Ω
Measuring accuracy		±10 % (within 10 times range of min. value on each range at 20°C), but ± 20 % at 10^8 range of the SM-8220		
Output current		Max. 50 mA	Max. 2 mA	
Display		LCD (digital & analog display)		
Standard function		Timer (1 to 999s), Comparator, Remote start, HV-EN (interlock)		
Interfaces		RS-232C, Comparator output (open-collector)		
Power supply		Selectable 100, 120, 220 or 240 V AC ±10%, 50/60 Hz, 25 VA		
Dimensions and mass		284 mm (11.18 in)W × 139 mm (5.47 in)H × 215 mm (8.46 in)D, 4.3 kg (151.7 oz)		
Accessories		Instruction manual ×1, Power cord ×1, Measuring lead (black) 0GE00001 ×1, Measuring lead (red) 0GE00002 ×1, Short plug (internal) ×1		

Measurement Lead

*The 0GE00001, 0GE00002 are bundled

MEASURING LEAD (BLACK) 0GE00001
1 m (3.28 ft) length



MEASURING LEAD (RED) 0GE00002
1 m (3.28 ft) length

MEASURING LEAD (RED) 0GA00007
1 m (3.28 ft) length

MEASURING LEAD (BLACK) 0GA00008
1 m (3.28 ft) length

Other measurement electrodes are available

Printer options

*To connect the Super Meg-ohm meter to a printer, a commercially available RS-232C cross 9-pin (female) to 9-pin (male) cable is required

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

When connecting electrodes and shield boxes to SM7110/SM7120, note that CONVERSION ADAPTER Z5010 (special order) or a change of connectors is required. Please contact your local Hioki distributor for assistance.

Options for Super megohm meters (for surface resistance or volume resistance measurement)

SURFACE/VOLUME RESISTANCE MEASUREMENT ELECTRODE SM9001

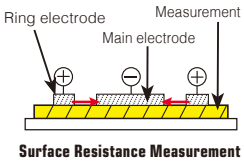
Not CE Marked

- Electrodes compliant with the JIS C 2170 and IEC 61340-2-3 standards
- Measurement voltage up to 1000 V, and measurement resistance up to 10^{13} Ω
- Surface and volume resistance of sheets and films can be measured just as they are without the need to cut samples
- Measure the surface resistance of anti-static flooring and molded products

*When used with the SM-8200 series, measurement can take full advantage of the instrument's voltage and resistance ranges.

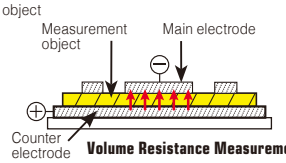
Dimensions: φ 100mm (3.94in) × 223mm (8.78in), Mass: 2.5 kg (88.2oz)
Cable length: 1 m (3.28 ft)

Model No. (Order Code) **SM9001**
SM9002



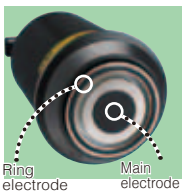
Surface Resistance Measurement

Measure the surface resistance between the main electrode and ring electrode of the main body electrode.



Volume Resistance Measurement

Measure the volume resistance of the sample sandwiched between the main electrode and counter-electrode.



VERIFICATION FIXTURE FOR SURFACE RESISTANCE MEASUREMENT SM9002

The SM9002 Verification Fixture for Surface Resistance Measurement (option) allows you to check the operation of the electrode to increase the reliability of measurement results.

Electrode for surface resistance SME-8301

Not CE Marked

Surface resistance can be easily measured by simply pushing the electrode against the specimen. It measures surface resistance of anti-static related goods in combination of mainly Model SM-8213. Measure resistance up to 10^{11} Ω.

Dimensions: φ 60mm (2.36in) × 50mm (1.97in)
Lead length 1m (3.28ft)

Model No. (Order Code) **SME-8301**

Electrode for surface resistance SME-8302

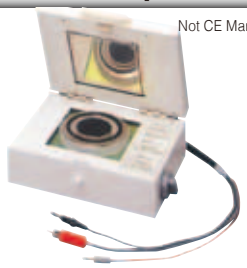
Not CE Marked

An electrode distance: 4mm (0.16in)
Dimensions: φ 40mm (1.57in) × 115mm (4.53in),
Lead length 1m (3.28ft)

Electrode for surface resistance of curved samples such as resin and rubber processed goods, TV cathode tubes or small samples. Surface resistance can be measured by pressing the rubber tips at the tip onto the sample. Measure electrodes up to 10^{11} Ω at 10mm intervals or greater.

Model No. (Order Code) **SME-8302**

Electrode for plate samples SME-8310



Not CE Marked

Sample of 100mm square by up to 8mm in thickness is measurable. The main electrode dia. is 50mm and inner & outer dia. of ring electrode are 70mm & 80mm respectively. Measurement voltage becomes "OFF" while the lid is open to ensure safety. A selector switch allows selection of voltage or surface resistivity.

*A separately purchased interlock cable (DSM8104F) is required in order to use the product with the SM7110/SM7120, and DSM-8104.

Dimensions: 215mm (8.46in) W × 78mm (3.07in)H × 165mm (6.50in)D
Lead length 75cm (2.46ft)

Model No. (Order Code) **SME-8310**

Electrode for plates SME-8311

Not CE Marked

Sample of 40 to 100mm square by up to 8mm in thickness is measurable. The main electrode dia. is 19.6mm and inner & outer dia. of ring electrode are 24.1mm & 28.8mm respectively. Measurement voltage becomes "OFF" while the lid is open to ensure safety.
The fundamental specifications are the same as SME-8310.

*A separately purchased interlock cable (DSM8104F) is required in order to use the product with the SM7110/SM7120, and DSM-8104.

Dimensions: 215mm (8.46in) W × 78mm (3.07in)H × 165mm (6.50in)D
Lead length 75cm (2.46ft)

Model No. (Order Code) **SME-8311**

Weight electrode SME-8320

Not CE Marked

Photo is Combination with Shield box SME-8350

This is an electrode for plate sample for use together with SME-8350 shield box. This electrode enables extremely easy measurement of surface resistivity and volume of sample with coarse surface such as carpets, etc. The main electrode dia. is 50mm, and the ring electrode inner-dia. and outer-dia. are 70mm and 80mm respectively.

Model No. (Order Code) **SME-8320**

Note: Included: Banana clips ×2

Shield box SME-8350

Not CE Marked

This is used as a sample accommodation box during measurement of a high-insulation resistance samples, or inductive or capacitive samples to perform electromagnetic shielding. When used in combination with mass electrode SME-8320, the electrode can be used as a counter electrode or a guard electrode. When measuring electronic components such as capacitors and transducers, external noise and leakage currents are prevented to ensure stable measurement.

*A separately purchased interlock cable (DSM8104F) is required in order to use the product with the SM7110/SM7120, and DSM-8104.

Dimensions: 250mm (9.84in) W × 100mm (3.94in)H × 200mm (7.87in)D
Lead length 80cm (2.62ft)

Model No. (Order Code) **SME-8350**

Note: Includes rubber sheet

Standard resistor box SR-2

Not CE Marked

This is a resistor box for calibration of the super megohmmeters.
Max. voltage is 1000 V DC and resistor value covers from 10 MΩ to 10000 MΩ in 24 points.

Dimensions: 270mm (10.63in) W × 90mm (3.54in)H × 195mm (7.68in)D

Model No. (Order Code) **SR-2**

Note: Includes inspection data sheet

Electrode for liquid samples SME-8330

Not CE Marked

Included: Connection cable 60cm (1.97ft) length
(Red) 0GA00029 ×1
(Black) 0GA00030 ×1

Dimensions: φ 36mm (1.42in) × 140mm (5.51in)

Electrode for liquid samples which is electrically guarded. Total volume is 25ml. Capacitance between main and counter electrode is approx. 45pF. Electrode constant is approx. 500cm. Distance between both electrodes is 1mm. Outer dia. is 36mm, height is approx. 140mm. Measure resistance up to 10^{19} Ω (at 1000V) when used together with Model SM-8220.
Electrodes compliant with the JIS C 2101 standard.

Model No. (Order Code) **SME-8330**

Note: Includes inspection data sheet

Electrode for chip capacitor SME-8360

Not CE Marked

For measuring the resistance of tip capacitors, with adjustable jig from 0mm to 11mm. When connected to the meter by an interlock cable, measurement voltage becomes "OFF" while the lid is open to ensure safety.
The interlock cable must be modified in order to use the product with the SM-8220 series.

Dimensions: 200mm (7.87in) W × 52 mm (2.05in)H × 150mm (5.91in)D
Lead length 85cm (2.79ft)

Model No. (Order Code) **SME-8360**

7-1/2 Digit DC Voltmeter for R&D to Production Lines

PRECISION DC VOLTMETER DM7276, DM7275

LAN
USB2.0
GP-IB -02 model
RS-232C -03 model
CE
3 year Warranty

- High-accuracy model with 1-year 9ppm Accuracy: DM7276
- Basic model with 1-year 20ppm Accuracy: DM7275
- Capacitance contact check (using built-in C-monitor)
- Supports global production with built-in variable power supply
- Built-in EXT I/O, LAN, and USB

Model No. (Order Code)		
	DM7275-01	
	DM7275-02	(Built-in GP-IB)
	DM7275-03	(Built-in RS-232C)
	DM7276-01	
	DM7276-02	(Built-in GP-IB)
	DM7276-03	(Built-in RS-232C)

Note: Measurement probes are not included. Purchase the probes appropriate for your application separately

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	DM7275	DM7276
DC Voltage	100 mV (±120.000 00 mV) to 1000 V (±1000.000 0 V), 5 ranges	
Basic accuracy	10 V range: ±0.0020% rdg. ±12 µV	10 V range: ±0.0009% rdg. ±12 µV
Temperature	-10.0°C to 60.0°C (14.0°F to 140°F), combined with sensor Z2001: ±0.5°C (5.0°C to 35°C)	
Integration time	Integration time unit: PLC/ms (PLC setting: 0.02/ 0.2/ 1/ 10/ 100, ms setting: 1 ms to 9999 ms)	
Measurement support functions	Smoothing function, null, temperature compensation, scaling, over-range display, self-calibration, auto-hold, contact check	
Management support functions	Comparator, BIN, absolute value judgment, label display, statistics, measurement information, communication monitor, EXT. I/O TEST	
Contact check	Check signal: 10 mV rms, threshold value: 0.5 nF to 50 nF (Cannot use in the 100 V/1000 V ranges), Contact check integration time: 1 ms to 100 ms	
Interfaces	Standard: LAN (100BASE-TX), EXT. I/O, USB flash drive / USB device (USB2.0 Full-Speed) Optional: GP-IB (-02 type only) / RS-232C (-03 type only) / PRINTER (-03 type only)	
Power supply	100 to 240 V AC, 50/60 Hz, 30 VA	
Dimensions and mass	215 mm (8.46 in) W × 88 mm (3.46 in) H × 232 mm (9.13 in) D (-01 type): 2.3 kg (81.1 oz), (-02/-03 type): 2.4 kg (84.7 oz)	
Accessories	Instruction manual ×1, power cord ×1, application disk (CD-R) ×1	

Test leads

Options for the L9207-10

TEST LEAD L9207-10
90 cm (2.95 ft) length

CONTACT PIN SET L4933
Attaches to the tip of the Test Lead L9207-10/ DT4911, L9206, 60V DC/ 30V AC

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

Options for Test leads

Options for the L4930, Test Pin Set L4932 is required when using the Small Alligator Clip Set L4934.

CONNECTION CABLE SET L4930
1.2 m (3.94 ft) length

EXTENSION CABLE SET L4931
Expands the length of the cable with banana plug, 1.5 m (4.92 ft) length

TEST PIN SET L4932
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

ALLIGATOR CLIP SET L4935
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

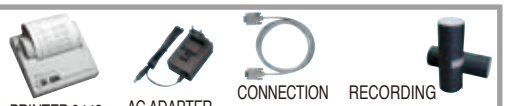
BUS BAR CLIP SET L4936
Attaches to the tip of the banana plug cable, CAT III 600V

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, CAT III 1000 V, 196 mm (7.72 in) length

Temperature measurement

TEMPERATURE SENSOR Z2001
1.75 m (5.74 ft) length

Printer options



PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

CONNECTION CABLE 9444
For the Printer 9442, 9 pin - 9 pin, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

PC communication

USB CABLE (A-B) L1002
1 m (3.28 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

RS-232C CABLE 9637
For the PC, 9 pins - 9 pins, cross, 1.8m (5.91 ft) length

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

Introducing a New Digital, Multi-module DMM (Digital-Multi-Module) Station

DMM STATION MR8990+MR8741, MR8740

DIGITAL VOLTMETER UNIT MR8990

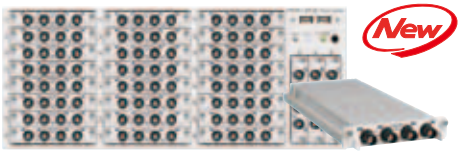
USB2.0
LAN
CE
3 year Warranty

Model No. (Order Code)		
	MR8990	(For the MR6000, MR8847A, MR8827, and similar products)
	MR8740	(Max. 54ch, 864MW memory, main unit only)
	MR8741	(Max. 16ch, 256MW memory, main unit only)

■ DVM Unit MR8990 Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement functions	Install into Memory HiCorder MR6000/MR8847A/MR8827, MR8740/8741/MR8740T for use 2 channels of DC voltage measurement
Measurement ranges (20 div. f.s.)	100 mV range (5 mV/div.): -120.0000 mV to 120.0000mV, 0.1 µV resolution to 500 V range (50 V/div.): -500.000 V to 500.000 V, 1 mV resolution, 5 ranges
Measurement accuracy	Basic accuracy: ±0.01% rdg. ±0.0025% f.s.
Max. allowable input	500 V DC (upper limit voltage that can be applied between input terminals without damage)
Max. rated voltage to earth	300 V AC/DC (input and instrument are isolated; upper limit voltage that can be applied between input channels or between input channels and chassis without damage)
Max. sampling rate	2 ms (500 samples/s)

DMM STATION U8991+MR8740T



New

DIGITAL VOLTMETER UNIT U8991

USB3.0
LAN
CE
3 year Warranty

- Install in a Memory HiCorder to measure DC voltage with high accuracy and high resolution
- High-precision measurement for applications such as investigating minute voltage fluctuations in sensor output
- The MR8740T is packed with 27 units of U8991 and stores 108ch data at once
- Unlike standard multi-channel scan-type loggers, these instruments can perform simultaneous sampling

Model No. (Order Code)		
	U8991	(For the MR8740-50)
	MR8740-50	(Max. 108ch, 1GW memory, main unit only)

■ DVM Unit U8991 Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement functions	Install into Memory HiCorder MR8740T for use 4 channels of DC voltage measurement
Measurement ranges	1 V f.s. range : -1.000 000 V to 1.000 000 V, 1 µV resolution, to 100 V f.s. range : -100.0 000 V to 100.0 000 V, 100 µV resolution, 3 ranges
Measurement accuracy	Basic accuracy: ±0.02% rdg. ±0.0025% f.s.
Max. allowable input	100 V DC (upper limit voltage that can be applied between input terminals without damage)
Max. rated voltage to earth	100 V AC/DC (input and instrument are isolated; upper limit voltage that can be applied between input channels or between input channels and chassis without damage)
Max. sampling rate	20 ms (50 samples/s)

Note: It can not be used with the Digital Voltmeter Unit alone. Memory HiCorder body is required. Moreover, input code is not attached.

Other options refer to the detailed catalog

Benchtop 5-1/2 Digit DMM with High-speed Comparator and High Accuracy

DIGITAL HiTESTER 3237, 3238, 3239

Cannot be used with any industrial power line of greater than 250V

GP-IB -01 model

RS-232C

True RMS

CE

CAT II 300 V

3 year Warranty

- High-speed 3.3 msec comparator for production line use
- Comparator function with open-collector output, beep sound, or LED display
- Built in RS-232C interface and External control I/O, or added GP-IB interface (-01 model)

Model No. (Order Code)		
	3237	(built-in RS-232C)
	3237-01	(built-in RS-232C & GP-IB)
	3238	(built-in RS-232C)
	3238-01	(built-in RS-232C & GP-IB)
	3239	(built-in RS-232C)
	3239-01	(built-in RS-232C & GP-IB)

Basic and economical
3237/3237-01

Economy model offering basic functionality for optimal cost performance

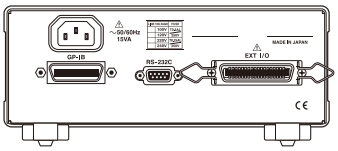
High-accuracy & multi-functional
3238/3238-01

Multifunctional, high-accuracy model that adds AC/DC current and frequency measurement functionality to the 3237

For 4-terminal resistance measurement
3239/3239-01

Adds 4-terminal measurement functionality to Model 3238 for even more accurate resistance measurements

Rear panel (-01 specifications, shared by all 3 models)



Sampling speed Values in the ( ) show samples/s			
Frequency	FAST	MEDIUM	SLOW
50 Hz	3.3 ±1 ms (300)	130 ±5 ms (8)	1040 ±50 ms (1)
60 Hz	3.3 ±1 ms (300)	108 ±5 ms (9)	1080 ±50 ms (1)

** Approximately 55 ms required for self-calibration at 30-minute intervals. Does not apply at resistances higher than 2 MΩ, or LPΩ higher than 200 kΩ.*

Regarding DMM Accuracy : Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year) Basic accuracy is when sampling rate "Slow".

	3237	3238	3239
DC voltage range	199.999 m/1999.99 m/19.9999/199.999/1000.00 V		
Basic accuracy	±0.025 % rdg. ±2 dgt. (2 V range)	± 0.01 % rdg. ±2 dgt. (2 V range)	
AC voltage range	1999.99 m/19.9999/199.999/750.00 V		
Basic accuracy	±0.2 % rdg. ±100 dgt. (45 Hz to 3 kHz)	±0.1 % rdg. ±100 dgt. (45 Hz to 10 kHz)	
Resistance range (2-terminals)	199.999/1999.99/19.9999 k/199.999 k/1999.99 k/19.9999 M/100.000 MΩ		
Basic accuracy	±0.05 % rdg. ±2 dgt. (2000 to 200 kΩ range)	±0.02 % rdg. ±2 dgt. (2000 to 200 kΩ range)	
LP resistance range (2-terminals)	1999.99/19.9999 k/199.999 k/1999.99 kΩ		
Basic accuracy	±0.05 % rdg. ±6 dgt. (2000 to 200 kΩ range)	±0.02 % rdg. ±6 dgt. (2000 to 200 kΩ range)	
Continuity Test	A built-in buzzer sounds when the resistance value is less than 50.00 Ω.		
Open terminal voltage	6 V (Ω, Diode check), 0.45 V (Continuity check, LPΩ)		
DC current range	N/A	199.999 m/1999.99 mA	
Basic accuracy		±0.1 % rdg. ±6 dgt. (200 mA range)	
AC current range	N/A	199.999 m/1999.99 mA	
Basic accuracy		±0.3 % rdg. ±100 dgt. (200 mA range, 45 Hz to 3 kHz)	
Hz range (Frequency)	N/A	99.9999/999.999/9.99999 k/99.9999 k/300.000 kHz (Min. measurement 10 Hz)	
Basic accuracy		±0.015 % rdg. ±2 dgt. (Input level : 0.2 V to 700 V, 4 ranges)	
Resistance range (4-terminals)	N/A	N/A	199.999/1999.99 /19.9999 k/199.999 k/1999.99 kΩ
Basic accuracy			±0.02 % rdg. ±2 dgt. (2000 to 200 kΩ range)
LP Resistance range (4-terminals)	N/A	N/A	1999.99 /19.9999 k/199.999 k/1999.99 kΩ
Basic accuracy			±0.02 % rdg. ±6 dgt. (2000 to 200 kΩ range)
Sampling rate	300 times/s (Fast), 8 to 9 times/s (Medium), 1 time/s (Slow)		
Display	Digital LED, max. 199999 dgt.		
Functions	Comparator, Save/Load of settings (Up to 30 types of setting conditions), Printer output, Current measurement with clamp-on probes and scaling, External control I/O		
Interface	External input/output (input: C-MOS level (high: 3.8 to 5 V; low: 0 (short) to 1.2 V); output: open collector (max. 35 V DC/50 mA); RS-232C (standard) and GP-IB (option, -01 specifications))		
Power supply	100/ 120/ 220/ 240 V AC (specify when ordering), 50/60 Hz		
Dimensions and mass	215 mm (8.46 in)W × 80 mm (3.15 in)H × 265 mm (10.43 in)D, 2.6 kg (91.7 oz)		
Accessories	Test lead L9170-10 ×1, Instruction manual ×1, Power cord ×1, Spare fuse each 1		

*L9170-10 is a bundled accessory. *Requires the 9704 to connect a Clamp-on probe

Input Probes

TEST LEAD L9170-10
70 cm (2.30 ft) length

CLAMP ON PROBE
9132-50 ... 1000 A AC
9010-50 ... 500 A AC
9018-50 ... 500 A AC

CONVERSION ADAPTER 9704
*Receiving end: Female BNC; Output end: Male banana-plug *Not compatible with older generation Memory Hicorders with banana input terminals*

Printer Options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

CONNECTION CABLE 9444
9 pin - 9 pin straight, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

PC communication

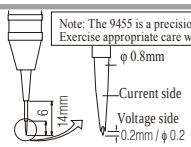
RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

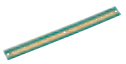
GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

4-Terminal measurement probes

PIN TYPE LEAD 9461
A:240 mm (9.45 in), B:132 mm (5.20 in), L:804 mm (2.64 ft)



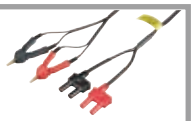
PIN TYPE LEAD 9455
A:260 mm (10.24 in), B:136 mm (5.35 in), L:890 mm (2.92 ft)



ZERO ADJUSTMENT BOARD 9454
For the L2100, 9465-10, 9465, 9461

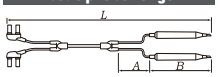
FOUR TERMINAL LEAD 9453
A:280 mm (11.02 in), B:118 mm (4.65 in), L:1360 mm (4.46 ft), 60V DC

CLIP TYPE LEAD 9452
A:220 mm (8.66 in), B:197 mm (7.76 in), L:1360 mm (4.46 ft)



CLIP TYPE LEADS L2107
A: 130 mm (5.12 in), B:84 mm (3.31 in), L:1.1 m (3.61 ft), 70 V DC

About probe length



A: From junction to probe
B: Probe part
L: Whole length

Output the signal the recorder measured, which is ideal for abnormality simulation test

ARBITRARY WAVEFORM GENERATOR UNIT U8793

- Output arbitrary waveform signals up to 2 channels
- Output problematic waveforms recorded with the Memory Hicorder up to 15 V
- Output customized arbitrary waveforms signals up to 15 V
- For use with Hioki Memory Hicorder series (cannot use with 8847 or MR8847)
- Built-in function generator and sweep function
- Isolated between unit and output, and between all channels

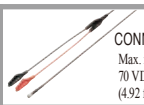
Model No. (Order Code) **U8793** (For the MR8847A and similar products)

Note: This module must be used with the Memory HiCorder. Output cords are not included. Please purchase them separately.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Output terminal	Number of channels: 2, SMB terminal (Output impedance: 1 Ω or less) Max. rated voltage to ground: 33 V rms AC or 70 V DC
Output voltage range	-10 V to 15 V (Amplitude setting range: 0 V to 20 V p-p, Setting resolution: 1 mV)
Max. output current	10 mA (Allowable load resistance: 1.5 kΩ or more)
Function generator	DC, Sine wave, Square wave, Pulse wave, Triangular wave, Ramp wave, Output frequency: 0 Hz to 100 kHz
Arbitrary waveform generator mode	Waveforms measured by MR8847A, etc., generated by Hioki Model 7075, PW3198, or SF8000, CSV waveforms D/A refresh rate: 2 MHz (using 16-bit D/A)
Sweep function	Frequency, Amplitude, Offset, Duty (Pulse only)
Program function	Max. 128 steps (Number of loops for each step, Number of total loops)
Other	Self-test function (Voltage), External input/output control
Dimensions and mass	106 mm (4.17 in) W × 19.8 mm (0.78 in) H × 196.5 mm (7.74 in) D, 250 g (8.8 oz)
Accessories	None

Output cable



CONNECTION CABLE L9795-01
Max. rated voltage to earth 33 Vrms or 70 VDC, SMB to alligator clip, 1.5 m (4.92 ft) length

CONNECTION CABLE L9795-02
Max. rated voltage to earth 33 Vrms or 70 VDC, SMB to BNC terminal, 1.5 m (4.92 ft) length

Compatible models

* Main products are listed below. For more information, please see each product page.

MR8847A

MR8827

MR8741

MR8740

Related products

For options, please see the product catalog.

WAVEFORM GENERATOR UNIT MR8790

- Output sine waves (20 kHz max.) and DC voltage signals up to 4 channels per unit
- Output signals up ±10V or 5mA
- For use with Hioki Memory Hicorder series (cannot use with 8847 or MR8847-01/-02/-03)
- Isolated between unit and output, and between all channels

Model No. (Order Code)	(Note)
MR8790	(For the MR8847A and similar products)

PULSE GENERATOR UNIT MR8791

- Output pulse waves, pattern waves up to 8 channels per unit (output signals of TTL level or open-collector)
- For use with Hioki Memory Hicorder series (cannot use with 8847 or MR8847-01/-02/-03)
- Isolated between unit and output (Not isolated between each channel (common ground))

Model No. (Order Code)	(Note)
MR8791	(For the MR8847A and similar products)

VIR GENERATOR UNIT U8794

- When used as an ECU testing device, generate simulated signals from various sensors, which is indispensable for testing electronic parts and maintaining equipment.
- 8 ch, DC voltage, DC current, resistance (simulated output)
- For use with Hioki Memory Hicorder MR8740T (MR8740-50) (cannot use with MR8740 or MR8741)
- Isolated between unit and output, and between all channels

Model No. (Order Code)	(Note)
U8794	(For the MR8740-50)

Generate and Measure Signals Simultaneously

DC SIGNAL SOURCE SS7012

- Improve stability and reduce calibration costs compared with the previous HIOKI model
- For instrumentation systems (4 - 20 mA) and loop testing
- Check temperature control equipment and electric distribution
- 8 types of thermocouples to test thermoelectric power generation
- Ideal for electrical device evaluating and routine maintenance of production equipment such as calibrators
- Use the max. 25 mA DC sink as an electric load

Model No. (Order Cord) **SS7012**

Note: Use of the AC Adapter and /or rechargeable batteries and dedicated charger is recommended.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

[Generation functions]

Circuit method	Bipolar sink and source
Constant Voltage	2.5 V: 0 to ±2.5000 V (±0.03 % of setting ±300 μV, 100 μV resolution) 25 V: 0 to ±25.000 V (±0.03 % of setting ±3 mV, 1 mV resolution)
Constant Current	25 mA: 0 to ±25.000 mA (±0.03 % of setting ±3 μA, 1 μA resolution)
Thermoelectric power generation	K: at TC: 0 ˚C, -174.0 to 1372.0 ˚C (±0.05 % of setting ±0.5 ˚C, 0.1 ˚C resolution), Other types: E, J, T, R, S, B, N selectable
Thermoelectric power generation	K: at TC: RJ, -174.0 to 1372.0 ˚C (±0.05 % of setting ±1.0 ˚C, 0.1 ˚C resolution), Other types: E, J, T, R, S, B, N selectable
Standard resistance (Rs)	100 Ω (±0.2 Ω)
Automatic generation	Number of memory steps: 20, Interval time: 1 to 99 sec (at CV, CC, TC mode)

[Measurement functions]

Voltage	2.5 V: 0 to ±2.8000 V (±0.03 % rdg. ±300 μV, 100 μV resolution, 1 MΩ input resistance) 25 V: 0 to ±28.000 V (±0.03 % rdg. ±3 mV, 1 mV resolution, 1 MΩ input resistance)
Current	25 mA: 0 to ±28.000 mA (±0.03 % rdg. ±3 μA, 1 μA resolution, 25 Ω input resistance)
Temperature	-25.0 to 80.0 ˚C (±0.5 ˚C at 23 ±5 ˚C, 0.1 ˚C resolution, use with the RJ sensor 9184)
Sampling rate	Approx. 1.67 times/sec

Additional functions	Zero adjustment, Overflow display, USB communication, Monitor
Power supply	AC adapter 9445-02/-03 (100 to 240 V AC 50/60 Hz, 9 VA), Ni-MH battery HR6 × 4, 6 VA, (fully charged 2500 mAh Ni-MH batteries: 170 minutes continuous use), or LR6 (AA) alkaline battery × 4, 6 VA
Dimensions and mass	104 mm (4.09 in)W × 180 mm (7.09 in)H × 58 mm (2.28 in)D, 660 g (23.3 oz) (including LR6 × 4 batteries)
Accessories	Input cord 9168 ×1, Test lead L9170-10 ×1, Fuse ×1, LR6 (AA) alkaline battery ×4, Instruction manual ×1

Cables

*Bundled accessories

INPUT CORD 9168
70 cm (2.30 ft) length

TEST LEAD L9170-10
70 cm (2.30 ft) length

Options

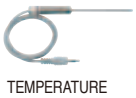
Commercially available rechargeable batteries (AA Ni-MH batteries ×4) may also be used to power the SS7012. Using locally purchased rechargeable batteries and dedicated battery chargers is recommended; however, HIOKI will not be able to guarantee operating time as different rechargeable batteries exhibit different power specifications per charge. The SS7012 cannot be used to recharge batteries.

COMMUNICATION PACKAGE SS9000
USB cable, USB driver software included

CARRYING CASE 9782
Includes compartment for options, Hard type

AC ADAPTER 9445-02
100 to 240 V AC

CARRYING CASE 9380
For the SS7012, 7011 for storing the main body only, soft type



TEMPERATURE PROBE 9184
For reference contact compensation

Leak Current Measurement, an Essential Part of Electrical Safety (for medical-use electrical devices)

LEAK CURRENT HiTESTER ST5540

USB 1.1 / RS-232C / CE / 3 year Warranty

- Compliance with IEC 60601-1:2005 Ed 3.0, JIS T 0601-1:2012 for medical-use electrical devices and essential to electrical safety (*Starting on June 1, 2012, medical electrical equipment sold in the EU must comply). Model ST5540 comply with IEC 60601-1:2005+ A1:2012 (Ed 3.1), and IEC 62353 of 2017
- Compliance with Electrical Appliances and Materials Safety Act, JIS, IEC, and UL standards for general-use electrical devices
- Uninterrupted polarity switching function dramatically reduces cycle time
- Support for rated currents up to 20 A gives the instrument more than adequate capability for testing products designed to comply with new standards
- Touch panel features simple, interactive operation
- Communications functionality and external I/O support allow automatic testing on production lines

Model No. (Order Code) **ST5540** (For medical-use and electrical devices)

Note: Always use an isolation transformer when measuring leak current for medical-use electrical devices. The ST5540 does not include an isolation transformer. When measuring medical-use electrical devices, use a step-up isolation transformer or similar component operating at 110% of the rated supply voltage as the power supply for the device under test.

Test probes

*The L2200 (for ST5540, Red ×2, Black ×1) ×1 set and the 9195 are bundled

TEST LEAD L2200
70 cm (2.30ft) length, detachable large alligator clips or needle tips are bundled, CAT IV 600V, CAT III 1000V

ENCLOSURE PROBE 9195
For the ST5540 series, 3156/3155

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement methods	Measurement of voltage drop across body simulated resistance points, Calculation and display of current values, True rms measurement, Measurement unit floats relative to instrument ground.
Measurement modes	Leak current measurement, voltage measurement, safety conductor current measurement
Standards compliance (NW: Body simulated resistance)	[NW-A] • Electrical Appliances and Materials Safety Act [NW-B1] • Medical electrical equipment: IEC 60601-1:1988+ A1:1993+ A2:1995, JIS T 0601-1:1999 [NW-B2] • Medical electrical equipment: IEC 60601-1:2005+ A1:2012, JIS T 0601-1:2012 and complement 1:2014, IEC 62353 [NW-C] • Measurement of touch current and protective conductor current: IEC 60990:2016 • Electrical equipment for measurement, control, and laboratory use: IEC 61010-1:2010+ A1:2016 • Information technology equipment: IEC60950-1:2005+ A1:2009+ A2:2013 • Audio, video and similar electronic apparatus: IEC 60065:2014 • Personnel Protection Systems for EV: UL 2231-1:2012 (Amended 2016), UL-2231-2:2012 (Amended 2016) [NW-D] • For UL: UL 1492:1996 (Amended 2013) [NW-G] • Electrical equipment for measurement, control, and laboratory use; current measurement circuits in damp conditions: IEC 61010-1:2010+ A1:2016
Leak current measurement	Ground leak current, 3 types of contact current, 7 types of patient leak current, patient measurement current, 4 types of total patient leak current, free current measurement, 3 types of enclosure leak current
Measurement current	DC, AC (true rms, 0.1 Hz to 1 MHz), AC+DC (true rms, 0.1 Hz to 1 MHz), AC peak (15 Hz to 1 MHz)
Measurement ranges	DC / AC / AC+DC mode: 50.00 mA/ 5.000 mA/ 500.0 µA/ 50.00 µA AC peak mode: 75.0 mA/ 10.00 mA/ 1.000 mA/ 500.0 µA
Measurement accuracy (current measurement)	DC measurement: ±2.0% rdg. ±6 dgt. (typ.) AC / AC+DC measurement: ±2.0% rdg. ±6 dgt. (15 Hz to 100 kHz, typ.) AC peak measurement: ±2.0% rdg. ±6 dgt. (15 Hz to 10 kHz, typ.)
Interfaces	External I/O, medical device relay output, USB 1.1 (communications), RS-232C
Functionality	110% voltage application, automatic test, data storage for 100 target devices, clock, data backup, printed output (optional), etc.
Power supply	100/120/220/240 V AC (specify at time of order), 50/60 Hz, 30 VA rated power
Target device power supply input	100 to 250 V AC, 50/60 Hz Rated current input from terminal block: 20 A
Target device power supply output	Output from terminal block: 20 A Output from outlet: 15 A
Dimensions and mass	320 mm (12.60 in)W × 110 mm (4.33 in)H × 253 mm (9.96 in)D, 4.5 kg (158.7 oz)
Accessories	Test lead L2200 (for ST5540, Red ×2, Black ×1) ×1 set, Enclosure probe 9195 ×1, Power cord ×3, Spare fuse for measurement line ×1, Instruction manual ×1, User guide ×1, CD-ROM ×1

Leak Current Measurement, an Essential Part of Electrical Safety (for electrical devices)

LEAK CURRENT HiTESTER ST5541

USB 1.1 / RS-232C / CE / 3 year Warranty

- Compliance with Electrical Appliances and Materials Safety Act, JIS/IEC/UL standards
- Uninterrupted polarity switching function dramatically reduces cycle time
- Support for rated currents up to 20 A gives the instrument more than adequate capability for testing products designed to comply with new standards
- Touch panel features simple, interactive operation
- Communications functionality and external I/O support allow automatic testing on production lines

Model No. (Order Code) **ST5541** (For electrical devices)

Note: For applications involving leak current measurement of medical-use electrical devices, use the ST5540.

Test probes

*The L2200 and the 9195 are bundled

TEST LEAD L2200
70 cm (2.30ft) length, detachable large alligator clips or needle tips are bundled, CAT IV 600V, CAT III 1000V

ENCLOSURE PROBE 9195
For the ST5540 series, 3156/3155

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement methods	Measurement of voltage drop across body simulated resistance points, Calculation and display of current values, True rms measurement, Measurement unit floats relative to instrument ground.
Measurement modes	Leak current measurement, voltage measurement, safety conductor current measurement
Standards compliance (NW: Body simulated resistance)	[NW-A] • Electrical Appliances and Materials Safety Act [NW-C] • Measurement of touch current and protective conductor current: IEC 60990:2016 • Electrical equipment for measurement, control, and laboratory use: IEC 61010-1:2010+ A1:2016 • Information technology equipment: IEC60950-1:2005+ A1:2009+ A2:2013 • Audio, video and similar electronic apparatus: IEC 60065:2014 • Personnel Protection Systems for EV: UL 2231-1:2012 (Amended 2016), UL-2231-2:2012 (Amended 2016) [NW-D] • For UL: UL 1492:1996 (Amended 2013) [NW-G] • Electrical equipment for measurement, control, and laboratory use; current measurement circuits in damp conditions: IEC 61010-1:2010+ A1:2016
Leak current measurement	Ground leak current, 3 types of contact current, free current measurement, 3 types of enclosure leak current
Measurement current	DC, AC (true rms, 15 Hz to 1 MHz), AC+DC (true rms, 15 Hz to 1 MHz), AC peak (15 Hz to 1 MHz)
Measurement ranges	DC / AC / AC+DC mode: 50.00 mA/ 5.000 mA/ 500.0 µA/ 50.00 µA AC peak mode: 75.0 mA/ 10.00 mA/ 1.000 mA/ 500.0 µA
Measurement accuracy (current measurement)	DC measurement: ±2.0% rdg. ±6 dgt. (typ.) AC / AC+DC measurement: ±2.0% rdg. ±6 dgt. (15 Hz to 100 kHz, typ.) AC peak measurement: ±2.0% rdg. ±6 dgt. (15 Hz to 10 kHz, typ.)
Interfaces	External I/O, USB 1.1 (communications), RS-232C
Functionality	Automatic test, data storage for 100 target devices, clock, data backup, printed output (optional), etc.
Power supply	100/120/220/240 V AC (specify at time of order), 50/60 Hz, 30 VA rated power
Target device power supply input	100 to 250 V AC, 50/60 Hz Rated current input from terminal block: 20 A
Target device power supply output	Output from terminal block: 20 A Output from outlet: 15 A
Dimensions and mass	320 mm (12.60 in)W × 110 mm (4.33 in)H × 253 mm (9.96 in)D, 4.5 kg (158.7 oz)
Accessories	Test lead L2200 (Red ×1, Black ×1) ×1 set, Enclosure probe 9195 ×1, Power cord ×3, Spare fuse for measurement line ×1, Instruction manual ×1, User guide ×1, CD-ROM ×1

ST5540, ST5541 shared options

Printer options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

CONNECTION CABLE 9444
9 pin - 9 pin straight, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

■ ST5540, ST5541 List of functions

Item		ST5540	ST5541
Network	Network A (Electrical Appliances and Materials Safety Act)	✔	✔
	Network B (Medical-use electrical devices)	✔	-
	Network C (IEC 60990)	✔	✔
	Network D (UL)	✔	✔
	Network E (General-purpose 1)	✔	✔
	Network F (General-purpose 2)	✔	✔
	Network G (IEC 61010-1)	✔	✔
Major functions	Power on polarity switching function	✔	✔
	Rated current 20 A	✔	✔
	Function for checking for blown fuses	✔	✔
	Frequency band switching	✔	-
	110% voltage output terminal (T3 terminal)	✔	-
	S10, S12, S13, E terminal	✔	-

■ ST5540, ST5541 List of functions

Item		ST5540	ST5541
Testing leakage current mode	Earth leakage current	✔	✔
	Touch current	✔	✔
	Patient auxiliary current	✔	-
	Patient leakage current	✔	-
	Total patient leakage current	✔	-
	Free current	✔	✔
	Enclosure - Earth leakage current	✔	✔
	Enclosure - Enclosure leakage current	✔	✔
	Enclosure - Line leakage current	✔	✔
	Patient leakage current I	✔	-
	Patient leakage current II	✔	-
	Patient leakage current III	✔	-

General-purpose option for easy printing of values

Supported models: 3511-50, 3522-50, 3532-50, 3532-80, 3535, ST5541/40, SM-8213/15/20, 3506/05, 3504-40/-50/-60, 3351, 3334/33/32/31, 3239/38/37, 3169, 3157/54

Printer **9442**

Not CE Marked

■ Specifications overview

Interface	RS-232C
Paper width	112 mm
Print speed	52.5 cps (characters per second)
Power supply	AC Adapter 9443-01 or included nickel-metal hydride battery (sufficient for approx. 3,000 rows of print when fully charged)
Dimensions and mass	160 mm (6.30 in)W × 67 mm (2.64 in)H × 170 mm (6.69 in)D, 580 g (20.5 oz)

Model No. (Order Code) **9442** (For the ST5540/41, 3511-50 or other)

- Used with the Connection Cable 9444:
  3154, 3156, 3237 to 3239, 3331 to 3333, 3504 to 3506, 3511-50, 3535, ST5540s
- Used with Connection Cable 9446 and RS-232C interface: 3157, 3522-50, 3532-50/-80
- Used with RS-232C Cable 9271: 3169

Options (If your device requires an RS-232C interface, please purchase separately)

CONNECTION CABLE 9444
For the Printer 9442, 9 pin - 9 pin, 1.5 m (4.92 ft) length

CONNECTION CABLE 9446
For the Printer 9442, 25 pin - 9 pin, 1.5 m (4.92 ft) length

RS-232C CABLE 9721
Mini DIN 9 pin to D-sub 9 pin, straight, 1.5 m (4.92 ft) length

AC ADAPTER 9443-02
For the Printer 9442, EU type

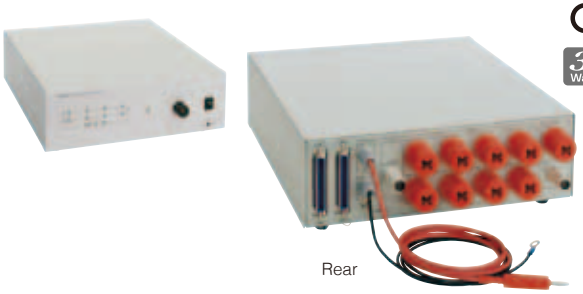
RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

For Multi-point, High-voltage Automatic Testing and Automation of Insulation and Dielectric Strength Testing

HIGH VOLTAGE SCANNER **3930**

CE

3 year Warranty



Rear

- Output of the input high voltage from a user-selected channel
- 8 ch per unit (single mode), with up to 32 ch (4 connected units)
- Isolated high-voltage I/O, control signal lines, and power supply
- Control using the 3153 program function or with a standard sequencer

Model No. (Order Code) **3930** (For the 3153 and similar products)

■ Basic Specifications

Operation modes	Multi-mode: Scanning of user-selected points for high 4 ch / low 4 ch Single mode: Common scan of high 8 ch - common
Rated voltage used	5 kV AC / 5 kV DC
Operation indications	Lamps light up when power is supplied and when a specified channel is operating
[Relay area]	
Max. open and closed voltage	5000 V DC, 5000 V AC
Max. open and closed current	1.0 A (open and closed capacity: 50 W)
Contact point indirect contact resistance	500 mΩ or less, with 1 mA AC
Contact point max. capacity	50 W
Time	Operation time: 6 ms or less, Recovery time: 6 ms or less
Power supply	VSCV 24 V DC, ±10% (applied using the control signal input connector), 12 VA max.
Dimensions and mass	316 mm (12.44 in)W × 100 mm (3.94 in)H × 350 mm (13.78 in)D, 4.2 kg (148.1 oz)
Accessories	Control input connector connection cable ×1, H.V. Test lead 9615-01 (red) ×8, H.V. Test lead (black) ×1, Grounding cable ×1, Instruction manual ×1

Options

*The 9615-01 is bundled

H.V. TEST LEAD 9615-01
Red, high voltage side, 1.5 m (4.92 ft) length

Control insulation, dielectric strength, protective continuity, and leak current testing from a PC

SAFETY TEST DATA MANAGEMENT SOFTWARE **9267**

- Control the ST5520*/ST5540 as well as the 3153/3154/3156/3157, 3174, and other instruments from a computer

*Control of the ST5520 is subject to certain limitations.

- Perform automatic insulation and dielectric strength testing of up to 32 points with the High Voltage Scanner 3930

Model No. (Order Code) **9267**

■ Basic Specifications

Compatible models	ST5520*, ST5540/ST5541, 3153, 3154, 3156, 3157, 3158, 3159, 3174, 3332, 3333, 3334, and PLCs from various manufacturers (for connection switching) *Control of the ST5520 is subject to certain limitations.
Supplied media	CD-R ×1
Operating environment	Windows 7 (32-/64-bit), Vista (32-bit), XP/2000
Test types	Insulation and dielectric strength, protective continuity, leak current, energization
Recording data	Recording of test results (measured values) as a text file (CSV format)
Interface	RS-232C

This dedicated application allows you to control and take measurements through insulation testing, dielectric strength testing, protective continuity testing, leak current testing, and energization testing and to record test results as a text file.

Industry's Fastest Testing Speed

INSULATION TESTER ST5520

RS-232C

CE

3 year Warranty

- Rapidly assess in as fast as 50 ms
- Quick discharge of residual voltage
- Freely configurable test voltage (Set from 25 V to 1000 V, 1 V resolution)
- Contact check function (Prevents errors due to poor contact)
- Short-circuit check function (Stops potentional defects from reaching the market)
- Ideal for battery production lines

Model No. (Order Code) **ST5520** (Built-in external I/O output)
ST5520-01 (Built-in BCD output)

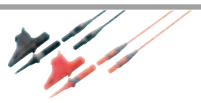
Note: The ST5520 and ST5520-01 cannot be operated alone. Please select and purchase the optional test leads to accommodate your application.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

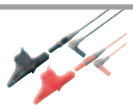
Measurement items	Insulation resistance (Applied DC voltage method)
Testing voltage/ measurement ranges (Auto / Manual)	25 V ≤ V < 100 V (2.000/20.00/200.0 MΩ), 100 V ≤ V < 500 V (2.000/20.00/200.0/2000 MΩ), 500 V ≤ V ≤ 1000 V (2.000/20.00/200.0/4000/9990 MΩ)
Basic accuracy	±2 % rdg. ±5 dgt. 25 V ≤ V < 100 V [0 to 20 MΩ] 100 V ≤ V < 500 V [0 to 20 MΩ] 500 V ≤ V ≤ 1000 V [0 to 200 MΩ]
Measurement speed	Fast: 30 ms/time, Slow: 500 ms/time (selectable)
Display	LCD (service life: 100,000 hours), 4-level backlight
Internal memory	Saved items: rated measurement voltage, comparator upper limit /lower limit values, test mode, beep sound to distinguish the result, test time, response time, resistance range, measurement speed Memory capacity: up to 10 items (can be saved/loaded)
Comparator setting	UPPER_FAIL: Measured value ≥ upper limit value PASS: Upper limit value > measured value > lower limit value LOWER_FAIL: Measured value ≤ lower limit value
Judgement process	Beep sound, PASS / U.FAIL/L. FAIL: light up on LED display, When UL_FAIL, U.FAIL / L.FAIL light up simultaneously, EXT.I/O output, judgement result can be obtained via RS-232C
Test duration	Definition of test duration: Test duration = Response time + Measurement time Function: Set the time from voltage application until pass/fail assessment Configuration range: 0.045 s to 999.999 s (0.001 s resolution)
Response time timer	After the start of the test, comparator judgment operation can be prohibited until a set interval from 0.005 sec. to 999.999 sec. (at 0.001 sec. resolution) has passed.
Analog output	DC +4 V f.s.
Interface	RS-232C (standard), External I/O (External control input, Judgment result) BCD output (ST5520-01 only)
Power supply	100 to 240 V AC, 50/60 Hz, 25 VA max.
Dimensions and mass	215 mm (8.46 in)W × 80 mm (3.15 in)H × 166 mm (6.54 in)D, 1.1 kg (38.8 oz)
Accessories	Instruction Manual ×1, Power cord ×1, EXT. I/O Connector ×1, Connector Cover ×1

Input/Output cords

*Please contact your HIOKI distributor for extending the L2200 cable length



TEST LEAD L2200
70 cm (2.30ft) length, detachable large alligator clips or needle tips are bundled, CAT IV 600V, CAT III 1000V



CONNECTION CORD L9257
1.2 m (3.94 ft) length

SWITCHED PROBE 9299
80 cm (2.62 ft) length

OUTPUT CORD L9094
3.5 mm (0.14in) dia. mini plug to banana, 1.5m (4.92ft) length

CONVERSION ADAPTER 9199
Catch side banana, output BNC terminal

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

Ensure Insulation and Withstand Voltage with Contact Check

AC AUTOMATIC INSULATION/WITHSTANDING HiTESTER 3174

RS-232C

CE

3 year Warranty

- Continuous testing of insulation (500/1000 V) and withstand voltage (100 VA transformer capacity)
- Full remote operation when used in combination with the Safety Test Data Management Software 9267
- Save up to 8 test settings each for the withstanding and insulation testing modes
- Precise test voltage without power voltage dependency is generated using the PWM method

Model No. (Order Code) **3174** (Insulation/Withstanding Voltage [AC])

Note: To perform contact checks, please purchase another High Voltage Test Lead 9615 set separately.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

[Withstanding test section]	
Testing voltage	0.2 V AC to 5.00 kV AC
Voltage setting	Digital setting, Setting resolution: 0.01 kV
Waveform/Frequency	Sine wave (Distortion ratio 5 % or less at no load), 50/60 Hz selectable
Current measurement	0.01 mA to 20.0 mA, True RMS rectified (digital display)
Measurement range	10 mA (0.01 mA resolution), 20 mA (0.1 mA resolution)
Voltage meter	Accuracy: ±1.5 % rdg. (1000 V or more), ±15 V (less than 1000 V), True RMS rectified
Judgment function	Window comparator method (Digital setting)
[Insulation test section]	
Testing voltage	500 V DC, 1000 V DC
Unloaded voltage	1 to 1.2 times rated voltage
Rated testing current	1 to 1.2 mA, Shorted current: 4 to 5 mA (at 500 V), 2 to 3 mA (at 1000 V)
Measurement range, Accuracy	0.5 MΩ to 999 MΩ (at 500 V), and 1 MΩ to 999 MΩ (at 1000 V): ±4 % rdg., 1000 MΩ to 2000 MΩ: ±8 % rdg.
Judgment function	Window comparator method (Digital setting)
[Timer section] *Test times may differ from set timer times depending on the load.	
Setting range	0.3 to 999 s
Ramp, Delay	Testing voltage ramp-up, or down, Insulation test delay: 0.1 to 99.9 s
[General section]	
Functions	Saving 8 testing conditions, hold, buzzer, contact check
Monitor function	Output voltage, detected current, insulation resistance, Refresh rate: 2 times/s
Power supply	100 to 240 V AC, (50/60 Hz), 200 VA max.
Dimensions and mass	320 mm (12.60 in)W × 155 mm (6.10 in)H × 395 mm (15.55 in)D, 15 kg (529.1 oz)
Accessories	H.V. Test lead 9615 (high voltage side and return, 1 each) ×1, Power cord ×1, Instruction manual ×1, Disconnection prevention plate ×1

Input/Output cords

*The 9615 is bundled

H.V. TEST LEAD 9615
Red, Black each 1, 1.5 m (4.92 ft) length

REMOTE CONTROL BOX (SINGLE) 9613
For Start/Stop control, 1.5m (4.92 ft) cord length

REMOTE CONTROL BOX (DUAL) 9614
For Start/Stop control, 1.5m (4.92 ft) cord length

PC communication

SAFETY TEST DATA MANAGEMENT SOFTWARE 9267
For PC control application software

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

All-in-one Model that Combines Withstand Voltage and Insulation Resistance (AC/DC)

AUTOMATIC INSULATION / WITHSTANDING HiTESTER 3153

GP-IB
RS-232C
CE
3 year Warranty

- Programmable insulation (50 to 1200 V DC) and dielectric strength (AC/DC) testing
- Program up to 32 files of test types, test points (50 steps), and measurement settings
- Optional scanner for multipoint automatic testing
- Uses the PWM method to generate accurate test voltages that do not depend on the supply voltage
- Ramp timer function for increasing or decreasing the applied voltage during dielectric strength testing at user-specified times

Model No. (Order Code) **3153** (Insulation, AC/DC Withstanding Voltage)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

[Withstanding test section]	
Testing voltage AC/DC	0.2 kV to 5.00 kV AC, 500 VA (max. 30 minutes), 0.2 kV to 5.00 kV DC, 50 VA (continuance)
Voltage setting	Digital setting (0.01 kV setting resolution)
Waveform/Frequency	Sine wave (5% or less distortion, unloaded), 50/60 Hz selectable
Current measurement	0.01 mA to 100.0 mA, Average rectified display (Digital)
Measurement range	10 mA (0.01 mA resolution), 100 mA (0.1 mA resolution)
Voltmeter	Digital: accuracy ±1.5 % f.s. (f.s.=5.00 kV) (Average rectified display)
Decision method	Window comparison (digital settings)
[Insulation test section]	
Rated testing voltage	50 to 1,200 V DC (in 1 V steps)
Rated testing current	1 mA, Short-circuit current: 200 mA or less
Measurement range / accuracy	0.10 to 9999 MΩ, 4 ranges, ± 4 % rdg. (representative values for 0.5 MΩ to 1,000 MΩ)
Decision method	Window comparison (digital settings)
[Timer section] *Test times may differ from set timer times depending on the load.	
Setting range	0.3 to 999 s
Ramp, Delay	Testing voltage ramp-up, or down, Insulation test delay: 0.1 to 99.9 s
[General section]	
Functions	Program up to 32 files of 50 step test settings. 10 sets each of dielectric strength and insulation test settings, hold, buzzer
Monitor functions	Output voltage, detected current, measured resistance, Refresh rate: 2 times/s
Power supply	100 to 120 V, 200 to 240 V AC, (50/60 Hz), 1000 VA max.
Dimensions and mass	320 mm (12.60 in)W × 155 mm (6.10 in)H × 480 mm (18.9 in)D, 18 kg (634.9 oz)
Accessories	H.V. Test lead 9615 (high voltage side and return, 1 each) ×1, Power cord ×1, Instruction manual ×1, Spare fuse ×1

*The 9615 is bundled

Input/Output cords

H.V. TEST LEAD 9615
Red, Black each 1, 1.5 m (4.92 ft) length

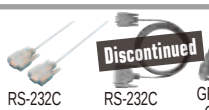
REMOTE CONTROL BOX (SINGLE) 9613
For Start/Stop control, 1.5m (4.92 ft) cord length

REMOTE CONTROL BOX (DUAL) 9614
For Start/Stop control, 1.5m (4.92 ft) cord length

Other

HIGH VOLTAGE SCANNER 3930
Automatic multipoint testing of high voltages

SAFETY TEST DATA MANAGEMENT SOFTWARE 9267
For PC control application software



RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Perform Insulation Resistance and Withstand Voltage Testing in a Single Series

INSULATION / WITHSTANDING HiTESTER 3159

RS-232C
Not CE Marked
3 year Warranty

- Continuous testing of insulation (500/1000 V) and withstand voltage (500 VA transformer capacity)
- Insulation to withstand series test or withstand to insulation series test at auto mode, or individual test at manual mode
- Save up to 10 test settings each for the withstanding and insulation testing modes
- External I/O, RS-232C interface, Status output (relay contacts)

Model No. (Order Code) **3159-02** (For 220V power supplies only)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

[Withstanding test section]	
Testing voltage	0 to 2.5 kV / 0 to 5.0 kV AC, 2 range configuration 500 VA (30 minutes rated)
Voltage setting	Manual setting
Waveform/Frequency	Same as the power supply waveform, synchronized with the power supply
Current measurement	0.01 mA to 120 mA, True RMS rectified (digital display)
Voltage meter	Accuracy: ±1.5 % f.s. (digital), ±5 % f.s. (analog, f.s.=5 kV)
Current measurement	0.01 mA to 120 mA, (Average value rectified, effective value digital display)
Measurement range	2 mA/8 mA (0.01 mA resolution), 32 mA (0.1 mA resolution), 120 mA (1 mA resolution)
Voltage meter	Digital, Accuracy: ±1.5 % rdg. (f.s.=5.00 kV)
Judgment function	Window comparator method (Digital setting)
[Insulation test section]	
Testing voltage	500 V DC, 1000 V DC, Unloaded voltage: 1 to 1.2 times rated voltage
Rated testing current	1 to 1.2 mA, Shorted current: 4 to 5 mA (at 500 V), 2 to 3 mA (at 1000 V)
Measurement range, Accuracy	0.5 MΩ to 999 MΩ (at 500 V), and 1 MΩ to 999 MΩ (at 1000 V): ±4 % rdg., 1000 MΩ to 2000 MΩ: ±8 % rdg.
Judgment function	Window comparator method (Digital setting)
[Timer section]	
Setting range	0.5 to 999 s
[General section]	
Monitor function	Output voltage, detected current, insulation resistance, Refresh rate: 2 times/s
Power supply	220 V AC, (50/60 Hz), 800 VA max.
Dimensions and mass	320 mm (12.60 in)W × 155 mm (6.10 in)H × 330 mm (12.99 in)D, 21.5 kg (758.4 oz)
Accessories	H.V. Test lead 9615 (high voltage side and return, 1 each) ×1, Power cord ×1, Instruction manual ×1, Spare fuse ×1

*The 9615 is bundled

Input/Output cords

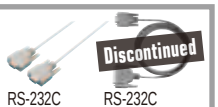
H.V. TEST LEAD 9615
Red, Black each 1, 1.5 m (4.92 ft) length

REMOTE CONTROL BOX (SINGLE) 9613
For Start/Stop control, 1.5m (4.92 ft) cord length

REMOTE CONTROL BOX (DUAL) 9614
For Start/Stop control, 1.5m (4.92 ft) cord length

PC communication

SAFETY TEST DATA MANAGEMENT SOFTWARE 9267
For PC control application software



RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

Protective Ground Tester Indispensable for Standards Certification

AC GROUNDING HiTESTER 3157

GP-IB option

RS-232C option

CE

3 year Warranty

- Easily perform protective continuity testing in compliance with international safety standards and laws
  - -1) Protective continuity resistance measurement for medical devices and general electrical devices
  - -2) Ground connectivity testing when installing electrical machine tools and distribution panels
  - -3) Testing of protective grounding and isopotential grounding work for medical equipment
  - -4) Evaluation of contact status using large currents
- Feedback control system that is capable of applying a stable current even with a fluctuating load
- Soft-start function that checks the connection to the device under test before applying the current

Model No. (Order Code) **3157-01** (100-120 / 200-240 VAC switching)

Note: This instrument is not capable of performing measurement by itself. Please purchase two Current probe 9296 units or one Current probe 9296 and one Current apply probe 9297, depending on your measurement application.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Basic functions	AC 4-terminal method resistance measurement
Display	Fluorescent tube (digital display)
Current setting range	3.0 A to 31.0 A AC (0.1 A resolution), into 0.1Ω load
Max. output power	130 VA (at output terminals)
Open-terminal voltage	Max. 6 V AC
Generator frequency	50 Hz or 60 Hz sine wave (selectable)
Resistance measurement	0 to 1.800 Ω (0.001 Ω resolution), Accuracy: ±2% rdg. ±4 dgt. after zero-adjust
Voltage measurement	0 to 6.00 V AC (single range 0.01 V resolution), Accuracy: (1 % rdg. +5 dgt.)
Monitor section	0 to 35.0 A AC/ 0 to 6 V AC, Refresh rate: 2 times/s
Timer display	Counts down time after start until preset time, Shows elapsed time after start
Timer setting	0.5 s to 999 s
Comparator	PASS/FAIL evaluation using preset upper/lower limit, buzzer sound, signal output
Memory function	Max. 20 settings (with save/load)
Interfaces	EXT I/O, EXT SW, GP-IB or RS-232C (option)
Power supply	100 to 120 V/200 to 240 V AC (switching, 50/60 Hz)
Dimensions and mass	320 mm (12.60 in)W × 90 mm (3.54 in)H × 263 mm (10.35 in)D, 7 kg (246.9 oz)
Accessories	Power cord ×1, Instruction Manual ×1, Spare fuse (inlet) ×1, Shorting bar ×2

Printer options

*When using the Printer 9442, also purchase the RS-232C Interface 9593-02

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

CONNECTION CABLE 9446
For the Printer 9442, 25 pin - 9 pin, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

Input/Output cords

REMOTE CONTROL BOX (SINGLE) 9613
For Start/Stop control, 1.5m (4.92 ft) cord length

REMOTE CONTROL BOX (DUAL) 9614
For Start/Stop control, 1.5m (4.92 ft) cord length

CURRENT PROBE 9296
Alligator clip, 1.45m (4.76 ft) length

CURRENT APPLY PROBE 9297
With switch, 1.48m (4.86 ft) length

PC communication

SAFETY TEST DATA MANAGEMENT SOFTWARE 9267
For PC control application software

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

GP-IB INTERFACE 9518-02
For the 3157-01, built in type

RS-232C INTERFACE 9593-02
For the 3157-01, built in type, not CE marked

Improve Power Conversion Efficiency, the Next Generation POWER ANALYZER

POWER ANALYZER PW6001

USB 2.0 / LAN / GP-IB / RS-232C / True RMS / CE / 3 year Warranty

- Basic accuracy of ±0.02%*1 for power measurement
  1 PW6001 accuracy only. Instrument delivers accuracy of ±0.07% even after the current sensor accuracy has been added.
- High noise resistance and stability (80 dB/100 kHz CMRR, ±0.01%/°C temperature characteristics)
- Accurate measurement even when the load is characterized by large fluctuations; TrueHD 18-bit resolution
- 10 ms data refresh while maintaining maximum accuracy (using a specially designed IC to make all measurements independently while performing simultaneous calculations.)
- DC accuracy of ±0.07%, which is key for stable, accurate efficiency measurement
- Wide frequency bandwidth of DC, or 0.1 Hz to 2 MHz
- Achieve true frequency analysis with high-speed 5MS/s sampling (18 bit)
- Synchronize 2 units for up to 12 channels*2 in real time
  2 Two 6-channel models can be connected with an optical connection cable
- Special triggers to enable waveform analysis and motor analysis without the need for an oscilloscope
- Wideband harmonic analysis up to the 100th order with a 1.5 MHz band
- Send measured values to HIOKI data loggers using a Bluetooth® wireless technology compatible adapter (LR8410 Link-compatible products), Ver. 2.0 and later

Model No. (Order Code)				
	PW6001-01	(1ch)	**PW6001-11**	(1ch, motor analysis, D/A output)
	PW6001-02	(2ch)	**PW6001-12**	(2ch, motor analysis, D/A output)
	PW6001-03	(3ch)	**PW6001-13**	(3ch, motor analysis, D/A output)
	PW6001-04	(4ch)	**PW6001-14**	(4ch, motor analysis, D/A output)
	PW6001-05	(5ch)	**PW6001-15**	(5ch, motor analysis, D/A output)
	PW6001-06	(6ch)	**PW6001-16**	(6ch, motor analysis, D/A output)

*Note: Optional voltage cords and current sensor are required for taking measurements. *Specify the number of built-in channels and inclusion of Motor analysis & D/A output upon order for factory installation. These options cannot be changed or added at a later date.*

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Measurement line type	Single-phase 2-wire, single-phase 3-wire, three-phase 3-wire, three-phase 4-wire
Number of input channels	Max. 6 channels; each input unit provides 1 channel for simultaneous voltage and current input (Voltage measurement unit: Photoisolated input, resistance voltage divider, Current measurement unit: Isolated input from current sensor)
Measurement items	Voltage (U), current (I), active power (P), apparent power (S), reactive power (Q), power factor (λ), phase angle (φ), frequency (f), efficiency (η), loss (Loss), voltage ripple factor (Urf), current ripple factor (Irf), current integration (Ih), power integration (WP), voltage peak (Upk), current peak (Ipk) Harmonic measurement: Harmonic active power, select calculation order from 2nd order to 100th order Waveform recording: Voltage and current waveforms/ Motor pulse: Always 5 MS/s Motor waveforms: Always 50 kS/s, 16 bits Recording capacity: 1 Mword × ((voltage + current) × number of channels + motor waveforms) Motor analysis (PW6001-11 to -16 only): Voltage, Torque, Rotation, Frequency, Slip, or Motor output
Measurement range	Voltage range: 6 to 1500 V, 8 ranges Current range (Probe 1) : 400 mA to 1 kA (depends on current sensor) Current range (Probe 2) : 100 mA to 50 kA (depends on current sensor) Power range: 2.40000W to 4.50000MW (depends on combination of voltage and current range) Frequency range: 0.1 Hz to 2 MHz
Basic accuracy	Voltage: ±0.02 % rdg. ±0.02 % f.s. Current: ±0.02 % rdg. ±0.02 % f.s. + current sensor accuracy Active power: ±0.02 % rdg. ±0.03 % f.s. + current sensor accuracy
Synchronization frequency range	Power measurement: 0.1 Hz to 2 MHz Harmonic measurement: 45 Hz to 66 Hz (IEC standard mode), 0.1 Hz to 300 kHz (Wideband mode)
Frequency band	DC, 0.1 Hz to 2 MHz
Data update rate	Power measurement: 10 ms/ 50 ms/ 200 ms Harmonic measurement: 200 ms (IEC standard mode), 50 ms (Wideband mode)
Data save interval	OFF, 10 msec to 500 msec, 1 sec to 30 sec, 1 minute to 60 minutes, User-selected from all measured values, including harmonic measured values, Specified measured values can be saved in internal memory or USB flash drive.
External interfaces	USB (memory), LAN, GP-IB, RS-232C (for communication/LR8410 link), External control ,Synchronization control
Logger connectivity	Sends measured values wirelessly to logger by using a Bluetooth® wireless technology serial conversion adapter. (Supported devices: Hioki LR8410 Link-compatible loggers), Ver. 2.0 and later
Power supply	100 to 240 V AC, 50/60 Hz, 200 VA max.
Dimensions and mass	430 mm (16.93 in)W × 177 mm (6.97 in)H × 450 mm (17.72 in)D, 14 kg (49.4 oz) (PW6001-16)
Accessories	Instruction Manual ×1, Power cord ×1, D-sub connector × 1 (PW6001-1x only)

High-Precision Sensors

* To connect to the Probe1 input terminal (HIOKI ME15W terminal)

Up to 200 A (High precision)

AC/DC CURRENT SENSOR CT6862-05
High-precision pull-through type, DC to 1 MHz, 50 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT SENSOR CT6863-05
High-precision pull-through type, DC to 500 kHz,200 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6841-05
DC to 1 MHz, 20 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6843-05
DC to 500 kHz, 200 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

CLAMP ON SENSOR 9272-05
1 Hz to 100 kHz, 20/200 A switching input, ±0.3% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

Up to 500 A (High precision)

AC/DC CURRENT SENSOR CT6904
High-precision pull-through type, DC to 4 MHz, 500 A input, ±0.02% amplitude accuracy, ±0.08° phase accuracy, ME15W terminal

AC/DC CURRENT SENSOR 9709-05 (Discontinuation scheduled)
High-precision pull-through type, DC to 100 kHz, 500 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6844-05
DC to 200 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6845-05
DC to 100 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

*When using a PL23 terminal sensor without "-05" in the model number, Conversion Cable CT9900 must be used to connect to ME15W terminal.
*When using the CT6865 and CT6846, connection via the CT9900 and manual settings are required on the main device.

PL23 (10 pin) - ME15W (12 pin) conversion

CONVERSION CABLE CT9900
Convert PL23 (10 pin) to ME15W (12 pin) terminal

Up to 4000 A (High precision)
Aggregate and measure large currents in multi-cable circuits

Use multiple AC/DC Current Sensor CT6865-05 or AC/DC Current Probe CT6846-05 units with the Sensor Unit CT9557 to measure currents of up to 4000 A in multi-cable circuits. Requires 1 connection cable to connect the PW6001/PW3390 to the CT9557.

SENSOR UNIT CT9557
Power supply for current sensors (4ch, with Waveform/ Total Waveform/Total RMS output)

CONNECTION CABLE CT9904
ME15W (12 pin) terminal to ME15W (12 pin) terminal, 1 m (3.28 ft) length (for connecting CT9557 total output to PW6001 or PW3390 only)

AC/DC CURRENT SENSOR CT6865-05 (Discontinuation scheduled)
High-precision pull-through type, DC to 20 kHz, 1000 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminall

AC/DC CURRENT PROBE CT6846-05
DC to 20 kHz, 1000 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Up to 1000 A (High precision)

AC/DC CURRENT SENSOR CT6865-05 (Discontinuation scheduled)
High-precision pull-through type, DC to 20 kHz, 1000 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6846-05
DC to 20 kHz, 1000 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Direct Current Input

* To connect to the HIOKI ME15W (12 pin) terminal

AC/DC CURRENT BOX PW9100-03
3 channels, DC to 3.5 MHz, CMRR 120dB, 50 A AC/DC input, ±0.02% amplitude accuracy, ±0.1° phase accuracy

AC/DC CURRENT BOX PW9100-04
4 channels, DC to 3.5 MHz, CMRR 120dB, 50 A AC/DC input, ±0.02% amplitude accuracy, ±0.1° phase accuracy

Wide-Band Current Probes

* To connect to the Probe2 input terminal

Up to 5 A (High speed)

CURRENT PROBE CT6700
Wide DC to 50 MHz bandwidth, 1 mA to 5 A rms

CURRENT PROBE CT6701
Wide DC to 120 MHz bandwidth, 1 mA to 5 A rms

Up to 30 A (High speed)

CLAMP ON PROBE 3273-50
Wide DC to 50 MHz bandwidth, 10 mA-class to 30 Arms

CLAMP ON PROBE 3276
Wide DC to 100 MHz bandwidth, 10 mA-class to 30 Arms

Up to 500 A (High speed)

CLAMP ON PROBE 3274
Wide DC to 10 MHz bandwidth, up to 150 A rms

CLAMP ON PROBE 3275
Wide DC to 2 MHz bandwidth, up to 500 A rms

Voltage measurement

VOLTAGE CORD L9438-50
Black/ Red, 3 m (9.84 ft) length, Alligator clip ×2

VOLTAGE CORD L1000
Red/ Yellow/ Blue/ Gray each 1, Black 4, Alligator clip ×8, 3m (9.84ft) length

GRABBER CLIP 9243
Attaches to the tip of the connection cable, 196 mm (7.72 in) length, CAT III 1000 V

PATCH CORD L1021-01
Banana branch-banana, Red: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

PATCH CORD L1021-02
Banana branch-banana, Black: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

Connection Options

*9444 for external control interface, L9217 for motor signal input

OPTICAL CONNECTION CABLE L6000
50/125 µm wavelength multimode fiber, 10 m (32.81 ft) length

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

CONNECTION CABLE 9444
For the Printer 9442, 9 pin - 9 pin, 1.5 m (4.92 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, 1.6 m (5.25 ft) length

Other options

The following made-to-order items are also available. Please contact your Hioki distributor or subsidiary for more information

- Carrying case (hard trunk, with casters)
- D/A output cable, D-sub 25-pin-BNC (male), 20 ch conversion
- Bluetooth® serial converter adapter cable 1 m (3.28 ft)
- Rackmount fittings (EIA, JIS)
- Optical connection cable, Max. 500 m (1640.55 ft) length
- PW9100 5 A rating version
- 2000A pull-through type sensor

High-accuracy Power Analysis - Anywhere, Anytime

POWER ANALYZER **PW3390**

LAN
USB2.0
RS-232C
True RMS
CE
3 year Warranty

- ±0.04% basic power accuracy, among the best in its class
- 200 kHz measurement band with flat amplitude and phase accuracy that extend to high frequencies
- Remarkably small and light footprint, enabling high-accuracy measurement to be easily carried out even in the field
- High-accuracy, high-speed calculation of transient-state power in 50 ms; harmonic analysis; display of instantaneous waveforms; noise analysis; and simultaneous parallel calculation of all parameters, including efficiency loss
- Send measured values to HIOKI data loggers using a Bluetooth® wireless technology compatible adapter (LR8410 Link-compatible products)
- Simultaneous measurement of multiple circuits and ability to acquire synchronized data using up to 8 devices (for 32 channels)
- Simple power measurement using clamp-on current sensors
- Measurement of current and power inputs and outputs as part of the new international WLTP fuel efficiency standard

Model No. (Order Code) **PW3390-01**
PW3390-02 (D/A output)
PW3390-03 (D/A output, motor analysis)

Note: PW3390 by itself does not support current and power measurements. Optional current sensor and voltage cord are necessary to measure current or power parameters. Specify inclusion of Motor analysis & D/A output upon order for factory installation. These options cannot be changed or added after delivery.

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Measurement line type	Single-phase 2-wire, single-phase 3-wire, three-phase 3-wire, three-phase 4-wire, Voltage 4 channels, Current 4 channels, Isolated between each channel
Basic measurement parameters	Frequency, RMS voltage, voltage mean value rectification RMS equivalent, voltage AC component, voltage simple average, voltage fundamental wave component, voltage waveform peak +, voltage waveform peak -, voltage total harmonic distortion, voltage ripple factor, voltage unbalance factor, RMS current, current mean value rectification RMS equivalent, current AC component, current simple average, current fundamental wave component, current waveform peak +, current waveform peak -, current total harmonic distortion, current ripple factor, current unbalance factor, active power, apparent power, reactive power, power factor, voltage phase angle current phase angle, power phase angle, positive-direction current magnitude, negative-direction current magnitude, sum of positive- and negative-direction current magnitude, positive-direction power magnitude, negative-direction power magnitude, sum of positive- and negative-direction power magnitude, efficiency, loss Current integration, active power integration PW3390-03 only: Torque, Rotation, Frequency, Slip, or Motor power
Harmonic measurement	Input: 4 ch, Synchronization frequency range: 0.5 Hz to 5 kHz, Number of harmonic orders: Max. 100th order
Noise measurement	Number of channels: 1 ch (select one channel from CH1 to CH4), Maximum analysis frequency: 200 k/ 50 k/ 20 k/ 10 k/ 5 k/ 2 kHz
Motor Analysis (PW3390-03 only)	Input: 3 ch (CH A, CH B, CH Z), Measurement parameters: Voltage, torque, rotation rate, frequency, slip, and motor power
Measurement range	Voltage range: 15 to 1500 V, 7 ranges Current range: 0.1 A to 20 kA (depends on current sensor) Frequency range: 0.5 Hz to 5 kHz
Effective measuring power range	0.0150 W to 39.600 MW (determined automatically by the combination of voltage range, current range, and measurement line)
Basic accuracy (45 to 66 Hz)	Voltage: ±0.04 % rdg. ±0.05 % f.s. Current: ±0.04 % rdg. ±0.05 % f.s. + current sensor accuracy Active power: ±0.04 % rdg. ±0.05 % f.s. + current sensor accuracy
Synchronization frequency range	0.5 Hz to 5 kHz
Frequency band	DC, 0.5 Hz to 200 kHz
Data update rate	50 ms (For harmonic/frequency measurement, depends on the synchronization frequency when less than 45 Hz)
Display refresh rate	200 ms (Independent of internal data update rate; waveform and FFT depend on the screen)
Auto-Save Functions	Each value is stored to CF card during every measurement interval (not available for USB storage), OFF, 50 msec to 500 msec, 1 sec to 30 sec, 1 minute to 60 minutes, 15 settings
External interfaces	LAN, USB (for communication/ memory), RS-232C (for communication/LR8410 link), CF card, Synchronization control, External Control
Logger connectivity	Sends measured values wirelessly to logger by using a Bluetooth® wireless technology serial conversion adapter. (Supported devices: Hioki LR8410 Link-compatible loggers)
Power supply	100 to 240 V AC, 50/60 Hz, 140 VA max.
Dimensions and mass	340 mm (13.39 in)W × 170 mm (6.69 in)H × 156 mm (6.14 in)D, 4.6 kg (162.3 oz)
Accessories	Instruction Manual ×1, Power cord ×1, Measurement Guide ×1, USB cable ×1, Input cord label ×2, D-sub connector × 1 (PW3390-02, PW3390-03)

New Wideband High-Accuracy Current Measurement Option

AC/DC CURRENT BOX **PW9100**

CE
3 year Warranty

PW9100-03

PW9100-04

- World-leading measurement bands and accuracy
- Wide-band DC to 3.5MHz, 50A AC/DC rated input
- ±0.04% power accuracy in combination with PW6001
- 120dB CMRR (100 kHz)
- Full-rack size suitable for test/evaluation benches
- Current measurement option for PW6001/ PW3390 POWER ANALYZERS

Model No. (Order Code) **PW9100-03** (For the PW6001/PW3390, 3 ch)
PW9100-04 (For the PW6001/PW3390, 4 ch)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement line type	Isolated input, DCCT input
Rated primary current	50 A AC/DC
Number of input channels	PW9100-03: 3 channels PW9100-04: 4 channels
Maximum input current	60 A, within derating. However, up to ±200 A peak is allowable if within 20 ms (design value)
Amplitude and Phase accuracy	DC (±0.02 % rdg. ±0.007 % f.s.) 45 Hz < f ≤ 65 Hz (±0.02 % rdg. ±0.005 % f.s., Phase: ±0.1 deg.) Accuracy is defined to 1 MHz
Output voltage	2 V/50 A
Measurement terminals	Terminal block (with safety cover), M6 screws
Input resistance	1.5 mΩ or less (50 Hz/60 Hz)
Input capacitance	Between measurement terminals and case (secondary side), 40 pF or less, defined at 100 kHz
Operating temperature and humidity	Temperature: 0°C to 40°C (32°F to 104°F), Humidity: 80% RH or less (no condensation)
Power supply	Power supply from PW6001, PW3390
Dimensions and mass	430 mm (16.93 in) W × 88 mm (3.46 in) H × 260 mm (10.24 in) D, Cable length: 0.8 m (2.62 ft) PW9100-03: 3.7 kg (130.5 oz), PW9100-04: 4.3 kg (151.7 oz)
Accessories	Instruction Manual ×1

Option A

CONVERSION CABLE CT9901
ME15W (12 pin) to PL23 (10 pin) connector

Only 1 unit of CT9902 can be used at any one time.
Option B

EXTENSION CABLE CT9902
5 m (16.41 ft) length, ME15W (12 pin) - ME15W (12 pin) connector

Option C
Rack mount hardware
Made-to-order, for EIA/JIS
Contact your local Hioki distributor for more information

Options for PW3390

For other options, please see the product catalog.

High-Precision Sensors

* To connect to the HIOKI ME15W (12 pin) terminal

Up to 200 A (High precision)

AC/DC CURRENT SENSOR CT6862-05
High-precision pull-through type, DC to 1 MHz, 50 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT SENSOR CT6863-05
High-precision pull-through type, DC to 500 kHz,200 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6841-05
DC to 1 MHz, 20 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6843-05
DC to 500 kHz, 200 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

CLAMP ON SENSOR 9272-05
1 Hz to 100 kHz, 20/200 A switching input, ±0.3% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

Up to 500 A (High precision)

AC/DC CURRENT SENSOR CT6904
High-precision pull-through type, DC to 4 MHz, 500 A input, ±0.02% amplitude accuracy, ±0.08° phase accuracy, ME15W terminal

Discontinuation scheduled

AC/DC CURRENT SENSOR 9709-05
High-precision pull-through type, DC to 100 kHz, 500 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6844-05
DC to 200 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6845-05
DC to 100 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Up to 1000 A (High precision)

Discontinuation scheduled

AC/DC CURRENT SENSOR CT6865-05
High-precision pull-through type, DC to 20 kHz, 1000 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6846-05
DC to 20 kHz, 1000 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Up to 4000 A (High precision)
Aggregate and measure large currents in multi-cable circuits

Use multiple AC/DC Current Sensor CT6865-05 or AC/DC Current Probe CT6846-05 units with the Sensor Unit CT9557 to measure currents of up to 4000 A in multi-cable circuits. Requires 1 connection cable to connect the PW6001/PW3390 to the CT9557.

SENSOR UNIT CT9557
Power supply for current sensors (4ch, with Waveform/ Total Waveform/Total RMS output)

CONNECTION CABLE CT9904
ME15W (12 pin) terminal to ME15W (12 pin) terminal, 1 m (3.28 ft) length (for connecting CT9557 total output to PW6001 or PW3390 only)

Discontinuation scheduled

AC/DC CURRENT SENSOR CT6865-05
High-precision pull-through type, DC to 20 kHz, 1000 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6846-05
DC to 20 kHz, 1000 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

*When using a PL23 terminal sensor without "-05" in the model number, Conversion Cable CT9900 must be used to connect to ME15W terminal.
*When using the CT6865 and CT6846 (without "-05"), connection via the CT9900 and manual settings are required on the main device.

PL23 (10 pin) - ME15W (12 pin) conversion

CONVERSION CABLE CT9900
Convert PL23 (10-pin) terminal to ME15W (12-pin) terminal

Direct Current Input

* To connect to the HIOKI ME15W (12 pin) terminal

AC/DC CURRENT BOX PW9100-03
3 channels, DC to 3.5 MHz, CMRR 120dB, 50 A AC/DC input, ±0.02% amplitude accuracy, ±0.1° phase accuracy

AC/DC CURRENT BOX PW9100-04
4 channels, DC to 3.5 MHz, CMRR 120dB, 50 A AC/DC input, ±0.02% amplitude accuracy, ±0.1° phase accuracy

Current Input 2000A AC/DC

* The CT9920 is necessary for connecting a current sensor with a HIOKI PL14 connector to the PW3390

AC/DC CURRENT SENSOR CT7642
DC to 10kHz, 2000A AC/DC, ϕ 55 mm (2.17 in) , 2.5 m (8.20 ft) cord length, Output connector: PL14 terminal

AC/DC AUTO ZERO CURRENT SENSOR CT7742
DC to 5 kHz, 2000A AC/DC, ϕ 55 mm (2.17 in) , 2.5 m (8.20 ft) cord length, Output connector: PL14 terminal

CONVERSION CABLE CT9920
Required to connect the PW3390 or other instrument's ME15W terminal to a current sensor with a PL14 output connector.

Current Input 6000A

* The CT9920 is necessary for connecting a current sensor with a HIOKI PL14 connector to the PW3390

AC FLEXIBLE CURRENT SENSOR CT7044
6000 A AC, ϕ100 mm (3.94 in), 2.5 m (8.20 ft) cord length, PL14 terminal

AC FLEXIBLE CURRENT SENSOR CT7045
6000 A AC, ϕ180 mm (7.09 in), 2.5 m (8.20 ft) cord length, PL14 terminal

AC FLEXIBLE CURRENT SENSOR CT7046
6000 A AC, ϕ254 mm (10.00 in), 2.5 m (8.20 ft) cord length, PL14 terminal

CONVERSION CABLE CT9920
Required to connect the PW3390 or other instrument's ME15W terminal to a current sensor with a PL14 output connector.

Voltage Input

VOLTAGE CORD L9438-50
Black/ Red, 3 m (9.84 ft) length, Alligator clip ×2

VOLTAGE CORD L1000
1000 V specifications, Red/ Yellow/ Blue/ Gray each 1, Black 4, Alligator clip ×8, 3m (9.84ft) length

EXTENSION CABLE SET L4931
Expands the length of the cable with banana plug, 1.5 m (4.92 ft) length

WIRING ADAPTER PW9000
When making a 3-phase 3-wire (3P3W3M) connection, this product allows you to reduce the number of voltage cords from 6 to 3.

WIRING ADAPTER PW9001
When making a 3-phase 4-wire (3P4W) connection, this product allows you to reduce the number of voltage cords from 6 to 4.

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 196 mm (7.72 in) length, CAT III 1000 V

PATCH CORD L1021-01
Banana branch-banana, Red: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

PATCH CORD L1021-02
Banana branch-banana, Black: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

Connection Options

* L9217: for motor analysis input

CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, signal output use, 1.6 m (5.25 ft) length

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

CONNECTION CABLE 9683
For synchronization, cable length 1.5 m (4.92 ft)

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

Storage media

PC CARD 2G 9830
2 GB capacity

PC CARD 1G 9729
1 GB capacity

PC CARD 512M 9728
512 MB capacity

*PC Card Precaution
Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

Case

CARRYING CASE 9794
Hard trunk to protect your PW3390 during transportation, with casters.

Other options

Please contact your Hioki distributor or subsidiary for more information.

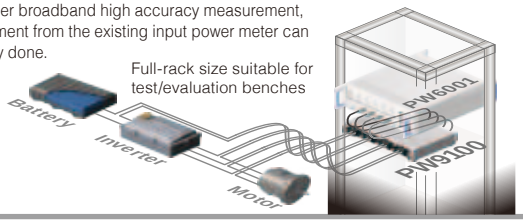
- D/A output cable D-sub 25-pin - BNC (male)
- Rackmount fittings (For EIA or JIS)
- PW9100 5A-rated model
- 9709-05 high-accuracy model
- CT6862-05 high-accuracy model
- CT6863-05 high-accuracy model
- 2000A AC/DC high accuracy sensor, pass-through type

The newly developed DCCT method provides world-leading measurement bands and accuracy at a 50 A rating.

Wiring connection example 1 – To replace existing power measuring equipment

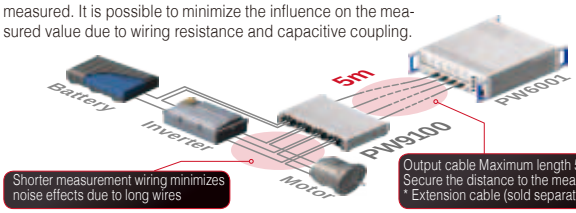
For further broadband high accuracy measurement, replacement from the existing input power meter can be easily done.

Full-rack size suitable for test/evaluation benches



Wiring connection example 2 – Proposal of new measuring method

Wiring for current measurement can be shortened by installing the PW9100 near the object to be measured. It is possible to minimize the influence on the measured value due to wiring resistance and capacitive coupling.



DC, or 0.5 Hz to 1 MHz Wide Bandwidth. Wide Spectrum Power Meter for Comprehensive Device Assessment

POWER HiTESTER 3193-10

Rear side

GP-IB
RS-232C
True RMS
CE
3 year Warranty

- A rich assortment of measurement functions including voltage, current, power, waveform peak value and efficiency
- High-precision with basic accuracy of ±0.1 %, high-speed response of 0.1 s
- Measure up to six circuits simultaneously
- Select from 3 types of input units

Model No. (Order Code) **3193-10** (Main unit only, no FDD)

Note: Main unit 3193-10 cannot operate alone - please purchase an input unit Model 9600 to 9605 for factory installation prior to shipment. All subsequent input unit replacements or expansions must be conducted at HIOKI for an additional service charge. Voltage input code is not included in the input unit of 9600 to 9602. Clip type lead etc. Please consult as necessary.

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Measurement lines	Single-phase 2-wire, single-phase 3-wire, three-phase 3-wire, and three-phase 4-wire systems
Measurement items	**[Using the optional 9600, 9601, 9602]** Voltage, current, voltage/current peak, active power, reactive power, apparent power, power factor, phase angle, frequency, current integration, power integration, load rate, efficiency **[Using the optional 9603, added function]** Voltage, torque, rotation, frequency, motor output
Measurement range (using the 9600)	[Voltage] 6/ 15/ 30/ 60/ 150/ 300/ 600/ 1000 V [Current] 200/ 500 mA, 1/ 2/ 5/ 10/ 20/ 50 A [Power] 1.2 W to 150 kW (Depends on measurement mode and combination of voltage and current range) [Frequency] 50/ 500/ 5 k/ 50 k/ 2 MHz
Basic accuracy	(Active power) ±0.1 % rdg. ±0.1 % f.s. (45 Hz to 66 Hz, using the 9600)
Display refresh rate	8 times /s
Frequency characteristics	[Using the 9600] DC, 0.5 Hz to 1 MHz, [Using the 9601] 5 Hz to 100 kHz [Using the 9602] DC, 0.5 Hz to 200 kHz
Functions	Waveform peak measurement, Efficiency measurement, D/A output, External control, Scaling, Averaging, Back up function, PM measurement at motor output (using the optional 9603), etc,.
Interfaces	RS-232C, GP-IB standard
Power supply	100/ 120/ 200/ 230 V AC, switched automatically, 50/60 Hz, 150 VA max.
Dimensions and mass	430 mm (16.93 in)W × 150 mm (5.91 in)H × 370 mm (14.57 in)D, 15 kg (529.1 oz) (at options installed)
Accessories	Instruction manual ×1, Power cord ×1, Connector ×1

Factory-installed options

* Input modules are factory-installed options, must specify when ordering. * Use the same input unit for a particular measurement line.
* When selecting the 9602 Input Unit, be sure to also purchase the appropriate clamp sensor.

AC/DC DIRECT INPUT UNIT 9600
6 V to 1 kV, 200 mA to 50 A

AC DIRECT INPUT UNIT 9601
60 V to 1 kV, 200 mA to 50 A

AC/DC CLAMP INPUT UNIT 9602
6 V to 600 V, 500 mA to 500 A, * Depends on clamp on sensor in use

EXTERNAL SIGNAL INPUT UNIT 9603
For the 3193, 3193-10 only, Pulse, DC voltage input, 2 channels input

PRINTER UNIT 9604
Data print, screen copy, built-in unit type, not CE Marked

Printer option

RECORDING PAPER 9232
For the Printer option 9604, 74 mm (2.91 in) × 10 m (32.81 ft), 10 rolls/set

High-Precision Sensors

Up to 200 A (High precision)

AC/DC CURRENT SENSOR CT6862
High-precision pull-through type, DC to 1 MHz, 50 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, PL23 terminal

AC/DC CURRENT SENSOR CT6863
High-precision pull-through type, DC to 500 kHz,200 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, PL23 terminal

AC/DC CURRENT PROBE CT6841
DC to 1 MHz, 20 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, PL23 terminal

AC/DC CURRENT PROBE CT6843
DC to 500 kHz, 200 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, PL23 terminal

CLAMP ON SENSOR 9272-10
1 Hz to 100 kHz, 20/200 A switching input, ±0.3% amplitude accuracy, ±0.2° phase accuracy, PL23 terminal

Up to 500 A (High precision)

AC/DC CURRENT SENSOR 9709
High-precision pull-through type, DC to 100 kHz, 500 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, PL23 terminal

AC/DC CURRENT PROBE CT6844
DC to 200 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, PL23 terminal

AC/DC CURRENT PROBE CT6845
DC to 100 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, PL23 terminal

* Model CT6863 is recognized as the UNIVERSAL CLAMP ON CT Model 9278 by Model 3193/ 3193-10/ 3194, but operability is supported.
* In order to use AC/DC CURRENT SENSOR Model CT6862 with Model 3193/ 3194, a firmware upgrade of Model 3193/ 3194 is required.

Up to 1000 A (High precision)

*When using the CT6865/CT6846, manual settings are required on the main device.

AC/DC CURRENT SENSOR CT6865
High-precision pull-through type, DC to 20 kHz, 1000 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, PL23 terminal

AC/DC CURRENT PROBE CT6846
DC to 20 kHz, 1000 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, PL23 terminal

*When using ME15W terminal sensors with the "-05" suffix, the CT9901 is required as a connector adapter.
*When using ME15W terminal sensors CT6865-05 and CT6846-05, connection via the CT9901 and manual settings are required on the main device.

ME15W (12 pin) - PL23 (10 pin) conversion

CONVERSION CABLE CT9901
Convert ME15W (12 pin) to PL23 (10 pin) terminal

Voltage measurement

VOLTAGE CORD L9438-50
Black/ Red, 3 m (9.84 ft) length, Alligator clip ×2

GRABBER CLIP 9243
Attaches to the tip of the connection cable, 196 mm (7.72 in) length, CAT III 1000 V

MAGNETIC ADAPTER 9804-01
Attaches to the tip of cord, red ×1, φ11 mm

MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm

MAGNETIC ADAPTER 9804
Attaches to the tip of voltage cord, φ11 mm (0.43 in), compatible M6 pan screws

PC communication

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

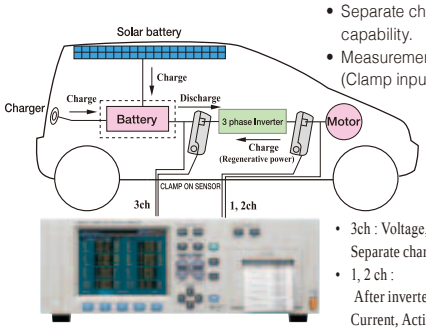
RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Comprehensive measurement of motor power, rpm, torque, converter efficiency, and harmonics with a single instrument (Model 3193-10)

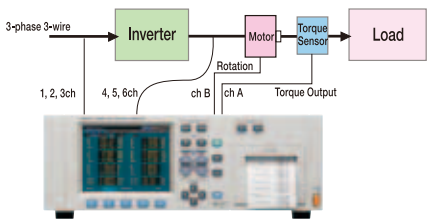
Evaluating an electric vehicle

- Separate charge/generation integration capability.
- Measurement under live circuit conditions. (Clamp input)



- 3ch : Voltage, Current, Active power
  Separate charge / generation integration ±Wh
- 1, 2 ch :
  After inverted DC to AC three phase Voltage, Current, Active power, integration (Wh)

Comprehensive analysis of motor power or converter efficiency



Using the 9603 External signal input unit, the analog output of a torque sensor is directly connected to chA. By inputting the output of a tachometer (analog signal or pulse signal) to chB, a system for measuring torque, rotation count and motor power can be obtained.

Accurately Measure Devices Up to 1000 V/65 A AC/DC with Direct Input

POWER METER PW3337

LAN
RS-232C
GP-IB
-01/-03 Model
True RMS
CE
3 year Warranty

- Compatible with the SPECpower® benchmark for server power consumption
  SPECpower® is a registered trademark of Standard Performance Evaluation Corporation
- Measure DC, and single-phase 2-wire to 3-phase 4-wire with 3-channel input
- For development and production of motors, inverters, power conditioners, power supplies, and other devices
- High-precision basic accuracy of ±0.1 % (*1)
  *(*1) For complete details, please refer to the specifications*
- Wide frequency bandwidth of 0.1 Hz to 100 kHz or DC
- High-current measurement up to 65 A of direct input
- Harmonic measurement up to the 50th order according to IEC 61000-4-7
- High-accuracy measurement, even with a low power factor for no-load testing of transformers and motors
- Built-in external sensor input terminals to measure up to 5000 A AC
- Synchronize up to 8 units for multi-unit measurement
- Create a 6-channel power meter by synchronizing two PW3337 units and using the free PC application

Model No. (Order Code)		
	PW3337	(3ch)
	PW3337-01	(3ch, built-in GP-IB)
	PW3337-02	(3ch, built-in D/A output)
	PW3337-03	(3ch, built-in GP-IB, D/A output)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 6 months)

Measurement lines	Single-phase 2-wires, single-phase 3-wires, 3-phase 3-wires, 3-phase 4-wires (voltage / current measurement range set for each wiring mode)
Measurement items	Voltage, Current, Active power, Apparent power, Reactive power, Power factor, Phase angle, Frequency, Efficiency, Current integration, Active power integration, Integrated time, Voltage waveform peak value, Current waveform peak value, Voltage crest factor, Current crest factor, Time average current, Time average active power, Voltage ripple factor, Current ripple factor
Harmonic parameters	Synchronization frequency range: 10 Hz to 640 Hz, Analysis order up to 50th Harmonic voltage RMS value, Harmonic current RMS value, Harmonic active power, Total harmonic voltage distortion, Total harmonic current distortion, Voltage fundamental waveform, Current fundamental waveform, Active power fundamental waveform, Apparent power fundamental waveform, Reactive power fundamental waveform, Power factor fundamental waveform (displacement power factor), Voltage current phase difference fundamental waveform, Interchannel voltage fundamental wave phase difference, Interchannel current fundamental wave phase difference, Harmonic voltage content % , Harmonic current content % , Harmonic active power content % (The following parameters can be downloaded as data during PC communication but not displayed: Harmonic voltage phase angle, Harmonic current phase angle, Harmonic voltage current phase difference)
Measurement range	Voltage : AC/DC 15 V to 1000 V, 7 ranges Current : AC/DC 200 mA to 50 A, 8 ranges Power : 3.0000 W to 150.00 kW (Depends on combination of voltage and current range)
Integration measurement (Integration time up to 10,000 hours)	[Current] No.of displayed digits: 6 digits (from 0.00000 mAh, Polarity-independent integration and Sum value) [Active power] No.of displayed digits: 6 digits (from 0.00000 mWh, Polarity-independent integration and Sum value)
Input resistance (50/60 Hz)	[Voltage] 2 MΩ, [Current] 1 mΩ or less (direct input)
Basic accuracy (Active power)	±0.1% rdg. ±0.1% f.s. (DC) ±0.1% rdg. ±0.05% f.s. (45 Hz to 66 Hz, at Input < 50% f.s.) ±0.15% rdg. (45 Hz to 66 Hz, at 50% f.s. ≤ Input)
Display refresh rate	5 times/s to 20 seconds (depends on average times settings)
Frequency characteristics	DC, 0.1 Hz to 100 kHz
D/A output (-02/-03 model only)	16 channels (selectable from following items): Level output DC ±2 V, Waveform output 1 V f.s. Level output, instantaneous waveform output (voltage, current, active power), Level output (apparent power, reactive power, power factor, or other), High-speed active power level output
Functions	[Rectification method] AC+DC, AC+DC Umn, AC, DC, FND, Auto-range, Average, VT or CT ratio settings, Synchronized control, MAX/MIN, or other functions
Interfaces	RS-232C / LAN standard, (-01/-03 model also includes GP-IB)
Power supply	100 to 240 V AC, 50/60 Hz, 40 VA max.
Dimensions and mass	305 mm (12.01 in)W × 132 mm (5.20 in)H × 256 mm (10.08 in)D, 5.6 kg (197.5 oz)
Accessories	Instruction manual ×1, Measurement guide ×1, Power cord ×1

Shared options for the POWER METER PW3337, PW3336, and PW3335 series

Accurately Measure Devices Up to 1000 V/65 A AC/DC with Direct Input

POWER METER PW3336

LAN
RS-232C
GP-IB
-01/-03 Model
True RMS
CE
3 year Warranty

- Compatible with the SPECpower® benchmark for server power consumption
  SPECpower® is a registered trademark of Standard Performance Evaluation Corporation
- Measure DC and single-phase 2-wire to 3-phase 3-wire with 2-channel input
- For development and production of motors, inverters, power conditioners, power supplies, and other devices
- High-precision basic accuracy of ±0.1 % (*1)
  *(*1) For complete details, please refer to the specifications*
- Wide frequency bandwidth of 0.1 Hz to 100 kHz or DC
- High-current measurement up to 65 A of direct input
- Harmonic measurement up to the 50th order according to IEC 61000-4-7
- High-accuracy measurement, even with a low power factor for no-load testing of transformers and motors
- Built-in external sensor input terminals to measure up to 5000 A AC
- Synchronize up to 8 units for multi-unit measurement

Model No. (Order Code)		
	PW3336	(2ch)
	PW3336-01	(2ch, built-in GP-IB)
	PW3336-02	(2ch, built-in D/A output)
	PW3336-03	(2ch, built-in GP-IB, D/A output)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 6 months)

Measurement lines	Single-phase 2-wires, single-phase 3-wires, 3-phase 3-wires, (voltage / current measurement range set for each wiring mode)
Measurement items	Voltage, Current, Active power, Apparent power, Reactive power, Power factor, Phase angle, Frequency, Efficiency, Current integration, Active power integration, Integrated time, Voltage waveform peak value, Current waveform peak value, Voltage crest factor, Current crest factor, Time average current, Time average active power, Voltage ripple factor, Current ripple factor
Harmonic parameters	Synchronization frequency range: 10 Hz to 640 Hz, Analysis order up to 50th Harmonic voltage RMS value, Harmonic current RMS value, Harmonic active power, Total harmonic voltage distortion, Total harmonic current distortion, Voltage fundamental waveform, Current fundamental waveform, Active power fundamental waveform, Apparent power fundamental waveform, Reactive power fundamental waveform, Power factor fundamental waveform (displacement power factor), Voltage current phase difference fundamental waveform, Interchannel voltage fundamental wave phase difference, Interchannel current fundamental wave phase difference, Harmonic voltage content % , Harmonic current content % , Harmonic active power content % (The following parameters can be downloaded as data during PC communication but not displayed: Harmonic voltage phase angle, Harmonic current phase angle, Harmonic voltage current phase difference)
Measurement range	Voltage : AC/DC 15 V to 1000 V, 7 ranges Current : AC/DC 200 mA to 50 A, 8 ranges Power : 3.0000 W to 100.00 kW (Depends on combination of voltage and current range)
Integration measurement (Integration time up to 10,000 hours)	[Current] No.of displayed digits: 6 digits (from 0.00000 mAh, Polarity-independent integration and Sum value) [Active power] No.of displayed digits: 6 digits (from 0.00000 mWh, Polarity-independent integration and Sum value)
Input resistance (50/60 Hz)	[Voltage] 2 MΩ, [Current] 1 mΩ or less (direct input)
Basic accuracy (Active power)	±0.1% rdg. ±0.1% f.s. (DC) ±0.1% rdg. ±0.05% f.s. (45 Hz to 66 Hz, at Input < 50% f.s.) ±0.15% rdg. (45 Hz to 66 Hz, at 50% f.s. ≤ Input)
Display refresh rate	5 times/s to 20 seconds (depend on average times settings)
Frequency characteristics	DC, 0.1 Hz to 100 kHz
D/A output (-02/-03 model only)	16 channels (selectable from following items), Level output DC ±2 V, Waveform output 1 V f.s. Level output, instantaneous waveform output (voltage, current, active power) Level output (apparent power, reactive power, power factor, or other) High-speed active power level output
Functions	[Rectification method] AC+DC, AC+DC Umn, AC, DC, FND, Auto-range, Average, VT or CT ratio settings, Synchronized control, MAX/MIN, or other functions
Interfaces	RS-232C / LAN standard, (-01/-03 model also includes GP-IB)
Power supply	100 to 240 V AC, 50/60 Hz, 40 VA max.
Dimensions and mass	305 mm (12.01 in)W × 132 mm (5.20 in)H × 256 mm (10.08 in)D, 5.2 kg (183.4 oz)
Accessories	Instruction manual ×1, Measurement guide ×1, Power cord ×1

Shared options for the POWER METER PW3337, PW3336, and PW3335 series

Measure AC/DC Standby Power Up to Large Power Loads

POWER METER **PW3335**

LAN
RS-232C
PW3335, -02/-03/-04
GP-IB
PW3335-01, -04
True RMS
CE
3 year Warranty

- Compatible with the SPECpower® benchmark for server power consumption
  SPECpower® is a registered trademark of Standard Performance Evaluation Corporation
- High-precision ±0.1% basic accuracy (For complete details, please refer to the specifications)
- Wide 1mA to 20A measurement range, max. continuous input of 30 A
- Wide frequency bandwidth of 0.1 Hz to 100 kHz or DC
- Measure harmonic and standby power consumption according to IEC62301
- Achieve superior accuracy even with a low power factor for no-load testing of transformers and motors
- Synchronized control using up to 8 instruments
- Built-in external sensor input terminals to measure up to 5000 A AC (PW3335-03, PW3335-04 only)
- Send measured values to HIOKI data loggers using a Bluetooth® wireless technology compatible adapter (LR8410 Link-compatible products, Ver. 1.1 and later, the PW3335-01 is not supported)

Model No. (Order Code)		
	PW3335	(Buit-in LAN, RS-232C)
	PW3335-01	(Buit-in LAN, GP-IB)
	PW3335-02	(Buit-in LAN, RS-232C, D/A output)
	PW3335-03	(Buit-in LAN, RS-232C, external sensor terminal)
	PW3335-04	(Buit-in LAN, RS-232C, GP-IB, D/A output, external sensor terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 6 months)

Measurement lines	Single-phase/ two-wires
Measurement items	Voltage, current, active power, apparent power, reactive power, power factor, phase angle, frequency, maximum current ratio, current integration, active power integration, integration time, voltage waveform peak value, current waveform peak value, voltage crest factor, current crest factor, time average current, time average active power, voltage ripple rate, current ripple rate
Harmonic parameters	Synchronization frequency range : 10 Hz to 640 Hz Maximum analysis order : 50th Harmonic voltage RMS value, harmonic current RMS value, harmonic active power, total harmonic voltage distortion, total harmonic current distortion, fundamental wave voltage, fundamental wave current, fundamental wave active power, fundamental wave apparent power, fundamental wave reactive power, fundamental wave power factor (displacement power factor), fundamental wave voltage current phase difference, harmonic voltage content percentage, harmonic current content percentage, harmonic active power content percentage (The following parameters can be downloaded as data with only PC communications : Harmonic voltage phase angle, harmonic current phase angle, harmonic voltage current phase difference)
Measurement ranges	[Voltage] AC/DC 6 V to 1000 V, 8 ranges [Current] AC/DC 1 mA to 20 A, 14 ranges [Power] 6.0000 mW to 20.000 kW (Depends on combination of voltage and current range) Effect of power factor : ±0.1% f.s. or less (45 to 66 Hz, at power factor = 0)
Integration measurement (Integration time up to 10,000 hours)	Switchable between fixed-range integration and auto-range integration. [Current] No. of displayed digits: 6 digits (from 0.00000 mAh, polarity-independent integration and sum value) [Active power] No. of displayed digits: 6 digits (from 0.00000 mWh, polarity-independent integration and sum value)
Input resistance (50/60 Hz)	[Voltage input terminal] 2 MΩ [Current input terminal] 520 mΩ or less (at 1 mA to 100 mA range), 15 mΩ or less (at 200 mA to 20 A range)
Basic accuracy (Active power)	±0.1% rdg. ±0.1% f.s. (DC) ±0.1% rdg. ±0.05% f.s. (45 Hz to 66 Hz, at input < 50% f.s.) ±0.15% rdg. (45 Hz to 66 Hz, at 50% f.s. ≤ input)
Display refresh rate	5 times/s to 20 seconds (depend on average times settings)
Frequency characteristics	DC, 0.1 Hz to 100 kHz
D/A output (-02/-04 models only)	7 channels (selectable from the following items): level output DC ±2 V f.s. or 5 V f.s., waveform output 1 V f.s., level output, instantaneous waveform output (voltage, current, active power), level output (apparent power, reactive power, power factor, or other), high-speed level output (voltage, current, active power)
Functions	[Rectification method] AC+DC, AC+DC Umn, AC, DC, FND, Auto-range, Average, VT or CT ratio settings, Synchronized control, MAX/MIN, and more
Logger connectivity	Sends measured values wirelessly to logger by using a Bluetooth® wireless technology serial conversion adapter. (Supported devices: Hioki LR8410 Link-compatible loggers), Ver. 1.1 and later, the PW3335-01 is not supported
Interfaces	LAN (all models), RS-232C (except -01 model, for communication/LR8410 link), GP-IB (-01, -04 models only)
Power supply	100 V to 240 V AC, 50/60 Hz, 30 VA max.
Dimensions and mass	210 mm (8.27 in)W × 100 mm (3.94 in)H × 245 mm (9.65 in)D, 3 kg (105.8oz)
Accessories	Instruction manual ×1, power cord ×1, voltage and current input terminal safety cover ×2, safety cover installation screws (M3 × 6 mm) ×4

Shared options for the POWER METER PW3337, PW3336, and PW3335 series ...(*PW3335 is available only for models with external current sensor input terminals, current sensor can be used)

Current measurement

Current sensors are compatible only with versions of Model PW3335 that include the external current sensor terminal.
Can be connected to the current sensor input terminals (1 sensor necessary for single-phase measurement, and 2 or 3 sensors required for 3-phase measurements)

CLAMP ON SENSOR 9660
100A AC rated current, φ 15 mm (0.59 in) core dia., 3 m (9.84 ft) length

CLAMP ON SENSOR 9661
500A AC rated current, φ 46 mm (1.81 in) core dia., 3 m (9.84 ft) length

FLEXIBLE CLAMP ON SENSOR CT9667-01/-02/-03
5000/500 A AC rated current, φ 100 mm (3.94 in) to 254 mm (10.0 in) core dia., Cable length: Between sensor - box 2 m (6.56 ft), Output cable 1 m (3.28 ft)

CLAMP ON SENSOR 9669
1000A AC rated current, φ 55 mm (2.17 in) core dia., 3 m (9.84 ft) length

High-Precision Current Sensors

*Current sensors are compatible only with versions of Model PW3335 that include the external current sensor terminal.
*To use a high precision current sensor (-05 model), requires Sensor Unit CT9555 and Connection Cord L9217.
*To use a high precision current sensor (without "-05" model), requires Conversion Cable CT9900 for PL23 (10pin) to ME15W (12 pin) conversion, Sensor Unit CT9555 and Connection Cord L9217.
*1 sensor necessary for single-phase measurement, 2 or 3 sensors required for 3-phase measurements. The same number of power supply and connection cord as the sensor is necessary.

Up to 200 A (High precision)

AC/DC CURRENT SENSOR CT6862-05
High-precision pull-through type, DC to 1 MHz, 50 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT SENSOR CT6863-05
High-precision pull-through type, DC to 500 kHz,200 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6841-05
DC to 1 MHz, 20 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6843-05
DC to 500 kHz, 200 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

CLAMP ON SENSOR 9272-05
1 Hz to 100 kHz, 20/200 A switching input, ±0.3% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

Up to 500 A (High precision)

AC/DC CURRENT SENSOR CT6904
High-precision pull-through type, DC to 4 MHz, 500 A input, ±0.02% amplitude accuracy, ±0.08° phase accuracy, ME15W terminal

Discontinuation scheduled

AC/DC CURRENT SENSOR 9709-05
High-precision pull-through type, DC to 100 kHz, 500 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6844-05
DC to 200 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6845-05
DC to 100 kHz, 500 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

*When using a PL23 terminal sensor without "-05" in the model number, Conversion Cable CT9900 must be used to connect to ME15W terminal.
*When using the CT6865 and CT6846 (without "-05"), connection via the CT9900 and manual settings are required on the main device.

PL23 (10 pin) - ME15W (12 pin) conversion

CONVERSION CABLE CT9900
Convert PL23 (10 pin) to ME15W (12 pin) terminal

Up to 1000 A (High precision)

Discontinuation scheduled

AC/DC CURRENT SENSOR CT6865-05
High-precision pull-through type, DC to 20 kHz, 1000 A input, ±0.05% amplitude accuracy, ±0.2° phase accuracy, ME15W terminal

AC/DC CURRENT PROBE CT6846-05
DC to 20 kHz, 1000 A input, ±0.3% amplitude accuracy, ±0.1° phase accuracy, ME15W terminal

Power supply for sensors

SENSOR UNIT
CT9555 1ch, with Waveform output

CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, 1.6 m (5.25 ft) length

PC communication

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

Discontinued

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2m (6.56 ft) length

Other options

Synchronize Multiple Units

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, use at metallic terminal, 1.5 m (4.92 ft) length

Single Phase Power Meter Compatible with DC Measurement and Current/Power Integration Measurement

AC/DC POWER HiTESTER 3334

RS-232C
GP-IB
-01 Model
True RMS
CE
3 year Warranty

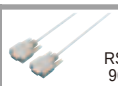
- Compatible with the SPECpower® benchmarking for server power consumption
  ® SPECpower is a registered trademark of Standard Performance Evaluation Corporation
- DC measurement mode, AC, and AC+DC measurement
- Integration function for current and power
- ±0.1% high basic accuracy (For complete details, please refer to the specifications)
- Extended period of guaranteed accuracy of 3 years
- Complete accuracy over a wide input range

Model No. (Order Code) **3334**
3334-01 (Buit-in GP-IB)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement lines	Single-phase/ two-wires
Measurement items	Voltage, Current, Active power, Apparent power, Power factor, Frequency, Integration (current, active power), Waveform peak (voltage and current)
Measurement ranges	[Voltage] AC/DC 15.000/ 30.00/ 150.00/ 300.0 V [Current] AC/DC 100.00/ 300.0 mA, 1.0000/ 3.000/ 10.000/ 30.00 A [Power] 1.5000 W to 9.000 kW (combination of voltage and current ranges)
Integration measurement Integration time up to 10,000 hours	[Current] No. of displayed digits: 6 digits (from 0.00000 mAh, Polarity-independent integration and Sum value) [Active power] No. of displayed digits: 6 digits (from 0.00000 mWh, Polarity-independent integration and Sum value)
Input resistance (50/60 Hz)	[Voltage] 2.4 MΩ, [Current] 10 mΩ or less (direct input)
Basic accuracy	±0.1% rdg. ±0.2% f.s. (DC), ±0.1% rdg. ±0.1% f.s. (45 Hz to 66 Hz) *Note: Provided accuracy of 1 Year, typical value*
Display refresh rate	5 times/s
Frequency characteristics	DC, 45 Hz to 5 kHz
Waveform output	Parameter output representation: voltage, current and power (3 simultaneous channels), Output voltage: 1 V DC f.s.
Analog output (D/A output)	Parameter output representation: voltage, current active power and selected 1 item (4 simultaneous channels), Selected 1 item from apparent power, power factor, current integration, active power integration, Output voltage: ±2 V DC f.s.
Functions	Rectification method switchable between AC+DC (True RMS), DC (simple average), AC (True RMS), Wave peak measurement, VT or CT ratio settings, Average function
Interfaces	RS-232C included as standard, GP-IB (Model 3334-01 only)
Power supply	100 V to 240 V AC, 50/60 Hz, 20 VA max.
Dimensions and mass	210 mm (8.27 in)W × 100 mm (3.94 in)H × 245 mm (9.65 in)D, 2.5 kg (88.2 oz)
Accessories	Instruction manual ×1, Power cord ×1

PC communication



RS-232C CABLE 9637
For the PC, 9pin - 9pin, cross, 1.8m (5.91 ft) length

Discontinued

RS-232C CABLE 9638
For the PC, 9pin - 25pin, cross, 1.8m (5.91 ft) length

GP-IB CONNECTOR CABLE 9151-02
2 m (6.56 ft) length

Single Phase Power Meter for Production and Inspection Lines

POWER HiTESTER 3333

RS-232C
GP-IB
-01 Model
True RMS
CE
3 year Warranty

- Ideal for replacing portable instruments, ±0.1% basic accuracy
- Extended period of guaranteed accuracy of 3 years
- 50mA to 20A AC current range (300 V Max., Accuracy guaranteed up to 30 A)
- Print out with the 9442 and RS-232C interface

Model No. (Order Code) **3333**
3333-01 (Buit-in GP-IB)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement lines	Single-phase 2-wires
Measurement items	Voltage, Current, Active power, Apparent power, Power factor
Measurement range	[Voltage] 200 V AC (300 V Max.) [Current] 50/ 200/ 500 mA, 2/ 5/ 20 A AC (30 A Max.) [Power] 10.000 W to 4.000 kW (combination of voltage and current ranges)
Input resistance (50/60 Hz)	[Voltage] 2.4 MΩ, [Current] 7 mΩ or less (direct input)
Basic accuracy	[Guaranteed for 1 year, Voltage, Current, Active power] ±0.1 % rdg. ±0.1 % f.s. (45 Hz to 66 Hz, input current 20 A or less) [Guaranteed for 3 years, Voltage, Current, Active power] ±0.1 % rdg. ±0.2 % f.s. (45 Hz to 66 Hz, input current 20 A or less)
Display refresh rate	5 times/s
Frequency characteristics	45 Hz to 5 kHz
D/A output	3 channels outputs simultaneously for voltage, current, active power +2 V DC f.s.
Functions	Scaling (VT, CT ratio settings), Average function
Interfaces	RS-232C standard, GP-IB (Model 3333-01 only)
Power supply	100 to 240 V AC, 50/60 Hz, 20 VA max.
Dimensions and mass	160 mm (6.30 in)W × 100 mm (3.94 in)H × 227 mm (8.94 in)D, 1.9 kg (67.0 oz)
Accessories	Instruction manual ×1, Power cord ×1

Printer options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

CONNECTION CABLE 9444
For the Printer 9442, 9 pin - 9 pin, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

The New World Standard for Power Quality Analysis, with Recording & Analyzing According to Class A Requirements for PQAs

POWER QUALITY ANALYZER PW3198

Clamp sensors : Sold separately

- Verify power problems in accordance with the IEC61000-4-30 Class A standard
- High accuracy and continuous gapless recording (V: ±0.1% of nominal voltage, A and W: ±0.2% rdg. ±0.1% f.s.)
- CAT IV 600V - safe enough for incoming power lines
- Broadband voltage range lets you measure even high-order harmonic components of up to 80 kHz
- Wide dynamic range from low voltages up to 1300V (3P4W line-to-line voltage)
- Maximum 6000V transient overvoltage up to 700kHz
- LAN, USB and SD card interfaces
- Optional GPS BOX for synchronizing multiple devices

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement line type	Single-phase 2-wire, Single-phase 3-wire, Three-phase 3-wire or Three-phase 4-wire plus one extra input channel (must be synchronized to reference channel during AC/DC measurement)
Voltage ranges	Voltage measurement: 600.00 V rms Transient measurement 6.0000 kV peak
Current ranges	500.00 mA to 5.0000 kA AC (depends on current sensor in use)
Power ranges	300.00 W to 3.0000 MW (determined automatically based on voltage and current range in use)
Basic accuracy	Voltage: ±0.1% of nominal voltage Current: ±0.2 % rdg. ±0.1 % f.s. + current sensor accuracy Active power: ±0.2 % rdg. ±0.1 % f.s. + current sensor accuracy
Measurement items	1. Transient over voltage : 2 MHz sampling 2. Frequency cycle : Calculated as one cycle, 40 to 70 Hz 3. Voltage (1/2) RMS: one cycle calculation refreshed every half cycle Current (1/2) RMS: half-cycle calculation 4. Voltage swell, Voltage dips, Voltage interruption 5. Inrush current 6. Voltage waveform comparison 7. Instantaneous flicker value: As per IEC61000-4-15 8. Frequency: Calculated as 10 or 12 cycles,40 to 70 Hz 9. 10-sec frequency: Calculated as the whole-cycle time during the specified 10 s period, 40 to 70 Hz 10. Voltage waveform peak, Current waveform peak 11. Voltage, Current, Active power, Apparent power, Reactive power, Active energy, Reactive energy, Power factor, Displacement power factor, Voltage unbalance factor, Current unbalance factor (negative-phase, zero-phase) 12. High-order harmonic component (voltage/ current): 2 kHz to 80 kHz 13. Harmonic/ Harmonic phase angle (voltage/ current), Harmonic power: 0th to 50 th orders 14. Harmonic voltage-current phase angle: 1th to 50 th orders 15. Total harmonic distortion factor (voltage/ current) 16. Inter harmonic (voltage/ current): 0.5 th to 49.5 th order 17. K Factor (multiplication factor) 18. IEC Flicker, Δ V10 Flicker
Record	55 weeks (with repeated recording set to [1 Week], 55 iterations) 35 days (with repeated recording set to [OFF])
Interfaces	SD/SDHC memory card, RS-232C, LAN (HTTP server funtion), USB2.0
Display	6.5-inch TFT color LCD (640 × 480 dots)
Power supply	AC adapter Z1002 (12 V DC, Rated power supply 100 V AC to 240 V AC, 50/60 Hz) Battery pack Z1003 (Ni-MH 7.2 V DC 4500 mAh)
Dimensions and mass	300 mm (11.81 in)W × 211 mm (8.31 in)H × 68 mm (2.68 in)D (excluding protrusions), 2.6 kg (91.7 oz) (including battery pack)
Accessories	Instruction manual ×1, Measurement guide ×1, Voltage cord L1000 ×1 set (Red/Yellow/ Blue/Gray, each 1, Black ×4, Alligator clip ×8), Spiral tube ×20, Input Cable Labels ×1, AC adapter Z1002 ×1, Strap ×1, USB cable (1 m 3.28 ft length) ×1, Battery pack Z1003 ×1, SD memory card 2GB Z4001 ×1

Model No. (Order Code) **PW3198** (Main unit, clamp sensor is sold separately)
PW3198-90 (Kit includes software the 9624-50)

Note: Voltage can be measured with the main unit alone. An optional current sensor is necessary to measure current or power parameters. Use the PQA-HiView Pro 9624-50 (version 2.00 or later) with a PC to analyze the data collected to the SD card.

PW3198 Options in Detail

Current input

For power or load current measurement (1 sensor necessary for single-phase measurements, and 2 or 3 sensors required for 3-phase measurements)

CLAMP ON SENSOR 9694
5A AC rated current, φ 15 mm (0.59 in), 3 m (9.84 ft) length

CLAMP ON SENSOR 9660
100A AC rated current, φ 15 mm (0.59 in), 3 m (9.84 ft) length

CLAMP ON SENSOR 9661
500A AC rated current, φ 46 mm (1.81 in), 3 m (9.84 ft) length

FLEXIBLE CLAMP ON SENSOR CT9667-01/-02/-03
5000/500 A AC rated current, φ 100 mm (3.94 in) to 254 mm (10.0 in), Cable length: Between sensor - box 2 m (6.56 ft), Output cable 1 m (3.28 ft)

CLAMP ON SENSOR 9669
1000A AC rated current, φ 55 mm (2.17 in), 3 m (9.84 ft) length

Not CE marked
CLAMP ON SENSOR 9695-02
50A AC rated current, φ 15 mm (0.59 in), Requires the Connection cord 9219

Not CE marked
CLAMP ON SENSOR 9695-03
100A AC rated current, φ 15 mm (0.59 in), Requires the Connection cord 9219

CONNECTION CORD 9219
Connect with the 9695-02/ -03, Output BNC terminal

Leak current input

Caution: Up to 5 A on Model PW3198
*For leak current measurement (not capable of power measurement)

CLAMP ON LEAK SENSOR 9675
10A AC rated current, φ 30 mm (1.18 in), 3 m (9.84 ft) length

CLAMP ON LEAK SENSOR 9657-10
10A AC rated current, φ 40 mm (1.57 in), 3 m (9.84 ft) length

Adapter

For clamp sensor

CLAMP ON ADAPTER 9290-10
CT for 1000A AC, secondary current 1/10 of primary

AC/DC current input

*The AC/DC Auto-zero Current Sensor CT7731/CT7736/CT7742 cannot be used on its own with the PW3198. Be sure to use a set that includes the Display Unit CM7290, Output Cord L9095, and AC Adapter 9445-02 or 9445-03.

AC/DC AUTO-ZERO CURRENT SENSOR CT7731
100 A AC/DC, φ33 mm (1.30 in), 2.5 m (8.20 ft) cord length

AC/DC AUTO-ZERO CURRENT SENSOR CT7736
600 A AC/DC, φ33 mm (1.30 in), 2.5 m (8.20 ft) cord length

AC/DC AUTO-ZERO CURRENT SENSOR CT7742
2000 A AC/DC, φ55 mm (2.17 in), 2.5 m (8.20 ft) cord length

DISPLAY UNIT CM7290
For use with the CT7700 series

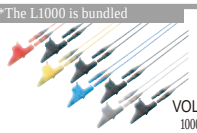
OUTPUT CORD L9095
For use with BNC connectors, 1.5m (4.92ft) length

AC ADAPTER 9445-02
100 to 240 V AC

AC ADAPTER 9445-03
For EU, 100 to 240 V AC, 9 V/ 1 A

Voltage input

*The L1000 is bundled



VOLTAGE CORD L1000
1000 V specifications, Red/ Yellow/ Blue/ Gray each 1, Black 4, Alligator clip ×8, 3m (9.84ft) length

WIRING ADAPTER PW9000
For three-phase 3-wire

WIRING ADAPTER PW9001
For three-phase 4-wire

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 196 mm (7.72 in) length, CAT III 1000 V

MAGNETIC ADAPTER 9804-01
Attaches to the tip of cord, red ×1, φ11 mm (0.43 in)

MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm (0.43 in)

Power supply

*The Z1002, Z1003 are bundled

AC ADAPTER Z1002
For main unit, 100 to 240 V AC

BATTERY PACK Z1003
NiMH, Charges while installed in the main unit

Storage media

*The Z4001 is bundled

SD MEMORY CARD 2GB Z4001
2 GB

SD MEMORY CARD Z4003
8 GB

SD Card Precaution
Use only the SD Card sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

Cases

CARRYING CASE C1001
Soft type, Includes compartment for options

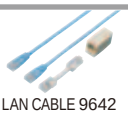
CARRYING CASE C1002
Hard trunk type, Includes compartment for options

CARRYING CASE C1009
Bag type, Includes compartment for options

Other options

GPS BOX PW9005
To synchronize the PW3198 clock to UTC

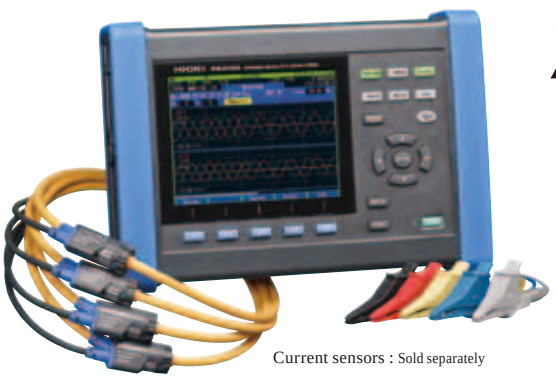
PQA-HiVIEW PRO 9624-50
Analyze data on the PC, Convenient report creation function



LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

Quick and Simple Power Quality Testing, Record and Analyze Power Supply Issues with a Single Instrument

POWER QUALITY ANALYZER PQ3100



Current sensors : Sold separately

- Record data including voltage, current, power, harmonics, and flicker simultaneously along a single time axis
- Measure up to 6000 A AC
- Capture all power anomalies, including instantaneous outages, voltage drops, and frequency fluctuations, while simultaneously recording trend data
- Quick Set: Easy-to-understand on-screen guide for measurement procedures
- Bundled PQ ONE application software makes it easy to create reports
- Record waveforms for up to 1 second before and 10 seconds after an anomaly occurs
- Accurately measure DC currents over extended periods of time (with an AC/DC auto-zero current sensor)
- Directly supply power to connected current sensors
- Send measured values to HIOKI data loggers using a Bluetooth® wireless technology compatible adapter (LR8410 Link-compatible products), Ver. 2.0 and later

Model No. (Order Code) **PQ3100** (Main unit, clamp sensor is sold separately)

Note: An optional current sensor is necessary to measure current or power parameters. Select from Value Kits for added savings.

POWER QUALITY ANALYZER PQ3100 VALUE KITS :

Model No. (Order Code) (Note)

PQ3100-91 (Kit includes 600 A sensor × 2 and other options)

Kit contents: AC Current sensor CT7136 (600 A) ×2, PQ3100 main unit, SD Memory card 2GB Z4001, Carrying case C1009

PQ3100-92 (Kit includes 600 A sensor × 4 and other options)

Kit contents: AC Current sensor CT7136 (600 A) ×4, PQ3100 main unit, SD Memory card 2GB Z4001, Carrying case C1009

PQ3100-94 (Kit includes 6000 A sensor × 4 and other options)

Kit contents: AC Flexible current sensor CT7045 (6000 A) ×4, PQ3100 main unit, SD Memory card 2GB Z4001, Carrying case C1009

PQ3100-91 Value Kit

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement line type	Single-phase 2-wire, Single-phase 3-wire, Three-phase 3-wire or Three-phase 4-wire plus one extra input channel CH4 for voltage/current, (all channels AC/DC measurement)
Voltage ranges	Voltage measurement: 1000.0 V rms or DC, Transient measurement 2.200 kV peak
Current ranges	50.000 mA AC to 5.0000 kA AC, 10.000 A DC to 2.0000 kA DC (depends on current sensor in use)
Power ranges	50.000 W to 6.0000 MW (determined automatically based on current range in use)
Basic accuracy	Voltage: ±0.2% of nominal voltage, Current: ±0.1 % rdg. ±0.1 % f.s. + current sensor accuracy, Active power: DC ±0.5 % rdg. ±0.5 % f.s. + current sensor accuracy, AC ±0.2 % rdg. ±0.1 % f.s. + current sensor accuracy
Measurement items	1. Transient over voltage : 200 kHz sampling 2. Frequency cycle : Calculated as one cycle 3. Voltage (1/2) RMS, Current (1/2) RMS: one cycle calculation refreshed every half cycle 4. Voltage swell, Voltage dips, Voltage interruption, RVC (Ver. up) : Voltage (1/2) RMS calculation 5. Inrush current : half-cycle calculation: Calculated as the current RMS value for current waveform data sampled every half-cycle. 6. Frequency 200 ms: Calculated as 10 or 12 cycles 7. 10-sec frequency: Calculated as the whole-cycle time during the specified 10 s period 8. Voltage waveform peak, Current waveform peak 9. Voltage, Current, Active power, Apparent power, Reactive power, Active energy, Apparent energy, Reactive energy, Energy cost, Power factor, Displacement power factor, Voltage unbalance factor, Current unbalance factor 10. Voltage crest factor, Current crest factor 11. Harmonic/ Harmonic phase angle (voltage/ current), Harmonic power: 0 th to 50 th orders 12. Harmonic voltage-current phase angle: 1 th to 50 th orders 13. Total harmonic distortion factor (voltage/ current) 14. Inter harmonic (voltage/ current): 0.5 th to 49.5 th orders 15. K Factor (multiplication factor) 16. IEC Flicker, Δ V10 Flicker
Record	Maximum recording interval: 1 year, Maximum number of recordable events: 9999 × 365 days
Interfaces	SD/SDHC memory card, RS-232C (for communication/ LR8410 link), LAN (HTTP server/ FTP / Send e-mail), USB 2.0 (for communication)
Logger connectivity	Sends measured values wirelessly to logger by using a Bluetooth® wireless technology serial conversion adapter. (Supported devices: Hioki LR8410 Link-compatible loggers), Ver. 2.0 and later
Display	6.5-inch TFT color LCD (640 × 480 dots)
Power supply	AC adapter Z1002 (100 V to 240 V AC, 50/60 Hz, rated current 1.7 A), Battery pack Z1003 (Continuous use: 8 hr, Charging time: Max. 5 hr 30 m with AC adapter)
Dimensions and mass	300 mm (11.81 in)W × 211 mm (8.31 in)H × 68 mm (2.68 in)D, 2.5 kg (88.2 oz) (including battery pack)
Accessories	Instruction manual ×1, Measurement guide ×1, Voltage cord L1000-05 ×1 set (Red/ Yellow/Blue/Gray/Black, Alligator clip ×5, Spiral tube ×5), Color clip (for identifying clamp sensor color) ×1 set, Spiral tube ×5, AC adapter Z1002 ×1, Strap ×1, USB cable (1 m 3.28 ft length) ×1, Battery pack Z1003 ×1, PQ ONE (software, CD) ×1

PQ3100 Options in Detail

Current input — For power or load current measurement (1 sensor necessary for single-phase measurements, and 2 or 3 sensors required for 3-phase measurements)

- AC CURRENT SENSOR CT7126 — 60 A AC, φ15 mm (0.59 in), 2.5 m (8.20 ft) cord length
- AC CURRENT SENSOR CT7131 — 100 A AC, φ15 mm (0.59 in), 2.5 m (8.20 ft) cord length
- AC CURRENT SENSOR CT7136 — 600 A AC, φ46 mm (1.81 in), 2.5 m (8.20 ft) cord length
- AC FLEXIBLE CURRENT SENSOR CT7044 — 6000 A AC, φ100 mm (3.94 in), 2.5 m (8.20 ft) cord length
- AC FLEXIBLE CURRENT SENSOR CT7045 — 6000 A AC, φ180 mm (7.09 in), 2.5 m (8.20 ft) cord length
- AC FLEXIBLE CURRENT SENSOR CT7046 — 6000 A AC, φ254 mm (10.00 in), 2.5 m (8.20 ft) cord length

Other options

- CONVERSION CABLE L9910 — Used to connect the current sensors with BNC terminal to PL14 terminal (example the PQ3100)

Leak current input — *For leak current measurement (not capable of power measurement)

- AC LEAKAGE CURRENT SENSOR CT7116 — 6 A AC, φ40 mm (1.57 in), 2.5 m (8.20 ft) cord length

AC/DC current input

- AC/DC AUTO-ZERO CURRENT SENSOR CT7731 — 100 A AC/DC, φ33 mm (1.30 in), 2.5 m (8.20 ft) cord length
- AC/DC AUTO-ZERO CURRENT SENSOR CT7736 — 600 A AC/DC, φ33 mm (1.30 in), 2.5 m (8.20 ft) cord length
- AC/DC AUTO-ZERO CURRENT SENSOR CT7742 — 2000 A AC/DC, φ55 mm (2.17 in), 2.5 m (8.20 ft) cord length

Storage media

- SD MEMORY CARD 2GB Z4001 — 2 GB
- SD MEMORY CARD Z4003 — 8 GB

SD Card Precaution

Use only the SD Card sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

Voltage input — *The L1000-05 is bundled

- VOLTAGE CORD L1000-05 — Red/ Yellow/ Blue/ Gray/ Black each 1, 3 m (9.84 ft) length
- GRABBER CLIP 9243 — Attaches to the tip of the banana plug cable, Red/ Black: 1 each, 196 mm (7.72 in) length, CAT III 1000 V
- MAGNETIC ADAPTER 9804-01 — Attaches to the tip of cord, red ×1, φ11 mm (0.43 in)
- MAGNETIC ADAPTER 9804-02 — Attaches to the tip of cord, black ×1, φ11 mm (0.43 in)

Cases

- CARRYING CASE C1001 — Soft type, Includes compartment for options
- CARRYING CASE C1002 — Hard trunk type, Includes compartment for options
- CARRYING CASE C1009 — Bag type, Includes compartment for options
- Waterproof Box — For outdoor installation; IP65 compliant, Contact Hioki for a quotation.

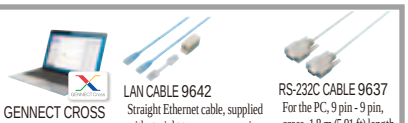
Power supply — *The Z1002, Z1003 are bundled

- AC ADAPTER Z1002 — For main unit, 100 to 240 V AC
- BATTERY PACK Z1003 — NiMH, Charges while installed in the main unit

Strap options — When using with the PQ 3100, suspend the main body on the metal surface using two Z5020 powerful type. Z5004 hang the cords on the metal surface.

- MAGNETIC STRAP Z5020 — Extra strength
- MAGNETIC STRAP Z5004

PC peripherals



- GENNECT CROSS SF4000
- LAN CABLE 9642 — Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length
- RS-232C CABLE 9637 — For the PC, 9 pin - 9 pin, cross, 1.8 m (5.91 ft) length

Eliminate the Risk of Short-Circuits and Electrical Accidents

CLAMP ON POWER LOGGER PW3365

* Current sensors : sold separately
* Voltage sensors : bundled

*For Voltage Sensor

* For PW3365

- Voltage measurement from the top of the cable, zero risk of short circuit
- Supports single to three-phase, 4-wire circuits
- Measure between 90V to 520V
- Slim, compact design that can be placed anywhere
- Store months of data on SD cards
- The QUICK SET function guides you in making the right connections
- WHM (watt-hour meter) connection checking function installed

Model No. (Order Code) **PW3365-20** (English model, main unit only)

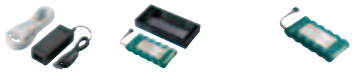
Note: Clamp On Power Logger PW3365-20 by itself does not support current and power measurements. Current and power measurements require clamp on sensors, sold separately. Use only HIOKI SD cards guaranteed to work for saving measurement data (options, sold separately).

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 6 months)

Measurement line & number of circuits	50/60 Hz, Single phase 2 wires (1/2/3 circuits), Single phase 3 wires (1 circuit), Three phases 3 wires (1 circuit), Three phases 4 wires (1 circuit), Current only: 1 to 3 channels
Measurement items	Voltage RMS, current RMS, voltage fundamental wave value, current fundamental wave value, voltage fundamental wave phase angle, current fundamental wave phase angle, frequency (U1), voltage waveform peak (absolute value), current waveform peak (absolute value), active power, reactive power, apparent power, power factor (with lag/lead display) or displacement power factor (with lag/lead display), active energy (consumption, regeneration), reactive energy (lag, lead), energy cost display, active power demand quantity (consumption, regeneration), reactive power demand quantity (lag, lead), active power demand value (consumption, regeneration), reactive power demand value (lag, lead), power factor demand
Harmonic	Harmonic voltage, harmonic current, voltage total harmonic distortion (THD-F or THD-R), current total harmonic distortion (THD-F or TDH-R), up to 13th order
Voltage ranges	400 V AC (Effective measurement range: 90.0 V to 520.0 V)
Current ranges	500.00 mA to 5.0000 kA AC (depends on current sensor in use), 50.000 mA to 5.0000 A AC (Leak clamp on sensor only)
Power ranges	200.00 W to 6.0000 MW (depends on voltage/current combination and measured line type)
Basic accuracy	Voltage : ±1.5% rdg. ±0.2% f.s(combined accuracy with PW3365-20 + PW9020) Current : ±0.3% rdg. ±0.1% f.s. + clamp sensor accuracy Active power : ±2.0% rdg. ±0.3% f.s. + clamp sensor accuracy (at power factor = 1)
Display update rate	0.5 sec (except when accessing SD card or internal memory, or during LAN/USB communication)
Save destination	SD/SDHC Memory card, or internal memory at real time
Data save interval	1 sec to 30 sec, 1 minute to 60 minutes, 14 selections
Save items	Measurement value save: Average only / Average, Maximum, Minimum value Screen copy: BMP form (saved every 5 min. at minimum interval time) Waveform save: Binary waveform data
Interfaces	SD/SDHC memory card, LAN 100BASE-TX: HTTP server function, remote settings via communication program, data download, USB 2.0: When connected to a PC, the SD Card and internal memory are recognized as removable storage devices, remote settings via communication program, data download
Functions	Connection check, Quick Set navigation guide, clock
Power supply	AC adapter Z1008: (100 to 240 V AC, 50/60 Hz), 45 VA (including AC adapter) Battery pack 9459: (DC 7.2 V, 3 VA, charging time 6 hr 10 m), 5 hours of continuous use (with back light off)
Dimensions and mass	180 mm (7.09 in)W × 100 mm (3.94 in)H × 48 mm (1.89 in)D, 540 g (19 oz) without PW9002 180 mm (7.09 in)W × 100 mm (3.94 in)H × 68 mm (2.68 in)D, 820 g (28.9 oz) with PW9002
Accessories	Safety Voltage Sensor PW9020 ×1 set, AC adapter Z1008 ×1, USB cable ×1, Instruction manual ×1, Measurement guide ×1, Color clip (red, yellow, blue and white each 4), Spiral tubes in black (cord bundling for current sensors and voltage sensors) ×10

Power supply

*Z1008 is bundled, Model 9459 is a replacement battery pack included with the Battery Set PW9002.



AC ADAPTER Z1008
100 to 240 V AC

BATTERY SET PW9002
Battery case and Battery Pack 9459 Set

BATTERY PACK 9459
NiMH, Charges while installed in the main unit

Voltage measurement

*PW9020 ×4 pieces are bundled, additional single sensors also available

SAFETY VOLTAGE SENSOR PW9020
For PW3365, 3 m (9.84 ft) length

Storage media

SD MEMORY CARD 2GB Z4001
2 GB capacity

SD MEMORY CARD 8GB Z4003
8 GB capacity

SD Card Precaution
Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

PC peripherals

POWER LOGGER VIEWER SF1001
Easy graphical processing of measurement data saved with the PW3360/3365 series, 3169 series on a PC

GENNECT CROSS SF4000

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

Other options

Z5004 hang the cords on the metal surface. C1005 store Current sensor ×2, Voltage sensor ×3 pieces

CARRYING CASE C1008
For PW3365 series, for storing Current sensor ×3, Voltage sensor ×4 pieces

CARRYING CASE C1005
For PW3360/3365 series, for storing options

MAGNETIC STRAP Z5004

Current measurement

*Clamp current sensor is common option

Demand Measurement up to 4 Circuits and Simultaneous Harmonics Analysis

CLAMP ON POWER HiTESTER 3169

Clamp sensors : Sold separately

- Simultaneously measure demand and harmonic waveforms that share the same voltage line over 4-circuits
- Data can be saved onto a PC card
- High-speed and continuous processing to measure individual waveforms
- High-speed D/A output for analog graph recording (Model 3169-21)

Model No. (Order Code) **3169-20** (main unit, clamp sensor is sold separately)
3169-21 (with D/A output function model)

Note: Optional current sensor is necessary to measure current or power parameters. To store measurement data, use only the guaranteed PC cards sold by Hioki.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement line & number of circuits	Single-phase 2-wires (4 circuits), Single-phase 3-wires (2 circuits), Three-phases 3-wires (2 or 1 circuit), and Three-phases 4-wires (1 circuit) *Note: 50 or 60 Hz, and that share the same voltage line*
Measurement items	Voltage, Current, Active/ reactive/ apparent power, Active/ reactive power integration, Power factor, Frequency, Harmonic waveform value (up to 40th order)
Measurement range	[Voltage] 150.00 V to 600.00 V AC, 3 ranges, [Current] 500.00 mA to 5.0000 kA AC (depends on current sensor in use), [Power] 75.000 W to 900.00 kW (depends on combination of voltage, current range, and measurement line)
Basic accuracy	AC Voltage: ±0.2 % rdg. ±0.1 % f.s. AC Current: ±0.2 % rdg. ±0.1 % f.s. + current sensor accuracy Active power: ±0.2 % rdg. ±0.1 % f.s. + current sensor accuracy (at power factor = 1) Clamp on sensor 9661: ±0.3 % rdg. ±0.01 % f.s. (different from each sensor models)
Measurement method	Digital sampling, PLL synchronization or 50/60 Hz fixed clock
Display refresh rate	2 times /sec (except when a PC card accessing, or RS-232C communications)
Data save interval	Standard interval: 1 sec to 30 sec, 1 minute to 60 minutes, 13 selects Fast interval: A single waveform, or 0.1, 0.2, or 0.5 sec (at instant value only)
Frequency characteristics	Fundamental waveforms up to the 50th order ±3% f.s. + measurement accuracy (of a 45 to 66 Hz fundamental waveform)
Other functions	Error connect check, language selection, display hold, setting backup, power shut off management, key lock, [3169-21 only] D/A output 4 channels, (±5 V DC f.s.)
Power supply	100 to 240 V AC, 50/60 Hz, 30 VA max.
Dimensions and mass	210 mm (8.27 in)W × 160 mm (6.30 in)H × 60 mm (2.36 in)D, 1.2 kg (42.3 oz)
Accessories	Voltage cord L9438-53 ×1 (Black/ Red/ Yellow/ Blue, 3 m (9.84 ft) length, Alligator clip ×4), Power cord ×1, Instruction manual ×1, Quick start manual ×1, CD-R ×1 (RS-232C interface operating manual) ×1, Input cord label ×1, Connection cable 9441 ×1 (for the 3169-21 only)

Current measurement

*Clamp current sensor is common option

Voltage measurement

*The L9438-53 is bundled

VOLTAGE CORD L9438-53
Black/ Red/ Yellow/ Blue, 3 m (9.84 ft) length, Alligator clip ×4

MAGNETIC ADAPTER 9804-01
Attaches to the tip of cord, red ×1, φ11 mm

MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm

PATCH CORD L1021-01
Banana branch-banana, Red: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

PATCH CORD L1021-02
Banana branch-banana, Black: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

Storage media

PC CARD 512M 9728
512 MB capacity

* PC CARD 2G 9830, PC CARD 1G 9729 : cannot use with the 3169-20, 3169-21
* Supplied with PC Card adapter

PC Card Precaution
Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

Identify Your Power Condition to Reveal Energy Saving Ideas

CLAMP ON POWER LOGGER PW3360

Current sensors : Sold separately

- Supports single to three-phase, 4-wire circuits
- Measure between 90V to 780V
- Simultaneously measure up to three single-phase, 2-wire circuits (in the same power system)
- Slim, compact design that can be placed anywhere
- Store months of data on SD cards
- The QUICK SET function guides you in making the right connections
- Choose PW3360-21 for harmonic measurements up to the 40th order
- WHM (watt-hour meter) connection checking function installed

Model No. (Order Code) **PW3360-20** (English model, main unit only)
PW3360-21 (English model, with harmonic analysis function)

Note: At least one optional current sensor is necessary to measure current or power parameters. To store measurement data, use only the guaranteed SD cards sold by HIOKI.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

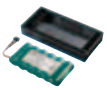
Measurement line & number of circuits	50/60 Hz, Single phase 2 wires (1/2/3 circuits), Single phase 3 wires (1 circuit), Three phases 3 wires (1 circuit), Three phases 4 wires (1 circuit), Current only: 1 to 3 channels
Measurement items	Voltage RMS, current RMS, voltage fundamental wave value, current fundamental wave value, voltage fundamental wave phase angle, current fundamental wave phase angle, frequency (U1), voltage waveform peak (absolute value), current waveform peak (absolute value), active power, reactive power (with lag/lead display), apparent power, power factor (with lag/lead display) or displacement power factor (with lag/lead display), active energy (consumption, regeneration), reactive energy (lag, lead), energy cost display, active power demand quantity (consumption, regeneration), reactive power demand quantity (lag, lead), active power demand value (consumption, regeneration), reactive power demand value (lag, lead), power factor demand, pulse input [PW3360-21 only]: Harmonic voltage level, harmonic current level, harmonic power level, content percentage, phase angle, total harmonic distortion (THD-F or THD-R), up to 40th order
Voltage ranges	600 V AC (Effective measurement range: 90.00 V to 780.00 V)
Current ranges	500.00 mA to 5.0000 kA AC (depends on current sensor in use), 50.000 mA to 5.0000 A AC (Leak clamp on sensor only)
Power ranges	300.00 W to 9.0000 MW (depends on voltage/current combination and measured line type)
Basic accuracy	Voltage : ±0.3% rdg. ±0.1% f.s Current : ±0.3% rdg. ±0.1% f.s. + clamp sensor accuracy Active power : ±0.3% rdg. ±0.1% f.s. + clamp sensor accuracy (at power factor = 1)
Display update rate	0.5 sec (except when accessing SD card or internal memory, or during LAN/USB communication)
Save destination	SD Memory card, or internal memory at real time
Data save interval	1 sec to 30 sec, 1 minute to 60 minutes, 14 selections
Save items	Measurement value save: Average only / Average, Max./Min. value, [PW3360-21 only]: Harmonic data save: Average only / average, max./min. value in binary format, Screen copy: BMP form (saved every 5 min. at minimum interval time), Waveform save: Binary waveform data
Interfaces	SD/SDHC memory card, LAN 100BASE-TX: HTTP server function, remote settings via communication program, data download, USB 2.0: When connected to a PC, the SD Card and internal memory are recognized as removable storage devices, remote settings via communication program, data download, Pulse output: proportional to active power consumption when measuring integral power consumption, Isolated open-collector signal
Functions	Connection check, Quick Set navigation guide, clock, pulse input
Power supply	AC adapter Z1006: (100 to 240 V AC, 50/60 Hz), 40 VA (including AC adapter), Battery pack 9459: (DC 7.2 V, 3 VA, charging time 6 hr 10 m), 8 hours of continuous use (with back light off)
Dimensions and mass	180 mm (7.09 in)W × 100 mm (3.94 in)H × 48 mm (1.89 in)D, 550 g (19.4 oz) without PW9002 180 mm (7.09 in)W × 100 mm (3.94 in)H × 67.2 mm (2.65 in)D, 830 g (29.3 oz) with PW9002
Accessories	Voltage cord L9438-53 ×1 set, AC adapter Z1006 ×1, USB cable ×1, Instruction manual ×1, Measurement guide ×1, Color clip ×1 set: red, yellow, blue, white/two each, for color-coding clamp sensors, Spiral tubes for grouping clamp sensor cords ×5

Power supply

*Z1006 is bundled with the PW3360-20/-21. Model 9459 is a replacement battery pack included with the Battery Set PW9002.

AC ADAPTER Z1006
100 to 240 V AC

VOLTAGE LINE POWER ADAPTER PW9003
For PW3360s, supplies power from measurement lines, up to 240V AC



BATTERY SET PW9002
Battery case and Battery Pack 9459 Set

BATTERY PACK 9459
NiMH, Charges while installed in the main unit

Voltage measurement

*L9438-53 is bundled with the PW3360-20/-21

VOLTAGE CORD L9438-53
Black/ Red/ Yellow/ Blue, 3 m (9.84 ft) length, Alligator clip ×4

MAGNETIC ADAPTER 9804-01
Attaches to the tip of cord, red ×1, φ11 mm

MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm

PATCH CORD L1021-01
Banana branch-banana, Red: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

PATCH CORD L1021-02
Banana branch-banana, Black: 1, Cable length: 0.5 m, For branching from the L9438s or L1000s, CAT IV 600 V, CAT III 1000 V

Storage media

SD MEMORY CARD 2GB Z4001
2 GB

SD MEMORY CARD Z4003
8 GB

SD Card Precaution
Use only the SD Card sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

PC peripherals

POWER LOGGER VIEWER SF1001
Easy graphical processing of measurement data saved with the PW3360/3365 series, 3169 series on a PC

GENNECT CROSS SF4000

LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

Other options

Z5004 hang the cords on the metal surface

CARRYING CASE C1005
For PW3360/3365 series, for storing options

MAGNETIC STRAP Z5004

Current measurement

*Clamp current sensor is common option

Shared options for PW3360/65 series, 3197, 3196, 3169 (CLAMP ON SENSORS)

For power or load current measurement (1 sensor necessary for single-phase measurements, and 2 or 3 sensors required for 3-phase measurements)

CLAMP ON SENSOR 9694
5A AC rated current, φ 15 mm (0.59 in) core dia., 3 m (9.84 ft) length

CLAMP ON SENSOR 9660
100A AC rated current, φ 15 mm (0.59 in) core dia., 3 m (9.84 ft) length

CLAMP ON SENSOR 9661
500A AC rated current, φ 46 mm (1.81 in) core dia., 3 m (9.84 ft) length

FLEXIBLE CLAMP ON SENSOR CT9667-01/-02/-03
5000/500 A AC rated current, φ 100 mm (3.94 in) to 254 mm (10.0 in) core dia., Cable length: Between sensor - box 2 m (6.56 ft), Output cable 1 m (3.28 ft)

CLAMP ON SENSOR 9669
1000A AC rated current, φ 55 mm (2.17 in) core dia., 3 m (9.84 ft) length

Not CE marked
CLAMP ON SENSOR 9695-02
50A AC rated current, φ 15 mm (0.59 in) core dia., Requires the Connection cord 9219

Not CE marked
CLAMP ON SENSOR 9695-03
100A AC rated current, φ 15 mm (0.59 in) core dia, Requires the Connection cord 9219

CONNECTION CORD 9219
Connect with the 9695-02/ -03, Output BNC terminal

Shared options for PW3360/65 series, 3197

For leak current measurement (not capable of power measurement)
*Up to 5 A when using with power meters

CLAMP ON LEAK SENSOR 9675
10A AC rated current, φ 30 mm (1.18 in) core dia., 3 m (9.84 ft) length

CLAMP ON LEAK SENSOR 9657-10
10A AC rated current, φ 40 mm (1.57 in) core dia., 3 m (9.84 ft) length

Clamp sensor adapter

CLAMP ON ADAPTER 9290-10
CT for 1000A AC, secondary current 1/10 of primary

3169 Options in Detail

PC software

POWER LOGGER VIEWER SF1001
Easy graphical processing of measurement data saved with the PW3360/3365 series, 3169 series on a PC

Printer options

PRINTER 9442
For printing numerical values 112 mm (4.41 in) paper width

AC ADAPTER 9443-02
For the Printer 9442, EU type

RS-232C CABLE 9721
Mini DIN 9pin to D-sub 9pin, straight, 1.5 m (4.92 ft) length

RECORDING PAPER 1196
For the Printer 9442, 112 mm (4.41 in) × 25 m (82.03 ft), 10 rolls/set

Other options

*The 9441 is bundled with the 3169-21

RS-232C CABLE 9612
For the PC, Mini DIN 9pin to D-sub 9pin, cross, 1.5 m (4.92ft) length

CARRYING CASE 9720-01
Soft type, Includes compartment for options, for the 3169 series

CONNECTION CABLE 9440
For external I/O, 2 m (6.56 ft) length

CONNECTION CABLE 9441
For D/A output, 2 m (6.56 ft) length

Quickly Check Current, Voltage, Power, and Power Factor

AC CLAMP POWER METER **CM3286**

CAT IV 600 V
CAT III 1000 V

True RMS

Bluetooth®

CM3286-01

3 year Warranty

- Display four parameters simultaneously
- A handheld power meter that measures from 5 W of power and 60 mA of current
- Measure power ranging from 5 W at a low current of 60 mA to 360 kW
- In addition to current, voltage, and power, measure simple integral power consumption and phase sequence
- Features and functions deliver fast and efficient testing
- Hold measured values to send them to a smartphone, quick and easy data recording (CM3286-01 only)

Model No. (Order Code) **CM3286**
CM3286-01 (Built in Bluetooth(R) wireless technology)

*Note: *The indicated value for three-phase power is based on the assumption of a balanced condition and sine wave without distortion at 50/60 Hz. Accurate measurement is not possible on an unbalanced or inverter controlled three-phase line. Also, if the phase (zero cross) cannot be detected due to significant waveform distortion, it cannot be measured nor displayed.*
**The power factor / phase angle are values obtained from the zero cross of the current and voltage. If the phase (zero cross) cannot be detected due to significant waveform distortion, it cannot be measured nor displayed.*

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. (CM3286-01 only) Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play
Download on the App Store

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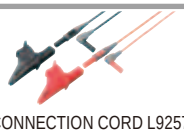
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement line	Single-phase, Three-phase (balanced with no distortion)
Measurement items	Voltage, Current, Voltage/ current peak, Active/ reactive/ apparent power, Power factor, Phase angle *1, Frequency, Simple Active Energy Consumption (Single-phase) [CM3286-01 only*2] Voltage/ current harmonic levels
AC voltage range	[Measurement range] 80.0 V to 600.0 V, Single range, Basic accuracy 45 - 66 Hz: ±0.7% rdg. ±3 dgt. (Frequency characteristics: 45 to 1 kHz, True RMS)
AC current range	[Measurement range] 0.060 A to 600.0 A, 3 range, Basic accuracy: ±1.3% rdg. ±3dgt. (Frequency characteristics: 45 to 1 kHz, True RMS)
Power range	[Single phase] 0.005 kW to 360.0 kW Basic accuracy: ±2.0% rdg. ±7 dgt. (50/ 60 Hz, Power factor=1) [Balanced three-phase 3-wire] 0.020 kW to 623.5 kW Basic accuracy: ±3.0% rdg. ±10 dgt. (50/ 60 Hz, Power factor=1) [Balanced three-phase 4-wire] 0.040 kW to 1080 kW Basic accuracy: ±2.0% rdg. ±3 dgt. (50/ 60 Hz, Power factor=1)
Harmonic levels (CM3286-01only *2)	Voltage/ current harmonic levels up to 30th, Content factor, Total harmonic distortion ratio
Other functions	[Phase angle *1] lead -180.0° to lag 179.9°, [Power factor] -1.000 to 1.000 [Frequency] 45.0 Hz to 999.9 Hz, PEAK, Phase detection, Max / Min / Avg value display, Auto hold, electric meter comparison, unbalanced 3-phase power estimate display, etc.
Dustproof and waterproof	IP54 (EN60529) Grip, excluding lever Risk of electric shock from measured conductors increases when wet
Interface	Bluetooth® 4.0LE, display measured values on an iOS or Android device
Power supply	LR03 Alkaline battery ×2
Core jaw dia.	φ 46 mm (1.81 in)
Dimensions and mass	82 mm (3.23in) W × 241 mm (9.49in) H × 37 mm (1.46in) D, 450 g (15.9 oz)
Accessories	Connection cord L9257 ×1, LR03 Alkaline battery ×2, Carrying case C0203 ×1, Instruction manual ×1 [CM3286-01 only]Notice Regarding Equipment That Emits Radio Waves ×1

**1) Phase angle obtained from zero cross of current / voltage.*
**2) Harmonics levels can be displayed with application software (GENNECT Cross)*

Bundled Accessories



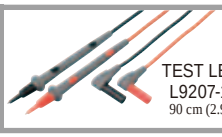
CONNECTION CORD L9257
Bundled with Line/Earth lead, alligator clip, 1.2 m (3.94 ft) length

CARRYING CASE C0203

Option

CLAMP ON ADAPTER 9290-10
CT for 1000A AC, secondary current 1/10 of primary

Test lead



TEST LEAD L9207-10
90 cm (2.95 ft) length

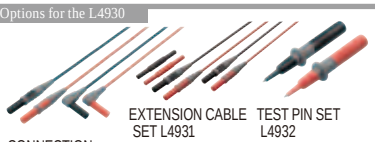
PC peripherals

For the CM3286-01 only

GENNECT Cross SF4071, SF4072
Mobile app for iOS, Android

Options for Test leads

Options for the L4930



CONNECTION CABLE SET L4930
1.2 m (3.94 ft) length

EXTENSION CABLE SET L4931
Expands the length of the cable with banana plug, 1.5 m (4.92 ft) length

TEST PIN SET L4932
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

ALLIGATOR CLIP SET L4935
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

BUS BAR CLIP SET L4936
Attaches to the tip of the banana plug cable, CAT III 600V

MAGNETIC ADAPTER SET L4937
Attaches to the tip of the banana plug cable, CAT III 1000V

TEST PIN SET L4938
Attaches to the tip of the banana plug cable, CAT III 600V

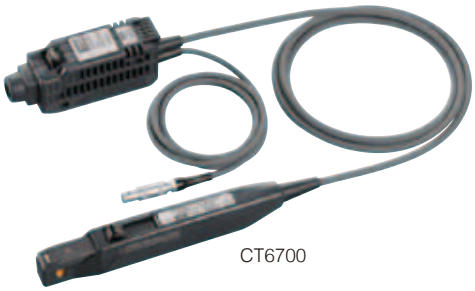
BREAKER PIN SET L4939
Attaches to the tip of the banana plug cable, CAT III 600V

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, CAT III 1000 V, 196 mm (7.72 in) length

MAGNETIC ADAPTER 9804
Attaches to the tip of voltage cord, φ11 mm (0.43 in), compatible M6 pan screws

Clearly Observe Even 1 mA Waveforms

CURRENT PROBE CT6700, CT6701



CT6700

Insulated conductor

- Wide band: [CT6700] DC to 50 MHz (-3 dB), [CT6701] DC to 120 MHz (-3 dB)
- High S/N characteristic ideal for ultra low 1 mA order current waveforms
- Connect directly to an oscilloscope's BNC input terminal *1

*1 *Connecting the device's metal BNC terminal to a Memory HiCorder's plastic BNC terminal may damage the plastic terminal or cause it to become misshapen.*

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 6 months)

	CT6700	CT6701
Frequency bandwidth	DC to 50 MHz (-3 dB)	DC to 120 MHz (-3 dB)
Rise time	7.0 ns or shorter	2.9 ns or shorter
Noise level	60 µA rms typical, 75 µA rms max (for 30 MHz band measuring instrument)	
Continuous allowable input	5 A rms (DC, and sine wave, requires derating at frequency)	
Max. allowable peak input	±7.5 A peak (non-continuous)	
Amplitude accuracy	Typ.: ±1% rdg. ±1 mV (DC, 45 to 66 Hz sine wave, 0 to 5 A rms) Guaranteed: ±3% rdg. ±1 mV (DC, 45 to 66 Hz sine wave, 0 to 5 A rms)	
Output rate	1 V/A (use with a device having a 1 MΩ input resistance or higher)	
Measurable conductors	Insulated conductor	
Core diameter	φ 5 mm (0.20 in)	
Power supply	±12 V ±0.5 V, 3.2 VA	
Dimensions and mass	Sensor: 155 mm (6.10 in)W × 18 mm (0.71 in)H × 26 mm (1.02 in)D, Terminator: 29 mm (1.14 in)W × 83 mm (3.27 in)H × 40 mm (1.57 in)D mm, Mass: 250 g (8.8 oz), Sensor cable BNC terminal: 1.5 m (4.92 ft), Power cable: 1 m (3.28 ft), Power plug: FFA.0S.304.CLAC37Y / LEMO inc.	
Accessories	Instruction manual ×1, Carrying case ×1	

Model No. (Order Code) **CT6700** (From 1mA, 50MHz bandwidth)
CT6701 (From 1mA, 120MHz bandwidth)

Note: Use optional Power Supply 3269 or 3272 to drive the current probe when power from the Memory HiCorder or oscilloscope is not available.
Exercise care concerning offset drift when performing continuous measurement over extended periods of time.

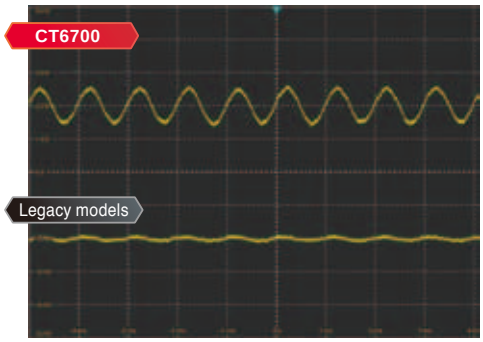
Options

POWER SUPPLY 3272
For 1 or 2 sensors*, 120/ 220/ 240 V AC, specify when ordering
* Please see p.75

POWER SUPPLY 3269
For four sensors, 100 V to 240 V AC

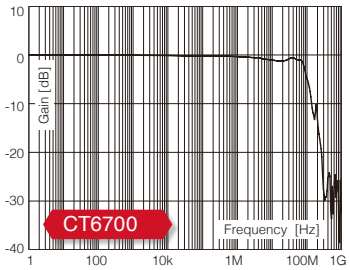
Characteristics

Clearly observe even 1 mA waveforms

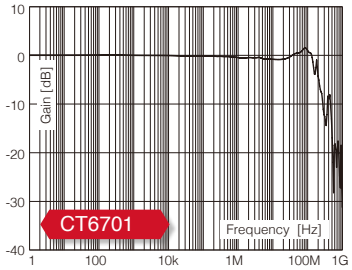


Input: 1 mAp-p, 1 kHz, sine wave
Oscilloscope: Bandwidth 2 GHz (Bandwidth limit 20 MHz), 1 mV/div

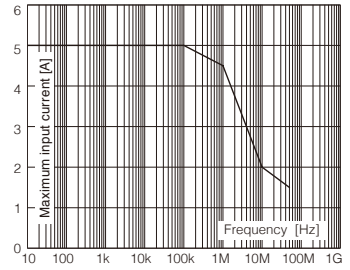
DC to 50MHz wide bandwidth



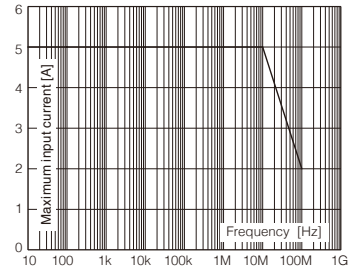
DC to 120MHz wide bandwidth



Frequency derating: CT6700 (typ.)



Frequency derating: CT6701 (typ.)



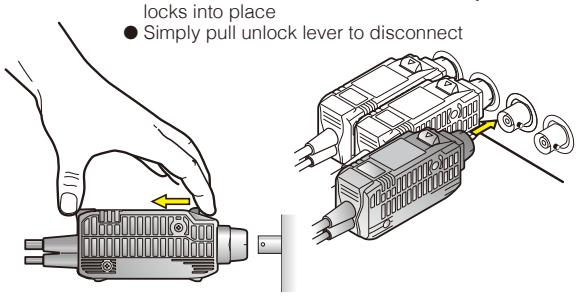
Streamlining Measurement

1 Automatic Zero-Adjustment and Demagnetization in One Button

- Automatically perform zero-adjustment by pressing a single button
- Press and hold for demagnetization

2 One-touch Disconnection from the BNC Terminal

- No need to rotate the BNC connector when connecting to an oscilloscope
- Insert the connector until it automatically locks into place
- Simply pull unlock lever to disconnect



3 Warning Features

- Warning lamp flashes if a current exceeding the rating is input
- "JAW UNLOCKED" will display if the sensor is unlocked when clamped

Wide-Band Current Probe Allows Direct Input to Oscilloscope

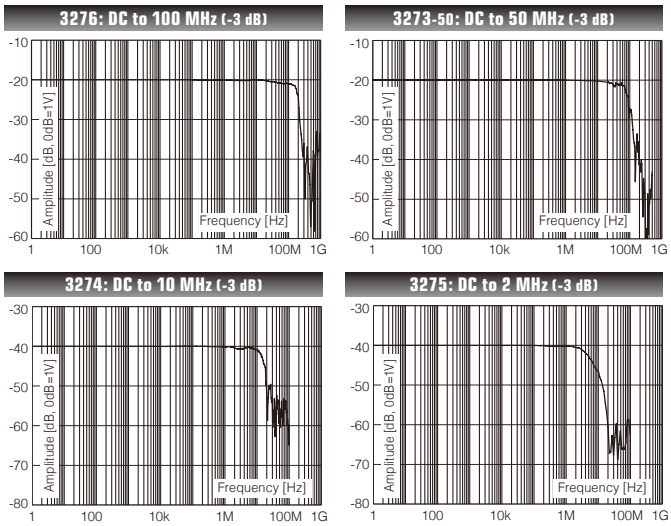
CLAMP ON PROBE 3273-50, 3274, 3275, 3276

- Waveform observation across a wide band from DC to MHz
- Connects directly to oscilloscope or Memory HiCorder BNC input terminal *1
- High S/N characteristics enable the measurement of 10 mA order current waveforms (3273-50, 3276)

*1 *Connecting the device's metal BNC terminal to a Memory HiCorder's plastic BNC terminal may damage the plastic terminal or cause it to become misshapen.*

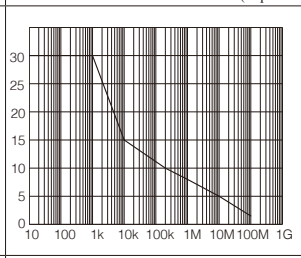
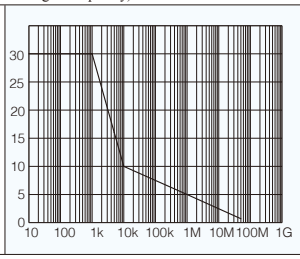
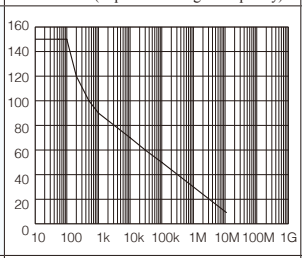
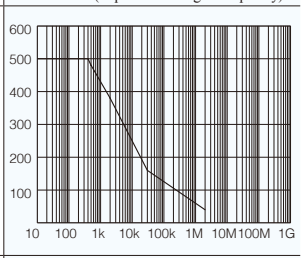
Model No. (Order Code)		
	3273-50	(DC to 50 MHz, 30 Arms)
	3274	(DC to 10 MHz, 150 Arms)
	3275	(DC to 2 MHz, 500 Arms)
	3276	(DC to 100 MHz, 30 Arms)

■ Frequency response (Characteristics Example)



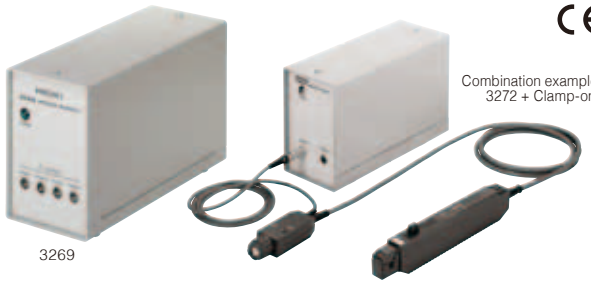
Note: Use the Power Supply 3269/3272 for general measurements or when power is not available from the Memory Hicorder. When performing continuous measurements, be aware of offset voltage drift.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 6 months)

	3276	3273-50	3274	3275
Frequency bandwidth	DC to 100 MHz (-3 dB)	DC to 50 MHz (-3 dB)	DC to 10 MHz (-3 dB)	DC to 2 MHz (-3 dB)
Rise time	3.5 ns or shorter	7 ns or shorter	35 ns or shorter	175 ns or shorter
Noise level	2.5 mA rms max. (bandwidth limited to 20 MHz)		25 mA rms max. (bandwidth limited to 20 MHz)	
Continuous allowable input	30 A rms (requires derating at frequency)		150 A rms (requires derating at frequency)	500 A rms (requires derating at frequency)
Frequency Derating Y axis: Max. input current (Arms) X axis: Frequency (Hz)				
Max. allowable peak input	50 A peak (non continuous)		300 A peak (non continuous) 500 A peak (pulse width: 30 µs or shorter)	700 A peak (non continuous)
Amplitude accuracy (30 min. after power-on, after degaussing and zero-adjustment)	±1.0 % rdg. ±1 mV f.s. (DC, 45 to 66 Hz, 0 to 30 A rms) ±2 % rdg. (DC, 45 to 66 Hz, 30 A rms to 50 A peak)		±1.0 % rdg. ±1 mV f.s. (DC, 45 to 66 Hz, 0 to 150 A rms) ±2.0 % rdg. (DC, 45 to 66 Hz, 150 A to 300 A peak)	±1.0 % rdg. ±5 mV f.s. (DC, 45 to 66 Hz, 0 to 500 A rms) ±2.0 % rdg. (DC, 45 to 66 Hz, 500 A to 700 A peak)
Output rate	0.1 V/A *Device output is terminated internally. Use with a device having a 1 MΩ input resistance or higher.*		0.01 V/A *Device output is terminated internally. Use with a device having a 1 MΩ input resistance or higher.*	
Measurable conductors	Insulated conductor		Insulated conductor	
Core diameter	φ 5 mm (0.20 in)		φ 20 mm (0.79 in)	
Power supply	±12 V ±0.5 V, 5.3 VA max.	±12 V ±0.5 V, 5.6 VA max.	±12 V ± 1 V, 5.5 VA max.	±12 V ±0.5 V, 7.2 VA max.
Dimensions and mass	175 mm (6.89 in)W × 18 mm (0.71 in)H × 40 mm (1.57 in)D, 240 g (8.5 oz)	175 mm (6.89 in)W × 18 mm (0.71 in)H × 40 mm (1.57 in)D, 230 g (8.1 oz)	176 mm (6.93 in)W × 69 mm (2.72 in)H × 27 mm (1.06 in)D, 500 g (17.6 oz)	176 mm (6.93 in)W × 69 mm (2.72 in)H × 27 mm (1.06 in)D, 520 g (18.3 oz)
	Sensor cable BNC terminal: 1.5 m (4.92 ft), Power cable: 1 m (3.28 ft)		Sensor cable BNC terminal: 2 m (6.56 ft), Power cable: 1 m (3.28 ft)	
Accessories	Instruction manual ×1, Carrying case × 1	Instruction manual ×1, Soft case × 1	Instruction manual ×1, Carrying case × 1	Instruction manual ×1, Carrying case × 1

Power Supply for Current Probes

POWER SUPPLY 3269, 3272



- Power supply for the Clamp on probe 3273-50 - 3276, CT6700 series
- Supplies power when connected to a general-purpose instrument such as a recorder.

Model No. (Order Code)		
	3269	(For the CT6700s/3270s, up to 4)
	3272	(For the CT6700s/3270s, up to 1 or 2)

■ Basic specifications

	3269	3272
Compatible sensors	Model CT6700, CT6701, 3273-50, 3274, 3275 or 3276: up to 4 units Note: Also up to 4 units for the discontinued Model 3273	Model CT6700, CT6701: up to 2 units Model 3273-50, 3274, 3275 or 3276: up to 1 unit Note: May be used with up to 2 units of Model 3273 (not -50 type), and up to 2 units of Models 3273-50, 3274, 3275 or 3276 on condition that the measurement current is sufficiently low.
Number of power supply connectors	4	2
Output	±12 V ±0.5 V, ±2.5 A (sum total of all channels)	±12 V ±0.5 V, 600 mA (sum total of all channels)
Power supply	100 V to 240 V AC (free) 50/60 Hz 170 VA max.	100 V or 120/ 220/ 240 V AC (specify when ordering), 50/60 Hz 20 VA max.
Dimensions and mass	80 mm (3.15 in)W × 119 mm (4.69 in)H × 200 mm (7.87 in)D, 1.1 kg (38.8 oz)	73 mm (2.87 in)W × 110 mm (4.33 in)H × 186 mm (7.32 in)D, 1.1 kg (38.8 oz)
Accessories	Instruction manual ×1, Power cord ×1	Power cord ×1, Instruction manual ×1, Spare fuse ×1

Note: These products cannot be used alone. To measure current, a compatible current sensor is required.

Delivering High Accuracy Performance Over a Measurement Band 40 Times Broader than Legacy Models

AC/DC CURRENT SENSOR CT6904

- 500 A (rms) rated for measurement of large currents
- DC to 4 MHz (±3 dB) wide measurement frequency range
- ±10 ppm excellent linearity
- 120 dB (100 kHz) high Common-Mode Rejection Ratio (CMRR)
- ±0.04 % power accuracy in combination with the Hioki PW6001 Power Analyzer

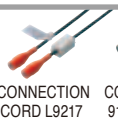
Model No. (Order Code) **CT6904** (500 A AC/DC, ME15W terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustmentaccuracy guaranteed for 1 year)

Rated current	500 A AC/DC
Max. allowable input	550 A (requires derating at frequency, However, up to ±1000 A peak is allowable if within 20 ms (design value)
Frequency characteristics	Amplitude: DC to 4 MHz Phase: DC to 1 MHz
Linearity	±10 ppm Typical (23°C (73°F))
Offset voltage	±10 ppm Typical (23°C (73°F), no input)
Amplitude and Phase accuracy	DC (±0.025 % rdg. ±0.007 % f.s.) 45 Hz ≤ f ≤ 65 Hz (±0.02 % rdg. ±0.007 % f.s., Phase: ±0.08°) Defined to 1 MHz
Output voltage rate	4 mV/ A (2 V / rated current value)
Core diameter	φ 32 mm (1.26 in)
Operating temperature, humidity	-10°C to 50°C (14°F to 122°F) 80% RH or less (with no condensation)
Power supply	Power supplied from PW6001, PW3390, and CT9555
Power consumption	7 VA Max. (500 A/55 Hz measurement, with a power supply of ±12 V)
Dimensions and mass	139 mm (5.47 in)W × 120 mm (4.72 in)H × 52 mm (2.05 in)D, 1 kg (35.3 oz), cord length: 3 m (9.84 ft) (excluding protrusions and cables)
Accessories	Instruction manual ×1, Carrying case ×1, Color labels (for channel identification) ×1

Options

SENSOR UNIT CT9555
Power supply for current sensors (1ch, with Waveform output)



CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, 1.6 m (5.25 ft) length

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, use at metallic terminal, 1.5 m (4.92 ft) length

Other options

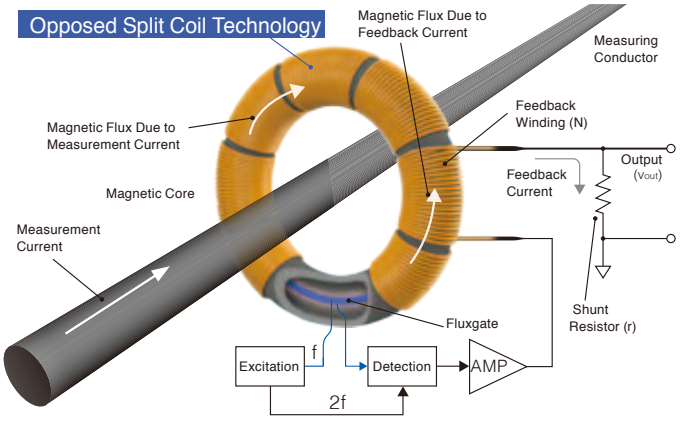
Output cord 10 m (32.81 ft) length, Metal fittings

Made-to-order, Contact your local Hioki distributor for more information

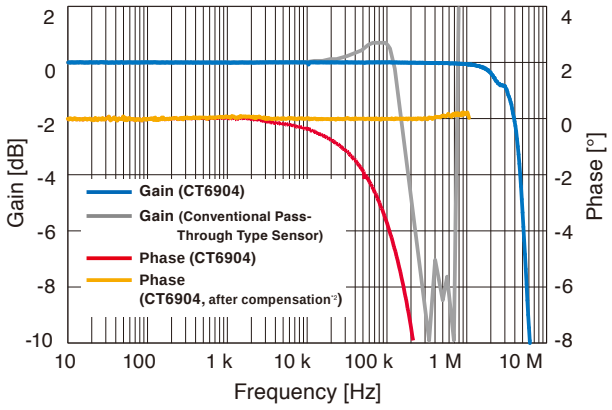
4 MHz Measurement Range, 40× Conventional Models

Current sensor performance is maximized with the "Zero Flux (Fluxgate Detection)" measurement method. High frequency current is detected with windings (CT method), and direct to low frequency current is detected with fluxgates. Newly developed opposed split coil technology*1 is used in winding (CT) areas, achieving a wide measurement range from DC to 4 MHz.

Opposed Split Coil Technology



Frequency Characteristics (Typical)



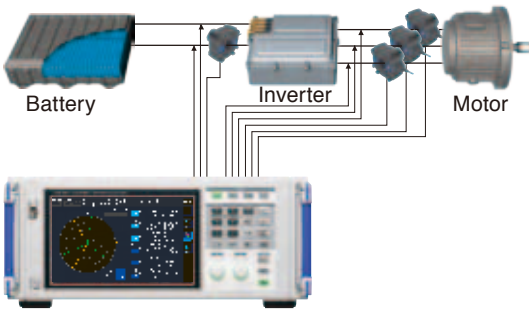
*1 Opposed Split Coil: Coil in which divided windings are arranged opposite each other on a magnetic core to broaden the range of current detection
*2 When performing phase compensation with HIOKI POWER ANALYZER PW6001

Example Applications - Providing True Current Measurement with Unmatched Measurement Range and Noise Resistance -

High-Precision and Efficiency Testing of SiC/GaN Inverters

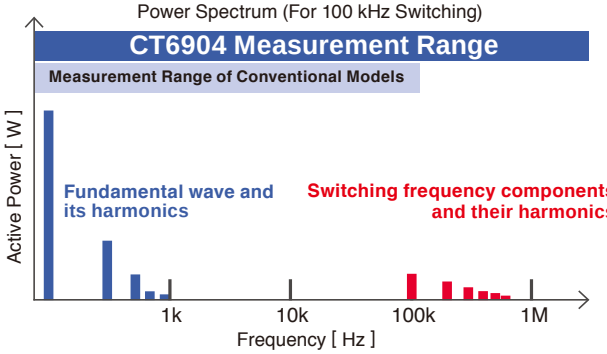
A wide range and minimal voltage current phase error are essential for the highly precise measurement of switching frequency power during PWM output.

The CT6904, which features flat frequency characteristics over a wide range, provides accurate measurement of not only fundamental wave current but also switching frequency current. Since the CT6904 achieves both wide-range and highly accurate measurement performance, it can be used in combination with a power analyzer for more precise measurements of inverter input/output power and efficiency than ever before.



HIOKI POWER ANALYZER PW6001

Current Sensor Measurement Range and Inverter Secondary Active Power Spectrum (For 100 kHz Switching)



Perform highly accurate measurement of switching frequency components not possible with conventional models.

Wide-Bandwidth, Wide-Operating Temperature Range and Large Current Measurements

AC/DC CURRENT SENSOR CT6865, 9709

- 1000A large current measuring applications in the fields of electric and hybrid electric vehicles (CT6865)
- Operating temperature range of -30°C to 85°C (CT6865)
- Super high precision, ±0.06% amplitude accuracy, ±0.2° phase accuracy
- DC to 20 kHz (CT6865), 100 kHz (9709) bandwidths with excellent frequency characteristics
- Ideal for evaluation of solar power generation and fuel cells to measure battery charge and discharge and the secondary side of inverters
- For observing waveforms to be used with the oscilloscopes or Memory HiCorders (use with SENSOR UNIT)

Model No. (Order Code)		
	CT6865	(1000 A AC/DC, PL23 terminal)
	CT6865-05	(1000 A AC/DC, ME15W terminal)
	9709	(500 A AC/DC, PL23 terminal)
	9709-05	(500 A AC/DC, ME15W terminal)

■ Basic specifications

	CT6865 (Accuracy guaranteed for 1 year, Post-adjustmentaccuracy guaranteed for 1 year)	9709 (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)
Rated current	1000 A AC/DC	500 A AC/DC
Max. allowable input	1200 A rms (Continuous 1800 A peak, up to 100 Hz, up to 40 °C (104 °F), other requires derating characteristics)	700 Arms (1000 Apeak, requires derating at frequency)
Frequency characteristics	Amplitude: DC to 20 kHz Phase: DC to 1 kHz	Amplitude: DC to 100 kHz Phase: DC to 100 kHz
Amplitude and Phase accuracy	DC ±0.05 % rdg. ±0.01 % f.s. 16 Hz ≤ f ≤ 66 Hz ±0.05 % rdg. ±0.01 % f.s., Phase: ±0.2° Amplitude is defined to 20 kHz, Phase is defined to 1 kHz	DC (±0.05 % rdg. ±0.01 % f.s.) 45 Hz ≤ f ≤ 66 Hz (±0.05 % rdg. ±0.01 % f.s., Phase: ±0.2°) Defined to 100 kHz
Output voltage rate	2 V /rated current value (voltage output with the Sensor Unit, use with a device having a 1 MΩ input resistance or higher)	
Max. rated voltage to earth	1000 V AC/DC (50/60 Hz, CAT III)	
Core diameter	φ 36 mm (1.42 in)	
Operating temperature, humidity	-30°C to +85°C (-22°F to 185°F) 80% rh or less (with no condensation)	0°C to +50°C (32°F to 122°F) 80% rh or less (with no condensation)
Power supply	±11 V to ±15 V DC (Power suppled via the Sensor Unit, which supports 100 to 240 V AC)	
Power consumption	7 VA max. (at 1000 A/55 Hz, ±12 V power requirement)	5 VA max. (at 500 A/55 Hz, ±12 V power requirement)
Dimensions and mass	160 mm (6.30 in)W × 112 mm (4.41 in)H × 50 mm (1.97 in)D, 980 g (34.6 oz), cord length 3 m (9.84 ft)	160 mm (6.30 in)W × 112 mm (4.41 in)H × 50 mm (1.97 in)D, 850 g (30.0 oz), cord length: 3 m (9.84 ft)
Accessories	Instruction manual ×1, Mark bands ×6	

Shared options for CT686x, 9709, CT684x, 9272

Delivering Wide Operating Temperature Range and High-precision Current Measurement

AC/DC CURRENT SENSOR CT6862, CT6863

- Super high precision, ±0.05% amplitude accuracy, ±0.2° phase accuracy
- Wide-bandwidth DC to 1 MHz (CT6862) excellent frequency characteristics
- Applications in the fields of electric and hybrid electric vehicles
- Wide operating temperature range(-30 °C to 85 °C) fit for automobile applications
- Ideal for evaluation of solar power generation and fuel cells to measure battery charge and discharge and the secondary side of inverters
- For observing waveforms to be used with the oscilloscopes or Memory HiCorders (use with SENSOR UNIT)

Model No. (Order Code)		
	CT6862	(50 A AC/DC, PL23 terminal)
	CT6862-05	(50 A AC/DC, ME15W terminal)
	CT6863	(200 A AC/DC, PL23 terminal)
	CT6863-05	(200 A AC/DC, ME15W terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CT6862	CT6863
Rated current	50 A AC/DC	200 A AC/DC
Max. allowable input	100 A rms (requires derating)	400 A rms (requires derating)
Frequency characteristics	Amplitude: DC to 1 MHz Phase: DC to 300 kHz	Amplitude: DC to 500 kHz Phase: DC to 300 kHz
Amplitude and Phase accuracy	DC ±0.05 % rdg. ±0.01 % f.s. (Phase: Not defined) 16 Hz ≤ f ≤ 400 Hz ±0.05 % rdg. ±0.01 % f.s. (Phase: ±0.2°) Defined to 1 MHz	DC ±0.05 % rdg. ±0.01 % f.s. (Phase: Not defined) 16 Hz ≤ f ≤ 400 Hz ±0.05 % rdg. ±0.01 % f.s. (Phase: ±0.2°) Defined to 500 kHz
Output voltage	2 V /rated current value (voltage output with the Sensor Unit, use with a device having a 1 MΩ input resistance or higher)	
Max. rated voltage to earth	1000 V AC/DC (50/60 Hz, CAT III)	
Core diameter	φ 24 mm (0.94 in)	
Operating temperature, humidity	-30°C to +85°C (-22°F to 185°F), 80% RH or less (with no condensation)	
Power supply	±11 V to ±15 V DC (Power suppled via the Sensor Unit, which supports 100 to 240 V AC)	
Power consumption	5 VA max. (at 50 A/55 Hz, ±12 V power requirement)	6 VA max. (at 200 A/55 Hz, ±12 V power requirement)
Dimensions and mass	70 mm (2.76 in)W × 100 mm (3.94 in)H × 53 mm (2.09 in)D, 340 g (12.0 oz), cord length: 3 m (9.84 ft)	70 mm (2.76 in)W × 100 mm (3.94 in)H × 53 mm (2.09 in)D, 350 g (12.3 oz), cord length: 3 m (9.84 ft)
Accessories	Instruction manual ×1, Mark bands ×6	

Shared options for CT686x, 9709, CT684x, 9272

Compatible models...CT6865 (-05), 9709 (-05), CT6862 (-05), CT6863 (-05)

Compatible models	CT6865	CT6865-05	9709	9709-05	CT6862	CT6862-05	CT6863	CT6863-05
Power Analyzer PW6001, PW3390	▲ (Requires CT9900) CT ratio 2	✓	▲ (Requires CT9900)	✓	▲ (Requires CT9900)	✓	▲ (Requires CT9900)	✓
Power Analyzer 3390	✓ CT ratio 2	▲ (Requires CT9901) CT ratio 2	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)
Power HiTester 3193 series	✓ CT ratio 2	▲ (Requires CT9901) CT ratio 2	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)
Current Unit 8971	▲ (Requires the 9318) CT ratio 2	▲ (Requires the 9318, CT9901) CT ratio 2	▲ (Requires the 9318)	▲ (Requires the 9318, CT9901)	▲ (Requires the 9318)	▲ (Requires the 9318, CT9901)	▲ (Requires the 9318)	▲ (Requires the 9318, CT9901)
F/V Unit 8940 (Discontinuation scheduled)	▲ (Requires the 9318, 9705) CT ratio 2	▲ (Requires the 9318, 9705, CT9901) CT ratio 2	▲ (Requires the 9318, 9705)	▲ (Requires the 9318, 9705, CT9901)	N/A	N/A	▲ (Requires the 9318, 9705)	▲ (Requires the 9318, 9705, CT9901)

High-precision, High-current, Single-handed, One-touch Opening and Closing Clamp Design

AC/DC CURRENT PROBE CT6844/6845/6846 series

3 year Warranty

Insulated conductor

DESIGN AWARD 2016

Germany iF Design Award (CT6844)

- Ideal for use in environmental testing with broad -40˚C to 85˚C temperature range
- High precision with a clamp-type design, ±0.3% amplitude accuracy, ±0.1° phase accuracy
- Wide-bandwidth from DC to 200 kHz (CT6844)
- Single-handed operation and robust locking mechanism
- Reduced effects from magnetic fields, conductor position, and noise from nearby wires
- For EV/HEV battery charge and discharge efficiency testing and inverter and power conditioner conversion efficiency evaluations

Model No. (Order Code)		
	CT6844	(500 A AC/DC, PL23 terminal)
	CT6844-05	(500 A AC/DC, ME15W terminal)
	CT6845	(500 A AC/DC, PL23 terminal)
	CT6845-05	(500 A AC/DC, ME15W terminal)
	CT6846	(1000 A AC/DC, PL23 terminal)
	CT6846-05	(1000 A AC/DC, ME15W terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CT6844	CT6845	CT6846
Rated current	500 A AC/DC	500 A AC/DC	1000 A AC/DC
Max. allowable input	720 A peak (requires derating)	1000 A rms (requires derating)	1700 A peak (requires derating)
Frequency characteristics	DC to 200 kHz Phase: DC to 200 kHz	DC to 100 kHz Phase: DC to 100 kHz	DC to 20 kHz Phase: DC to 20 kHz
Amplitude and phase accuracy	DC ±0.3 % rdg. ±0.02 % f.s. (Phase: Not defined) DC < f ≤ 100 Hz ±0.3 % rdg. ±0.01 % f.s. (Phase: ±0.1°)		
	Defined to 200 kHz	Defined to 100 kHz	Defined to 20 kHz
Output voltage	4 mV/A (voltage output with the Sensor Unit use with a device having a 1 MΩ input resistance or higher)		2 mV/A (voltage output with the Sensor Uni use with a device having a 1 MΩ input resistance or higher)
Core diameter	φ 20 mm (0.79 in)	φ 50 mm (1.97 in)	φ 50 mm (1.97 in)
Operating temperature, humidity	-40 °C to +85 °C (-40 °F to 185 °F), 80% RH or less (with no condensation)		
Power supply	±11 V to ±15 V DC (Power suppled via the Sensor Unit, which supports 100 to 240 V AC)		
Power consumption	7 VA max. (at 500 A/55 Hz, ±12 V power requirement)		7 VA max. (at 1000 A/55 Hz, ±12 V power requirement)
Dimensions and mass	153 mm (6.02 in)W × 67 mm (2.64 in)H × 25 mm (0.98 in)D, 400 g (14.1 oz), cord length: 3 m (9.84 ft)	238 mm (9.37 in)W × 116 mm (4.57 in)H × 35 mm (1.38 in)D, 860 g (30.3 oz), cord length: 3 m (9.84 ft)	238 mm (9.37 in)W × 116 mm (4.57 in)H × 35 mm (1.38 in)D, 990 g (34.9 oz), cord length: 3 m (9.84 ft)
Accessories	Instruction manual ×1, Mark bands ×6, Carrying Case×1		

Note: These products cannot be used alone. The optional SENSOR UNIT is required in order to supply power and connect the clamp to a Memory HiCorder or other instrument. Products can be directly connected to the compatible Power Meters, or Power Analyzers.

Shared options for CT686x, 9709, CT684x, 9272

Compatible models...CT6844 (-05), CT6845 (-05), CT6846 (-05)

Compatible models	CT6844	CT6844-05	CT6845	CT6845-05	CT6846	CT6846-05
Power Analyzer PW6001, PW3390	▲ (Requires CT9900)	✓	▲ (Requires CT9900)	✓	▲ (Requires CT9900, CT ratio 2)	✓
Power Analyzer 3390	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)	✓ (CT ratio 2)	▲ (Requires CT9901, CT ratio 2)
Power HiTester 3193 series	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)	✓ (CT ratio 2)	▲ (Requires CT9901, CT ratio 2)
Current Unit 8971	▲ (Requires the 9318)	▲ (Requires the 9318, CT9901)	▲ (Requires the 9318)	▲ (Requires the 9318, CT9901)	▲ (Requires the 9318, CT ratio 2)	▲ (Requires the 9318, CT9901, CT ratio 2)
F/V Unit8940 (Discontinuation scheduled)	▲ (Requires the 9318, 9705)	▲ (Requires the 9318, 9705, CT9901)	▲ (Requires the 9318, 9705)	▲ (Requires the 9318, 9705, CT9901)	▲ (Requires the 9318, 9705, CT ratio 2)	▲ (Requires the 9318, 9705, CT9901, CT ratio 2)

Consistent, High-precision Current Testing Across a Wide Temperature Range

AC/DC CURRENT PROBE CT6841, CT6843

3 year Warranty

Insulated conductor

DESIGN AWARD 2016

Germany iF Design Award

- Ideal for use in environmental testing with broad -40˚C to 85˚C temperature range
- High precision with a clamp-type design, ±0.3% amplitude accuracy, ±0.1° phase accuracy
- Wide-bandwidth DC to 1 MHz (CT6841), DC to 500 kHz (CT6843)
- Single-handed operation and robust locking mechanism
- Reduced effects from magnetic fields, conductor position, and noise from nearby wires
- For EV/HEV battery charge and discharge efficiency measurement and inverter and power conditioner conversion efficiency evaluation

Model No. (Order Code)		
	CT6841	(20 A AC/DC, PL23 terminal)
	CT6841-05	(20 A AC/DC, ME15W terminal)
	CT6843	(200 A AC/DC, PL23 terminal)
	CT6843-05	(200 A AC/DC, ME15W terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CT6841	CT6843
Rated current	20 A AC/DC	200 A AC/DC
Max. allowable input	40 A rms (requires derating)	400 A rms (requires derating)
Frequency characteristics	Amplitude: DC to 1 MHz Phase: DC to 300 kHz	Amplitude: DC to 500 kHz Phase: DC to 300 kHz
Amplitude and phase accuracy	DC ±0.3 % rdg. ±0.05 % f.s. (Phase: Not defined) DC < f ≤ 100 Hz ±0.3 % rdg. ±0.01 % f.s. (Phase: ±0.1°) Defined to 1 MHz	DC ±0.3 % rdg. ±0.02 % f.s. (Phase: Not defined) DC< f ≤ 100 Hz ±0.3 % rdg. ±0.01 % f.s. (Phase: ±0.1°) Defined to 500 kHz
Power consumption	5 VA max. (at 20 A/55 Hz, ±12 V power requirement)	6 VA max. (at 200 A/55 Hz, ±12 V power requirement)
Output voltage	0.1 V/A (CT6841), 0.01 V/A (CT6843) (voltage output with the Sensor Unit, use with a device having a 1 MΩ input resistance or higher)	
Core diameter	φ 20 mm (0.79 in)	
Operating temperature, humidity	-40 °C to +85 °C (-40 °F to 185 °F), 80% RH or less (with no condensation)	
Power supply	±11 V to ±15 V DC (Power suppled via the Sensor Unit, which supports 100 to 240 V AC)	
Dimensions and mass	153 mm (6.02 in)W × 67 mm (2.64 in)H × 25 mm (0.98 in)D, 350 g (12.3 oz), cord length: 3 m (9.84 ft)	153 mm (6.02 in)W × 67 mm (2.64 in)H × 25 mm (0.98 in)D, 370 g (13.1 oz), cord length: 3 m (9.84 ft)
Accessories	Instruction manual ×1, Mark bands ×6, Carrying Case ×1	

Note: These products cannot be used alone. The optional SENSOR UNIT is required in order to supply power and connect the clamp to a Memory HiCorder or other instrument. Products can be directly connected to the compatible Power Meters, or Power Analyzers.

Shared options for CT686x, 9709, CT684x, 9272

Compatible models: CT6841 (-05), CT6843 (-05)

Compatible models	CT6841	CT6841-05	CT6843	CT6843-05
Power Analyzer PW6001, PW3390	▲ (Requires CT9900)	✓	▲ (Requires CT9900)	✓
Power Analyzer 3390	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)
Power HiTester 3193 series	✓	▲ (Requires CT9901)	✓	▲ (Requires CT9901)
Current Unit 8971	▲ (Requires 9318)	▲ (Requires 9318 and CT9901)	▲ (Requires 9318)	▲ (Requires 9318 and CT9901)
F/V Unit 8940 (Discontinuation scheduled)	▲ (Requires 9318 and 9705)	▲ (Requires 9318, 9705, and CT9901)	▲ (Requires 9318 and 9705)	▲ (Requires 9318, 9705, and CT9901)

Shared options for CT686x, 9709, CT684x, 9272

Options A

SENSOR UNIT CT9555
Power supply for current sensors (1ch, with Waveform output)

SENSOR UNIT CT9556
Power supply for current sensors (1ch, with Waveform/RMS output)

SENSOR UNIT CT9557
Power supply for current sensors (4ch, with Waveform/Total Waveform/Total RMS output)

CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, 1.6 m (5.25 ft) length

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, use at metallic terminal, 1.5 m (4.92 ft) length

CONNECTION CABLE CT9904
HIOKI ME15W (12 pin) terminal to ME15W (12 pin) terminal, 1 m (3.28 ft) length (for connecting CT9557 total output to PW6001 or PW3390 only)

Options B

The CT9903 connects up to 2 cables in series

CONVERSION CABLE CT9900
PL23 (10 pin) to ME15W (12 pin) connector

EXTENSION CABLE CT9903
5 m (16.41 ft) length, PL23 (10 pin) to PL23 (10 pin) connector

Options C

The CT9902 connects up to 2 cables in series

CONVERSION CABLE CT9901
ME15W (12 pin) to PL23 (10 pin) connector

EXTENSION CABLE CT9902
5 m (16.41 ft) length, ME15W (12 pin) to ME15W (12 pin) connector

Options D

For connecting to the F/V Unit 8940 or Current Unit 8971

CONVERSION CABLE 9705
0.2 m (0.66 ft) length, to connect the CT6841-6846, CT6863/6865, 9709, 9272-10 to the F/V Unit 8940, Cannot be used in combination with the CT6862

CONVERSION CABLE 9318
To connect the CT6841-6846, CT6865/63/62, 9709, 9272-10 to the 8971/40/51, 38 cm (14.96 in) length

Current Sensors

Power Supply for 4ch High-Precision Current Sensors Capable of Adding Current Waveforms

SENSOR UNIT CT9557

- Power supply for high-precision current sensors with waveform output functionality
- Channel-specific waveform output, total waveform output, total RMS output
- Ideal for measuring multi-cable circuits

Model No. (Order Code) **CT9557** (For the CT6841-05, etc., ME15W connector)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

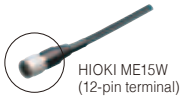
Connectable current sensors	Current sensors with a Hioki ME15W (male) output connector (CT686x-05, 9709-05, CT684x-05, etc.) *The separately available Conversion Cable CT9900 is required in order to use a current sensor equipped with a PL23 (10-pin) terminal
Output Terminal	BNC Terminal
Output voltage	Waveform output/ Total waveform output: 2 V f.s. Total RMS output: 2 V DC f.s.
Output resistance	50 Ω
Operating temperature range	-10 °C to 50 °C (14 °F to 122 °F)
Power supply	AC Adapter Z1002 (100 to 240 V AC, 50/60 Hz, maximum rated power when used with sensors: 155 VA) External power supply (10 to 30 V DC; maximum rated power: 60 VA)
Dimensions and mass	116 mm (4.57 in)W × 67 mm (2.64 in)H × 132 mm (5.20 in)D (excluding protruding parts), 420 g (14.8 oz)
Accessories	AC Adapter Z1002 ×1, Power cord ×1, Instruction manual ×1

Power Supplies for High-Precision Current Sensors

SENSOR UNIT CT9555, CT9556

CT9555

CT9556



- Power supply for high-precision current sensors with waveform output functionality (CT9555)
- Power supply for high-precision current sensors with waveform output / RMS output functionality (CT9556)

Model No. (Order Code) **CT9555** (For the CT6841-05, etc., ME15W connector)
CT9556 (For the CT6841-05, etc., ME15W connector)

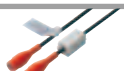
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CT9555	CT9556
Connectable current sensors	Current sensors with a Hioki ME15W (male) output connector (CT686x-05, 9709-05, CT684x-05, etc.) *The separately available Conversion Cable CT9900 is required in order to use a current sensor equipped with a PL23 (10-pin) terminal	
Output Terminal	BNC Terminal	
Output voltage	Waveform output: 2 V f.s.	Waveform output: 2 V f.s. RMS output: 2 V DC f.s.
Output resistance	50 Ω	
Operating temperature range	-10 °C to 50 °C (14 °F to 122 °F)	
Power supply	AC Adapter Z1008 (100 to 240 V AC, 50/60 Hz, maximum rated power when used with sensors: 45 VA) External power supply (10 to 30 V DC; maximum rated power: 15 VA)	
Dimensions and mass	33 mm (1.30 in)W × 67 mm (2.64 in)H × 132 mm (5.20 in)D (excluding protruding parts), 200 g (7.1 oz)	
Accessories	AC Adapter Z1008 ×1, Power cord ×1, Instruction manual ×1	

Shared options for CT9555, CT9556 and CT9557

Options

CONNECTION CABLE CT9904
ME15W (12 pin) terminal to ME15W (12 pin) terminal, 1 m (3.28 ft) length (for connecting CT9557 total output to PW6001 or PW3390 only)



CONNECTION CORD L9217
Cord has insulated BNC connectors at both ends, 1.6 m (5.25 ft) length

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, use at metallic terminal, 1.5 m (4.92 ft) length

CONVERSION CABLE CT9900
PL23 (10 pin) to ME15W (12 pin) connector

CONVERSION CABLE CT9901
ME15W (12 pin) to PL23 (10 pin) connector

Ideal for Measuring AC Current with Low Frequencies such as Inverter Control Devices

CLAMP ON SENSOR **9272**

CE
CAT Ⅲ 600 V

- Superior low frequency and phase characteristics suitable for testing the current and power of inverter control devices
- Wide 1 Hz to 100 kHz frequency bandwidth perfect for harmonic analysis, FFT analysis and waveform monitoring (AC only)

Model No. (Order Code)	**9272-10**	(20/200 A AC, PL23 terminal)
	9272-05	(20/200 A AC, ME15W terminal)

Note: This product cannot be used alone. The optional Sensor Unit is required in order to supply power and connect the clamp to a Memory HiCorder or other instrument. The clamp can be directly connected to a compatible Power Meter, or Power Analyzers.

Shared options for CT686x, 9709, CT684x, 9272

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Rated current	20 A AC, or 200 A AC (selectable)
Max. allowable input	50 A rms (at 20 A range), 300 A rms (at 200 A range)
Frequency characteristics	1 Hz (±2 % rdg. ±0.1 % f.s.) to 100 kHz (±30 % rdg. ±0.1 % f.s.)
Amplitude and Phase accuracy	Amplitude: ±0.3 % rdg. ±0.01 % f.s. Phase: ±0.2 ° (45 to 66 Hz)
Output voltage	2 V/20 A rated current range, or 2 V/200 A rated current range (voltage output with the Sensor Unit, use with a device having a 1 MΩ input resistance or higher)
Max. rated voltage to earth	600 V rms (CAT III)
Core diameter	φ 46 mm (1.81 in)
Power supply	±11 V to ±15 V DC (Power suppled via the Sensor Unit, which supports 100 to 240 V AC)
Power consumption	5 VA Max. (when measuring 200 A)
Dimensions and mass	78 mm (3.07 in)W × 188 mm (7.40 in)H × 35 mm (1.38 in)D, 430 g (15.2 oz), cord length: 3 m (9.84 ft)
Accessories	Carrying case 9355 ×1, Instruction manual ×1, Mark bands ×6

Bundled accessory

CARRYING CASE 9355

Compatible models...9272-10 (-05)

Compatible models	9272-10	9272-05
Power Analyzer PW3390	▲ (Requires CT9900)	✓
Power Analyzer 3390	✓	▲ (Requires CT9901)
Power HiTester 3193 series	✓	▲ (Requires CT9901)
Current Unit 8971	▲ (Requires the 9318)	▲ (Requires the 9318, CT9901)
F/V Unit 8940 (Discontinuation scheduled)	▲ (Requires the 9318, 9705)	▲ (Requires the 9318, 9705, CT9901)

Accurate, Long-term Recording and Easy Output Settings

AC/DC AUTO-ZERO CURRENT SENSOR **CT7700 series**

CAT IV 600 V

3 year Warranty

- Accurately measure and record even when the temperature changes
- Ideal for site inspections by using detachable Display Unit
- Four output formats to output data to loggers or other devices (via Display Unit)
  WAVE, RMS, PEAK, Hz

Model No. (Order Code)		
	CT7742	(2000 A AC/DC, φ55 mm (2.17 in)
	CT7736	(600 A AC/DC, φ33 mm (1.30 in))
	CT7731	(100 A AC/DC, φ33 mm (1.30 in))

Note: CT7700 series cannot be used alone. Use with the Display Unit CM7290, CM7291 to connect with Data Loggers and Memory HiCorders.
When used in combination with CM7290 or CM7291, the frequency band of current display and waveform output becomes narrow.

■ Basic specifications (Accuracy guaranteed for 3 years, Post-adjustment accuracy guaranteed for 3 years)

	CT7742	CT7736	CT7731
Rated measurement current	2000 A AC/DC	600 A AC/DC	100 A AC/DC
Max. measurement current	2000 A (requires derating at frequency)	600 A (requires derating at frequency)	100 A (requires derating at frequency)
Max. allowable peak input	2840 A peak	900 A peak	150 A peak
Bandwidth	DC to 5 kHz (-3dB) (When used in combination with CM7290 or CM7291: DC 3 Hz to 1 kHz)		
Typical accuracy	±2.3 deg. (DC < f ≤ 66 Hz)	±1.8 deg. (DC < f ≤ 66 Hz)	±1.8 deg. (DC < f ≤ 66 Hz)
Output rate	0.1 mV/A	1 mV/A	1 mV/A
Max. rated voltage to earth	600 V AC/DC (CAT IV) 1000 V AC/DC (CAT III)	600 V AC/DC (CAT IV) 1000 V AC/DC (CAT III)	600 V AC/DC (CAT IV)
Core diameter	φ 55 mm (2.17 in) or less	φ 33 mm (1.30 in) or less	φ 33 mm (1.30 in) or less
Output connectors	HIOKI PL 14		
Operating temperature range	-25 °C to 65 °C (-13 °F to 149 °F)		
Dust and water resistance *	Jaws and barriers: IP50 / Grip: IP54 (when measuring insulated conductors only, Do not use when wet.)		IP40
Dimensions and mass	64 mm (2.52 in)W × 195 mm (7.68 in)H × 34 mm (1.34 in)D, 510 g (18.0 oz), Cable length 2.5 m (8.20 ft)	64 mm (2.52 in)W × 160 mm (6.30 in)H × 34 mm (1.34 in)D, 320 g (11.3 oz), Cable length 2.5 m (8.20 ft)	58 mm (2.28 in)W × 132 mm (5.20 in)H × 18mm (0.71 in)D, 250 g (8.8 oz), Cable length 2.5 m (8.20 ft)
Accessories	None		

** Waterproof characteristics intended to maintain measurement function; measuring energized parts while instrument is wet will increase risk of electric shock.*

Current Sensors

Accurate, Instantaneous Waveforms Recording and Easy Output Settings

AC/DC CURRENT SENSOR **CT7600 series**

CAT IV 600 V

3 year Warranty

- Ideal for observing instantaneous waveforms in laboratories and other temperature-controlled environments
- Ideal for site inspections by using detachable Display Unit
- Four output formats to output data to loggers or other devices (via Display Unit)
  WAVE, RMS, PEAK, Hz

Model No. (Order Code)		
	CT7642	(2000 A AC/DC, φ55 mm (2.17 in))
	CT7636	(600 A AC/DC, φ33 mm (1.30 in))
	CT7631	(100 A AC/DC, φ33 mm (1.30 in))

Note: CT7600 series cannot be used alone. Use with the Display Unit CM7290, CM7291 to connect with Data Loggers and Memory HiCorders.
When used in combination with CM7290 or CM7291, the frequency band of current display and waveform output becomes narrow.

■ Basic specifications (Accuracy guaranteed for 3 years, Post-adjustment accuracy guaranteed for 3 years)

	CT7642	CT7636	CT7631
Rated measurement current	2000 A AC/DC	600 A AC/DC	100 A AC/DC
Max. measurement current	2000 A (requires derating at frequency)	600 A (requires derating at frequency)	100 A (requires derating at frequency)
Max. allowable peak input	2840 A peak	900 A peak	150 A peak
Bandwidth	DC to 10 kHz (-3dB) (When used in combination with CM7290 or CM7291: DC 3 Hz to 1 kHz)		
Typical accuracy	±2.3 deg. (DC < f ≤ 66 Hz)	±1.8 deg. (DC < f ≤ 66 Hz)	±1.8 deg. (DC < f ≤ 66 Hz)
Output rate	0.1 mV/A	1 mV/A	1 mV/A
Max. rated voltage to earth	600 V AC/DC (CAT IV) 1000 V AC/DC (CAT III)	600 V AC/DC (CAT IV) 1000 V AC/DC (CAT III)	600 V AC/DC (CAT IV)
Core diameter	φ 55 mm (2.17 in) or less	φ 33 mm (1.30 in) or less	φ 33 mm (1.30 in) or less
Output connectors	HIOKI PL 14		
Operating temperature range	-25 °C to 65 °C (-13 °F to 149 °F)		
Dust and water resistance *	Jaws and barriers: IP50 / Grip: IP54 (when measuring insulated conductors only, Do not use when wet.)		IP40
Dimensions and mass	64 mm (2.52 in)W × 195 mm (7.68 in)H × 34 mm (1.34 in)D, 510 g (18.0 oz), Cable length 2.5 m (8.20 ft)	64 mm (2.52 in)W × 160 mm (6.30 in)H × 34 mm (1.34 in)D, 320 g (11.3 oz), Cable length 2.5 m (8.20 ft)	58 mm (2.28 in)W × 132 mm (5.20 in)H × 18mm (0.71 in)D, 250 g (8.8 oz), Cable length 2.5 m (8.20 ft)
Accessories	None		

** Waterproof characteristics intended to maintain measurement function; measuring energized parts while instrument is wet will increase risk of electric shock.*

Shared options for CT7000 series

Display, Output

DISPLAY UNIT CM7291
Power supply for the CT7000 series single drive, Measure, Display, Signal output function, built-in Bluetooth® wireless technology

DISPLAY UNIT CM7290
Power supply for the CT7000 series single drive, Measure, Display, Signal output function

EXTENSION CABLE L0220-01 — 2 m (6.56 ft) length
EXTENSION CABLE L0220-02 — 5 m (16.41 ft) length
EXTENSION CABLE L0220-03 — 10 m (32.81 ft) length
EXTENSION CABLE L0220-04 — 20 m (65.62 ft) length
EXTENSION CABLE L0220-05 — 30 m (98.43 ft) length
EXTENSION CABLE L0220-06 — 50 m (164.06 ft) length
EXTENSION CABLE L0220-07 — 100 m (328.11 ft) length

Case

CARRYING CASE C0220
For storing sensor ×1, CM7290 ×1, AC adapter ×1, and output cord

CARRYING CASE C0221
For storing sensor ×3, CM7290 ×1, AC adapter ×1, output cord, and 30 m extension cable

Multi-functional Display Unit to Use Right on the Field or Output to Advanced Recorder or Logger

DISPLAY UNIT CM7290, CM7291


CM7290


CM7291

CE

3 year Warranty

Drop-proof

Bluetooth®
CM7291

- Send measured values to a smartphone or tablet using Bluetooth® wireless technology (CM7291)
- Use the GENNECT Cross dedicated app to display and review measured values and waveforms in real time (CM7291)
- Power supply and signal output for Current Sensor CT7000 series
- Simultaneous dual display of the measured values, frequency, and output rate
- Four output formats to output data to loggers or other devices (via Display Unit)
- Supports AC adapter, AA alkaline batteries, and external power supply

Model No. (Order Code)		
	CM7290	(For the CT7000 series)
	CM7291	(For the CT7000 series, built-in Bluetooth® wireless technology)

Note: CM7290, CM7291 cannot be used alone. Use with CT7000 series. When used in combination with the CT7000 sensor series, the frequency band for current display and waveform output is narrower than the sensor band.

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. (CM7291) Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play

Download on the App Store

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*For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Basic specifications (Accuracy guaranteed for 3 years, Post-adjustment accuracy guaranteed for 3 years)

Sensor	CT7642, 7742	CT7636, 7736	CT7631, 7731
Measurement parameters	DC, AC, DC+AC, Hz		
Crest factor	3 at 5000 count or 2.5 at 6000 count for AC and DC+AC		
Output method	WAVE, RMS, PEAK, FREQ		
Input connectors	HIOKI PL 14		
Output update time	PEAK--- FAST: 0.02 s / NORMAL: 0.2 s / SLOW: 1 s FREQ--- FAST: FAST: 0.2 s / NORMAL: 0.2 s / SLOW: 3.0 s (WAVE, RMS: analog output)		
PEAK sensing duration	2 ms or greater (during PEAK MAX/PEAK MIN and PEAK output)		
Other functions	Auto range, Zero adjustment at power-up, Analysis display, Filter, Output amplification, Display value hold, Backlight , Auto-power save, Save settings, keypad lock		
Typical accuracy (WAVE output DC)	±2.0% rdg. ±10.8 mV (60.00 A range)	±2.5% rdg. ±30.8 mV (60.00 A range)	±1.5% rdg. ±5.8 mV (60.00 A range)
Typical accuracy (RMS output AC)	±2.3% rdg. ±10.8 mV (60.00 A range)	±2.8% rdg. ±30.8 mV (60.00 A range)	±1.8% rdg. ±5.8 mV (60.00 A range)
Communication interface	Built in Bluetooth® 4.0 LE, Display of measured values on an iOS or Android handset (CM7291 only)		
Power supply	LR6 alkaline batteries (AA) ×2, Continuous use: 16 h (backlight OFF and WAVE or RMS output, when used with CT7600s), Rated power 2.5 VA or AC adapter 9445-02/03 (100 to 240V AC), or 5 to 15 V DC external power supply, Rated power 2.5 VA		
Dust and water resistance *	IP54 (with sensor connected and caps fitted to AC adapter and power connector)		
Dimensions and mass	52 mm (2.05 in)W × 163 mm (6.42 in)H × 37 mm (1.46 in)D, 220 g (7.8 oz) (including protector and battery)		
Accessories	LR6 alkaline batteries ×2, Protector ×1, Instruction manual ×1		

* *Waterproof characteristics intended to maintain measurement function; measuring energized parts while instrument is wet will increase risk of electric shock.*

Output cord


OUTPUT CORD L9094
Connect to Banana terminal, 1.5 m (4.92 ft) length


OUTPUT CORD L9095
Connect to BNC terminal, 1.5 m (4.92 ft) length


OUTPUT CORD L9096
Connect to terminal block, 1.5 m (4.92 ft) length

Other options


AC ADAPTER 9445-02
100 to 240 V AC


AC ADAPTER 9445-03
For EU 100 to 240 V AC, 9 V/ 1 A


MAGNETIC STRAP
Z5004

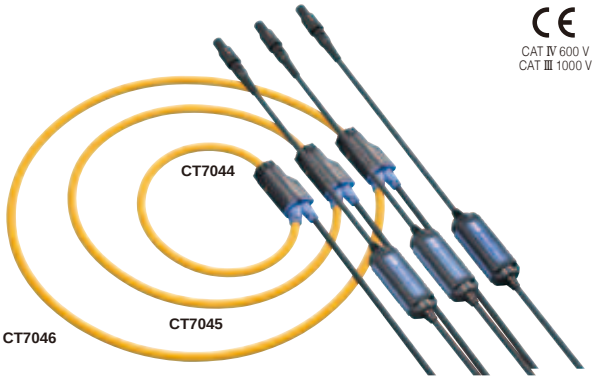
PC peripherals

*For the CM7291 only


GENNECT Cross
SF4071, SF4072
Mobile app for iOS, Android

Easy to Loop Around, Even in Confined Spaces

AC FLEXIBLE CURRENT SENSOR CT7040 series



CE

CAT Ⅳ 600 V
CAT Ⅲ 1000 V

- Thinner cables are easier to use in confined spaces and with complicated wiring
- Supports large current measurements up to 6000 A
- Wide 10 Hz to 50 kHz band with excellent frequency characteristics
- Choose from three conductor diameter sizes
- Ideal for site inspections by using detachable Display Unit
- Four output formats to output data to loggers or other devices (via Display Unit) WAVE, RMS, PEAK, Hz

Model No. (Order Code)		
	CT7046	(6000 A, φ254 mm (10.00 in))
	CT7045	(6000 A, φ180 mm (7.09 in))
	CT7044	(6000 A, φ100 mm (3.94 in))

Note: CT7040 series cannot be used alone. Use with the Display Unit CM7290, CM7291 to connect with Data Loggers and Memory HiCorders. When used in combination with CM7290 or CM7291, the frequency band of current display and waveform output becomes narrow.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CT7046	CT7045	CT7044
Rated measurement current	6000 A AC		
Internal Measurement range	600A AC/ 6000A AC (Range is controlled by main device)		
Max. allowable input	10000 A continuous (at 6000 A range, 45 to 66 Hz, requires derating)		
Bandwidth	10 Hz to 50 kHz (±3dB) (When used in combination with CM7290 or CM7291: 10 Hz to 1 kHz)		
Amplitude and phase accuracy	±1.5 % rdg. ±0.25 % f.s. (f.s. is internal range, 45 to 66 Hz), ±1 deg		
Output rate	1 mV/A (600 A*), 0.1 mV/A (6000 A) *Selectable only when used with CM7290, CM7291, PQ3100		
Max. rated voltage to earth	600 V AC (CAT IV), 1000 V AC (CAT III)		
Loop diameter	φ 254 mm (10.00 in) or less	φ 180 mm (7.09 in) or less	φ 100 mm (3.94 in) or less
Dustproof, waterproof	IP54* (When sensor is connected to a compatible instrument.) *Do not use when met.		
Output connectors	HIOKI PL 14		
Operating temperature range	-25 °C to 65 °C (-13 °F to 149 °F)		
Dust and water resistance *	IP54 (when connected to a supported instrument, Do not make measurements when wet.)		
Dimensions	Flexible loop cable diameter: φ7.4 mm (0.29 in), Cable length: Between flexible loop and battery box: 2.3 m (7.55 ft), Output cable: 20 cm (0.66 ft), Battery box25 mm (0.98 in)W × 72 mm (2.83 in)H × 20 mm (0.79 in)D		
Mass	186 g (6.6 oz)	174 g (6.1 oz)	160 g (5.6 oz)
Accessories	Instruction manual ×1		

Display, Output

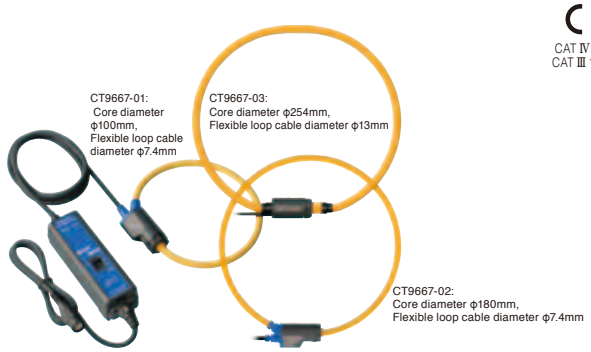

DISPLAY UNIT CM7291
Display of current sensor, signal output, built-in Bluetooth® wireless technology


DISPLAY UNIT CM7290
Display of current sensor, signal output

Easy to Loop Around, Even in Confined Spaces

AC FLEXIBLE CURRENT SENSOR **CT9667 series**

CE
CAT Ⅳ 600 V
CAT Ⅲ 1000 V



- Thinner cables are easy to use in confined spaces and with complicated wiring (-01, -02)
- Shaped so that it's easy to route through complex wiring
- Easily supports large current measurements up to 5000 A
- Wide 10 Hz to 20 kHz band with excellent frequency characteristics
- Choose from three conductor diameter sizes
- Combine with Hioki power meters or Memory HiCorders (with BNC input terminals)

Model No. (Order Code) **CT9667-01** (φ100 mm (0.30 in))
CT9667-02 (φ180 mm (7.09 in))
CT9667-03 (φ254 mm (10.00 in))

Note: These current sensors may also be used with HIOKI power quality analyzers, power meters or Memory HiCorders.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CT9667-01	CT9667-02	CT9667-03
Rated input current	5000 A AC/ 500 A AC		
Max. allowable input	10000 A continuous (45 to 66 Hz, requires derating at frequency)		
Bandwidth	10 Hz to 20 kHz (±3dB)		
Amplitude and phase accuracy	±2 % rdg. ±0.3 % f.s. (45 to 66 Hz, at center of flexible loop) Phase: ±1 deg (45 to 66 Hz)		
Output voltage	500 mV AC/f.s. (0.1 mV AC/A) at 5000 A range 500 mV AC/f.s. (1 mV AC/A) at 500 A range		
Max. rated voltage to earth	1000 V AC (CAT III), 600 V AC (CAT IV)		
Core diameter	φ 100 mm (3.94 in)	φ 180 mm (7.09 in)	φ 254 mm (10.00 in)
Output terminal	BNC		
Operating temperature	-25 °C to +65 °C (-13 °F to 149 °F)	-25 °C to +65 °C (-13 °F to 149 °F)	-10 °C to +50 °C (14 °F to 122 °F)
Power supply	LR6 (AA) alkaline batteries ×2, Continuous use : 7 days (rated power 35 mVA), or AC adapter 9445-02/-03 (rated power 0.2 VA), or External power supply 5 to 15 V DC (rated power 0.2 VA)		
Dust and water resistance	Flexible loop only: IP54		N/A
Dimensions and mass	Flexible loop cable diameter: φ7.4 mm (0.29 in), Cable length: Between flexible loop and battery box: 2 m (6.56 ft), Output cable: 1 m (3.28 ft), Battery box: 35 mm (1.38 in)W × 120.5 mm (4.74 in)H × 34 mm (1.34 in)D, 280 g (9.9 oz)		Flexible loop cable diameter: φ13 mm (0.51 in), Cable length: Between flexible loop and battery box: 2 m (6.56 ft), Output cable: 1 m (3.28 ft) Battery box: 35 mm (1.38 in)W × 120.5 mm (4.74 in)H × 34 mm (1.34 in)D, 470 g (16.6 oz)
Accessories	LR6 (AA) alkaline batteries ×2, Instruction manual ×1		

Options

AC ADAPTER 9445-02
100 to 240V AC

AC ADAPTER 9445-03
For EU, 9V/ 1A

CONVERSION ADAPTER 9704
Receiving end: Female BNC; Output end: Male banana-plug *Not compatible with older generation Memory Hicorders with banana input terminals

Simply Connect to a Tester or Recorder to Easily Measure Large Currents

CLAMP ON PROBE **9132-50, 9010-50**

CE
CAT Ⅲ 600 V

- Economical clamp sensors for waveform recording with Memory HiCorders
- Choose from up to six general-purpose ranges

Model No. (Order Code) **9132-50** (BNC output terminal)
9010-50 (BNC output terminal)

Note: For commercial power lines, 50/60 Hz (separate power supply not required).

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	9132-50	9010-50
Rated current	20 A to 1000 A AC, 6 ranges	10 A to 500 A AC, 6 ranges
Accuracy	±3 % rdg. ±0.2 % f.s. (45 to 66 Hz)	±2 % rdg. ±1 % f.s. (45 to 66 Hz)
Frequency characteristics	Add to amplitude accuracy for frequencies from 40 to 1 kHz: ± 1 % rdg.	Add to amplitude accuracy for frequencies from 40 to 1 kHz: ± 6 % rdg. (at 10 A and 20 A range) ± 3 % rdg. (for 50 A range and above)
Output rate	0.2 V AC f.s. (f.s. = setting rage) (Connect to a voltage input device providing a high input impedance of 1 MΩ)	
Max. allowable input	1000 A rms continuous (all ranges) (For 40 Hz to 500 Hz: 100 %, and for 500 Hz to 1 kHz: within 90 % of derating)	150 A rms continuous (10/20/50 A ranges) 400 A rms continuous (100/200 A ranges) 650 A rms continuous (500 A range) (For 40 Hz to 100 Hz: 100 %, and for 100 Hz to 1 kHz: within 50 % of derating)
Max. rated voltage to earth	600 Vrms (50/60 Hz, CAT III)	
Core diameter	φ55 mm (2.17 in), or 20 mm (0.79 in) × 80 mm (3.15 in) busbar	φ46 mm (1.81 in)
Dimensions and mass	100 mm (3.94 in)W × 224 mm (8.82 in) H × 35 mm (1.38 in)D, 600 g (21.2 oz), cord length: 3 m (9.84 ft)	78 mm (3.07 in)W × 188 mm (7.40 in)H × 35 mm (1.38 in)D, 420 g (14.8 oz), cord length: 3 m (9.84 ft)
Accessories	Instruction manual ×1	

Options

CONVERSION ADAPTER 9704
Receiving end: Female BNC; Output end: Male banana-plug *Not compatible with older generation Memory Hicorders with banana input terminals

Superior Phase Characteristics Let You Record Waveforms Accurately

CLAMP ON PROBE **9018-50**

CE
CAT Ⅲ 600 V

- Choose from up to six general-purpose ranges
- Accurately record and analyze waveforms and harmonic signals

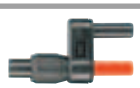
Model No. (Order Code) **9018-50** (BNC output terminal)

Note: For commercial power lines, 50/60 Hz (separate power supply not required).

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated current	10 A to 500 A AC, 6 ranges
Accuracy	±1.5 % rdg. ±0.1 % f.s. (45 to 66 Hz)
Frequency characteristics	Add to amplitude accuracy : ± 1 % rdg. Add to phase accuracy : ± 2.5 ° for frequencies from 40 Hz to 3 kHz
Output rate	0.2 V AC f.s. (f.s. = setting rage) (Connect to a voltage input device providing a high input impedance of 1 MΩ)
Max. allowable input	150 A rms continuous (10/20/50 A ranges) 400 A rms continuous (100/200 A ranges) 650 A rms continuous (500 A range) (For 40 Hz to 100 Hz: 100 %, and for 100 Hz to 1 kHz: within 50 % of derating)
Max. rated voltage to earth	600 Vrms (50/60 Hz, CAT III)
Core diameter	φ46 mm (1.81 in)
Dimensions and mass	78 mm (3.07 in)W × 188 mm (7.40 in)H × 35 mm (1.38 in)D, 420 g (14.8 oz), cord length: 3 m (9.84 ft)
Accessories	Instruction manual ×1

Options



CONVERSION ADAPTER 9704
Receiving end: Female BNC; Output end: Male banana-plug *Not compatible with older generation Memory Hicorders with banana input terminals

Sensors for Master to Branch Circuits

f.s. is the sensor's rated measurement current value.

For load currents: for the PQ3100, CM7290, CM7291, and similar products (PL14 terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Model	CT7126	CT7131	CT7136
	 CE CAT Ⅲ 300V	 CE CAT Ⅲ 300V	 CE CAT Ⅲ 1000V CAT Ⅳ 600V
Rated measurement current	60 A AC	100 A AC	600 A AC
Max. measurement current	Continuous 60 A (45 to 66 Hz)	Continuous 130 A (45 to 66 Hz)	Continuous 600 A (45 to 66 Hz)
Output rate	10 mV/ A	1 mV/ A	1 mV/ A
Amplitude accuracy (45 to 66 Hz)	±0.3% rdg. ±0.01% f.s.	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.01% f.s.
Phase accuracy	±2° (45 Hz to 5 kHz)	±1° (45 Hz to 5 kHz)	±0.5° (45 Hz to 5 kHz)
Amplitude frequency characteristics	Within ±2.04% at 40 Hz - 20 kHz	Within ±2.05% at 40 Hz - 20 kHz	Within ±2.54% at 40 Hz - 20 kHz
Max. rated voltage to earth	300 V AC rms or less		1000 V AC rms or less
Measurable conductor diameter	φ 15 mm (0.59 in) or less		φ 46 mm (1.81 in) or less
Operating temperature and humidity	-10°C to 50°C (14°F to 122°F), 80% RH or less (no condensation)		
Dustproofness and waterproofness	IP40 (EN60529) (with sensor connected and jaw closed)		
Dimensions and mass	46 mm (1.81 in)W × 135 mm (5.31 in)H × 21 mm (0.83 in)D, 190 g (6.7 oz)		78 mm (3.07 in)W × 152 mm (5.98 in)H × 42 mm (1.65 in)D, 350 g (12.3 oz)
	Cable length 2.5 m (8.20 ft) (there is an optional extension cable), Output terminal: PL14		

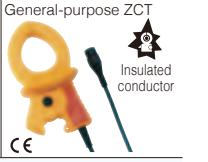
For load currents: for the PW3360 series, PW3198, 3197, 3169 series, MR8800 series, and similar products (BNC terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Model	9694	9660	9661	9669
	 CE CAT Ⅲ 300V	 CE CAT Ⅲ 300V	 CE CAT Ⅲ 600V	 CE CAT Ⅲ 600V
Rated measurement current	5 A AC	100 A AC	500 A AC	1000 A AC
Max. measurement current	Continuous 50 A (45 to 66 Hz)	Continuous 130 A (45 to 66 Hz)	Continuous 550 A (45 to 66 Hz)	Continuous 1000 A (45 to 66 Hz)
Output rate	10 mV AC/ A	1 mV AC/ A	1 mV AC/ A	0.5 mV AC/ A
Amplitude accuracy (45 to 66 Hz)	±0.3 % rdg. ±0.02 % f.s.		±0.3% rdg. ±0.01% f.s.	±1.0% rdg. ±0.01% f.s.
Phase accuracy	±2° (45 Hz to 5 kHz)	±1° (45 Hz to 5 kHz)	±0.5° (45 Hz to 5 kHz)	±1° (45 Hz to 5 kHz)
Amplitude frequency characteristics	Within ±1% at 40 Hz - 5 kHz (deviation from amplitude accuracy)			Within ±2% at 40 Hz - 5 kHz (deviation from accuracy)
Max. rated voltage to earth	300 V AC rms or less		600 V AC rms or less	
Measurable conductor diameter	φ 15 mm (0.59 in) or less		φ 46 mm (1.81 in) or less	φ 55 mm (2.17 in) or less 80 × 20 mm, Buss bars
Operating temperature and humidity	0°C to 50°C (32°F to 122°F) 80% RH or less (no condensation)		0°C to 50°C (32°F to 122°F) 80% RH or less (no condensation)	
Dustproofness and waterproofness	N/A		N/A	
Dimensions and mass	46 mm (1.81 in)W × 135 mm (5.31 in)H × 21 mm (0.83 in)D, 230 g (8.1 oz)		78 mm (3.07 in)W × 152 mm (5.98 in)H × 42 mm (1.65 in)D, 380 g (13.4 oz)	99.5 mm (3.92 in)W × 188 mm (7.40 in) H × 42 mm (1.65 in)D, 590 g (20.8 oz)
	Cord length 3 m (9.84 ft), Output terminal: BNC			

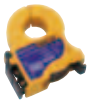
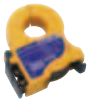
For leak currents: for the PQ3100 (PL14 terminal) and similar products (BNC terminal)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Model	CT7116	9675	9657-10
	General-purpose ZCT  Insulated conductor CE	Branch circuit ZCT  Insulated conductor CE	General-purpose ZCT  Insulated conductor CE
Rated measurement current	6 A AC	10 A AC (for leak current measurement, 50/60 Hz)	
Max. measurement current (45 to 66Hz)	Continuous 10 A	Continuous 10 A	Continuous 30 A
Output rate	100 mV AC/ A	100 mV AC/ A	100 mV AC/ A
Amplitude accuracy (45 to 66Hz)	±1.0 % rdg. ±0.05 % f.s.	±1.0 % rdg. ±0.05 % f.s.	±1.0 % rdg. ±0.05 % f.s.
Phase accuracy (50Hz or 60Hz)	±3 ° or less	±5 ° or less	±3 ° or less
Amplitude frequency characteristics	40 Hz to 5 kHz	40 Hz to 5 kHz: ± 5%	40 Hz to 5 kHz: ±3 °
Residual current characteristics	Max. 5 mA (in 100 A go and return electric wire)	Max. 1 mA (in 10 A go and return electric wire)	Max. 5 mA (in 100 A go and return electric wire)
Effect of external magnetic field (400 A/m, 50 Hz / 60 Hz)	Corresponding to 5 mA 7.5 mA max.	7.5 mA max.	Corresponding to 5 mA 7.5 mA max.
Measurable conductor diameter	φ 40 mm (1.57 in) or less (Insulated conductor)	φ 30 mm (1.18 in) or less	φ 40 mm (1.57 in) or less
Operating temperature and humidity	-25 °C to 65 °C (-13 °F to 149 °F), 80 % RH or less (no condensation)	0 °C to 50 °C (32 °F to 122 °F), 80 % RH or less (no condensation)	
Dustproof, waterproof	IP40 (with sensor connected and jaw closed)	No regulation	
Dimensions and mass	74 mm (2.91 in)W × 145 mm (5.71 in)H × 42 mm (1.65 in)D, 340 g (12.0 oz), Cord length: 2.5 m (8.20 ft), Output terminal: PL14	60 mm (2.36 in)W × 112.5 mm (4.43 in)H × 23.6 mm (0.93 in)D, 160 g (5.6 oz), Cord length: 3 m (9.84 ft), Output terminal: BNC	74 mm (2.91 in)W × 145 mm (5.71 in)H × 42 mm (1.65 in)D, 380 g (13.4 oz), Cord length: 3 m (9.84 ft), Output terminal: BNC

For load currents: for the PW3198 and similar products

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Model	9695-02	9695-03
	 Insulated conductor Not CE Marked CAT Ⅲ 300V For 3169-20s (Requires the 9219)	 Insulated conductor Not CE Marked CAT Ⅲ 300V For 3169-20s (Requires the 9219)
Rated measurement current	50 A AC	100 A AC
Max. measurement current	Continuous 60 A (45 to 66 Hz)	Continuous 130 A (45 to 66 Hz)
Output rate	10 mV AC/ A	1 mV AC/ A
Amplitude accuracy (45 to 66 Hz)	±0.3 % rdg. ±0.02 % f.s.	
Phase accuracy	±2° (45 Hz to 5 kHz)	±1° (45 Hz to 5 kHz)
Amplitude frequency characteristics	Within ±1% at 40 Hz - 5 kHz (deviation from amplitude accuracy)	
Max. rated voltage to earth	300 V AC rms or less (Insulated conductor)	
Measurable conductor diameter	φ 15 mm (0.59 in) or less	
Operating temperature and humidity	0 °C to 50 °C (32 °F to 122 °F), 80 % RH or less (no condensation)	
Dimensions and mass	50.5 mm (1.99 in)W × 58 mm (2.28 in)H × 18.7 mm (0.74 in)D, 50 g (1.8 oz)	
	Output terminal : M3 terminal (outside 3 mm, 0.12 inch diameter) Option: Connection cable 9219 (3 m, 9.84 ft length)	

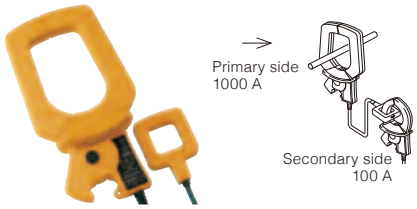
f.s. is the sensor's rated measurement current value.

● 9695 OPTION
CONNECTION CABLE 9219
Connect with the 9695-02/ -03, Output BNC terminal, 3 m (9.84 ft) length

Clamp-type CT that enables measurement in excess of 1000 A (clamp ammeter option/AC use only)

CLAMP ON ADAPTER **9290-10**

CE CAT Ⅲ 600 V



- Outputs large currents of 1000 A AC continuously (1500 A for 5 minutes) at a CT ratio of 10:1
- Expands the measurement range of normal clamp ammeters
- Excellent phase characteristics; also used to expand power meter measurement ranges

■ Basic specifications (Accuracy guaranteed for 1 year)

Rated primary current	AC 1000 A continued (Maximum 1500 A for 5 minutes or shorter)
Rated secondary current	AC 100 A (10 : 1 CT ratio)
Amplitude accuracy	±1.5% rdg.
Phase accuracy	±1.0° or less
Frequency characteristics	Amplitude: 20 Hz to 5 kHz: ±2.0 % rdg. (deviation from accuracy) Phase: 20 Hz to 5 kHz: ±1.0° or less (deviation from accuracy)
Max. rated voltage to earth	600 V AC rms (insulated wire)
Core jaw dia.	φ55 mm (2.17 in) or 80 mm (3.15 in) × 20 mm (0.79 in) bus-bar
Dimensions and mass	99.5 mm (3.92 in)W × 188 mm (7.40 in)H × 42 mm (1.65 in)D, 580 g (20.5 oz), cord length 3 m (9.84 ft)
Accessories	Instruction manual ×1, Mark band ×6

Note: Cannot use with Model 9279

Definitively Measure the White in Laser Displays - Specially Designed for RGB Lasers

RGB LASER METER **TM6102**
RGB LASER LUMINANCE METER **TM6103**
OPTICAL POWER METER **TM6104**

LAN CE 3 year Warranty

- Proprietary Discrete Centroid Wavelength Method for laser photometry
- RGB mixed light can be input directly
- Cut adjustment time in half with white balance navigation
- Measure up to 9 points on 12-inch* screen simultaneously
  *12 inches: 4:3 250 mm × 180 mm (9.84 in x 7.09 in)
- Modulated light function for displays with a wide color gamut
- Low incidence angle dependence in chromaticity (TM6102)
- The oblique incident light properties are similar to the cosine law for angle of incidence (TM6102)
- For screens, backlights (TM6103)
- RGB laser module evaluation (TM6104)

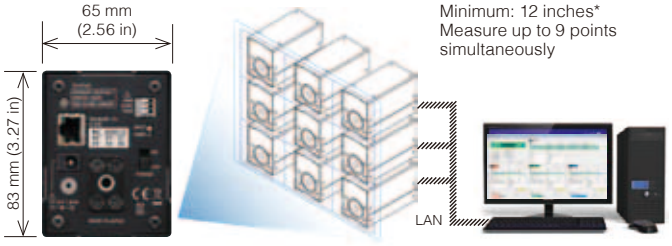
Model No. (Order Code) **TM6102** (Illuminance)
TM6103 (Luminance)
TM6104 (Optical power)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	TM6102	TM6103	TM6104
Measurement object	Laser light *Note: Accuracy is guaranteed with a laser light source. Accuracy is not guaranteed with standard illuminant A (light bulb).*		
Measurement parameters	Irradiance, illuminance, centroid wavelength	Radiance, luminance, centroid wavelength	Radiant flux (optical power), luminous flux, centroid wavelength
	Tristimulus values XYZ, chromaticity (xy, u'v'), correlated color temperature, delta uv, dominant wavelength, NTSC ratio, white balance target value of radiometric quantity		
Radiometric quantity	Irradiance	Radiance	Radiant flux (Optical power)
Measurement range	0.0002 to 200 [W/m²]	0.002 to 600 [W/sr • m²]	0.00001 to 130 [mW]
Relative accuracy	±4.6% rdg. (473 nm, 40 µW), Standard (532 nm, 60 µW), ±4.6% rdg. (633 nm, 80 µW)	±4.6% rdg. (473 nm, 40 µW), Standard (532 nm, 60 µW), ±4.6% rdg. (633 nm, 80 µW)	N/A
Accuracy	±6.5% rdg. (532 nm, 9 mW/m²)	±8% rdg. (532 nm, 3 W/sr • m²)	±4.2% rdg. (473 nm, 0.1 mW), ±4.2% rdg. (532 nm, 0.1 mW), ±4.2% rdg. (632.8 nm, 0.1 mW)
Photometric quantity	Illuminance	Luminance	Luminous flux
Measurement range	0.2 to 110 000 [lx]	2 to 300 000 [cd/m²]	10 µlm to 60 lm
Centroid wavelength measurement range	Blue : 435 nm to 477 nm, Green : 505 nm to 550 nm, Red : 615 nm to 665 nm		
White balance adjustment assistance functions	(Set parameters) Target value of photometric quantity, tolerance of photometric quantity, target value of chromaticity (x, y), tolerance of chromaticity (x, y)		
Interfaces	LAN (TCP/IP) * A display is not available on the unit.		
Power supply	AC ADAPTER: Z1008 (100 V AC to 240 V AC, 9.5 VA)		
Dimensions and mass	65 mm (2.56 in) W × 83 mm (3.27 in) H × 126 mm (4.96 in) D, 700 g (24.7 oz)	65 mm (2.56 in) W × 83 mm (3.27 in) H × 175.7 mm (6.92 in) D, 790 g (27.9 oz)	65 mm (2.56 in) W × 83 mm (3.27 in) H × 135.5 mm (5.33 in) D, 720 g (25.4 oz)
Accessories	AC ADAPTER: Z1008 ×1, Power cord ×1, Light shielding cap ×1, LAN cable (3 m, 9.84 ft length), Instruction manual ×1, Application disk CD-R (RGB Laser Utility application program) ×1		

Laser Display Evaluation Lineup

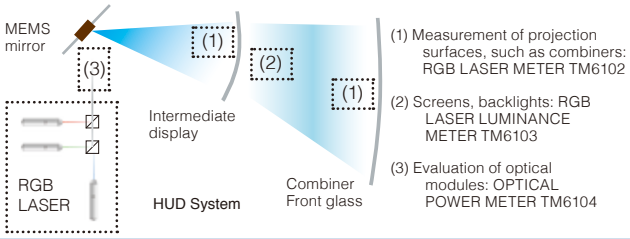
Multipoint Measurements for Laser Displays and Laser Projectors



*12 inches: 4:3 250 mm × 180 mm (9.84 in x 7.09 in)

Applicable in Any Measurement Scenario

Choose from three models to measure any display unit, including the latest HUDs (heads-up displays).



Improve Productivity with Ultra-fast and High-precision Measurement!

LED OPTICAL METER **TM6101**

USB2.0 3 year Warranty

Not CE Marked

- Optical characteristic measuring instrument for white LED and LED lighting devices
- High-precision filter system delivers high speed and high precision
- Rapid measurement with approx. 5ms at its fastest
- Stability of chromaticity values is within ± 0.0001 (3σ)
- Influence caused by angle of incidence is within ± 0.001 for chromaticity values

Model No. (Order Code) **TM6101**

Note: Can be connected to an integration sphere via a 1-inch port.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	(1) Illuminance, Luminous flux, Luminous Intensity (2) Chromaticity (3) Color Rendering Index (4) Correlated Color Temperature and Δuv (5) Dominant wavelength and excitation purity
Measurement range	[Illuminance] 5 lx to 100000 lx
Applicable standard	Compliant with special type illuminance measuring instruments* specified in Japanese Industrial Standard (JIS) C 1609-1:2006 Illuminance meters Part 1:General measuring instruments. Performance (1) Illuminance linearity*: 2 %±1 dgt. (2) Visible range relative special responsivity characteristics*: 1.5 % *Terms translated into English by Hioki English translation of JIS C 1609-1:2006 has not been published by Japanese Standards Association. In the event of any doubt arising, the original standard in Japanese takes precedence.
Spectral responsivity characteristics of colour-matching functions	Performance: Meets with tolerance limits specified as Table 1 (Tolerance limits to deviation of spectral responsivity of photo-electric colorimeter) in 5.2 Photoelectric colorimeter of JIS Z 8724:1997 Methods of colour measurement - Light-source colour.
Compensation	Dark current compensation, Reference value compensation, (Illuminance, Luminous Intensity, Luminous Flux, Chromaticity)
Post-correction backup	Saving of user correction values: Reference value correction values can be saved on the connected computer
Interfaces	USB 2.0, Digital I/O (Input: External trigger, Output: End of measurement)
Optical detector	[Incoming radiation diameter] φ 11.3 mm ±0.1 mm
Measurement function	Control, Trigger function, Averaging, Auto-range function
Display	Illuminance, Luminous flux, Luminous Intensity, Chromaticity, Color Rendering Index, Correlated Color Temperature, Dominant wavelength
Power supply	AC adapter 9418-15 (100 to 240 V AC, 50/60 Hz, 6 VA)
Dimensions and mass	[Main unit] 210 mm (8.17 in)W × 30 mm (1.18 in)H × 135 mm (5.31 in)D, 1 kg (35.3 oz) [Sensor unit] 70 mm (2.76 in)W × 39.5 mm (1.56 in)H × 172 mm (6.77 in)D, 550 g (19.4 oz)
Accessories	AC adapter 9418-15 ×1, USB cable ×1, Main unit/ sensor unit connection cable (2 m, 6.56 ft) ×1, Cap ×1, Connecting port connecting screws ×4, Ferrite cores ×3, Rubber feet ×4, Instruction manual ×1, CD-R (PC application software, Measurement library) ×1

Inspect Solar Panel Bypass Diodes for Opens and Shorts in Broad Daylight Without Covering Panels

BYPASS DIODE TESTER **FT4310**

- Test for open or short-circuit bypass diodes even during the day*1
- Easily test using the strings in the junction boxes*2
- Save time - simultaneously measure all electrical parameters*3
- Automatically transfer data wirelessly (Available for Android and iOS devices*4)

*1 Testing can also be performed at night. Testing for short-circuit faults can only be performed during the day.
*2 There is no need to climb onto the roof and dramatically improving work efficiency.
*3 Measure open-circuit voltage, short-circuit current, and bypass route resistance and display all three values at once.
*4 Automatically transfer data with Bluetooth® wireless technology

Model No. (Order Code) **FT4310** (Built-in Bluetooth® wireless technology)

Note: The FT4310 cannot measure strings installed in parallel. Please contact Hioki for more information.

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	Open-circuit voltage, Short-circuit current, Bypass route resistor
[BPD TEST mode]	
Measurement items	Bypass diode comparator judgment, Bypass route resistor, Open-circuit voltage, Short-circuit current, Measurement (applied) current
Measurement object	Crystal system string Open-circuit voltage: 1000 V DC or less, Rated current: 2 A to 12 A DC
Measurement method	Short-circuit and pulse voltage application
Measurement accuracy	Open-circuit voltage: ±0.2% rdg. ±3 dgt. (at 0 to ±1000 V) Short-circuit current: ±3% rdg. ±3 dgt. (at 0.0 to 15.0 A) Bypass route resistance: ±5% rdg. ±5 dgt. (at 0.0 to 15.0 Ω, During pure resistance measurement)
Measurement time	2 s or less (3 seconds or less when measurement voltage is 10 V or less)
Possible number of measurements	3000 times (Comparator, backlight, Bluetooth® OFF) LR6 Alkaline battery × 6
[Voc mode]	
Measurement items	Open-circuit voltage
Measurement range	0 V to 1000 V DC (Displayed up to 1200 V DC), Accuracy: ±0.2% rdg. ±3 dgt.
Response time	Within 1 sec.
[General]	
Dustproof and waterproof	IP40 (EN60529)
Functions	Displays the number of bypass diode measurements, Automatic polarity judgment, function, Comparison display, Auto hold, Live circuit indicator, Buzzer sounds, Backlight, Comparator, Battery indicator, Auto power off, Bluetooth® wireless technology
Interface	Bluetooth® 4.0LE, Display of measured values on an iOS or Android handset
Power supply	LR6 (AA) alkaline battery×6, Maximum rated power 18 VA Continuous operating time: 45 hours (Comparator, backlight, Bluetooth® OFF)
Dimensions and mass	152W×92H×69D mm (5.98 W × 3.62 H × 2.72 D in) 650 g (22.9 oz) (including batteries, excluding test leads)

Other option

*The C0206 is bundled

CARRYING CASE C0206

PC peripherals

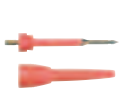
GENNECT Cross SF4071, SF4072
Mobile app for iOS, Android

Test leads

The L9788-11 is bundled, others are exclusive options for L9788-11

TEST LEAD SET WITH REMOTE SWITCH L9788-11
Bundled with Test Lead with Remote Switch L9788-10/ Earth lead, alligator clip, 1.2 m (3.94 ft) length

TEST LEAD WITH REMOTE SWITCH (RED) L9788-10
Lighting LED lamp & comparator indicator (Operate only when main unit provides a comparator function), 1.2 m (3.94 ft) length



TIP PIN L9788-90
Spare parts for tip of the L9788/ L9788-10, Tip length 35 mm (1.38 in)

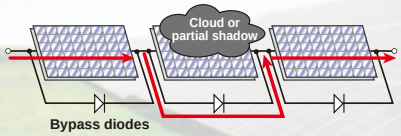
BREAKER PIN L9788-92
For checking breaker terminal, Detachable for tip of the L9788-10, 65 mm (2.56 in) length, φ 2.6 mm (0.10 in)

PV maintenance

Easily inspect bypass diodes for open and short-circuit faults even in broad daylight

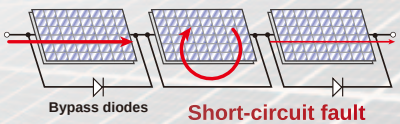
Reference **Issues caused by faulty bypass diodes**

Normal reading: Current is routed around panels that are covered by shadows



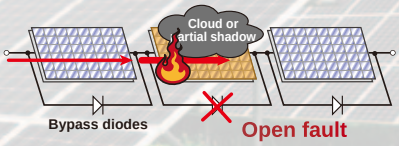
When a solar panel is obscured by a partial shadow (or when it fails), the current bypasses the panel in order prevent any drop-off in generating efficiency.

Short-circuit fault: Generating capacity falls



When a short-circuit fault occurs, **the generated current flows in a loop, making it impossible to capture the generated power, resulting in lowered efficiency.**

Open fault: Potential fire



When an open fault occurs, **current is forced to flow to the defective cell when it's covered by a shadow, causing the panel to heat up and posing the risk of fire.**

Handy Light Power Meter That's Ideal for Testing Lds for Optical Discs

OPTICAL POWER METER **3664**

Optional sensor for blue-violet optical lasers only (Sold separately)

OPTICAL SENSOR 9743
(Handheld model)
OPTICAL SENSOR 9743-10
(Detachable model)

- 4.5 digits and broad dynamic range with 0.01 dBm resolution
- Automatic correction of sensor sensitivity using measurement wavelength input
- Remote operation on a computer screen and data capture via a USB connection
- Analog output function

Model No. (Order Code) **3664**

Note: This product cannot perform measurement alone. Please purchase an optional light sensor separately.

Use of Optical Sensor 9743/ 9743-10 that are exclusively for blue-violet optical lasers is not supported on earlier versions of Model 3664 (Version 1.01 or earlier). Please visit www.hioki.com to download the Hioki 3664 Setup Utility to enable compatibility of the Optical Sensors with all versions of Optical Power Meter 3664.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement items	Optical power (W, dBm)
Measurable wavelength	Depends on optical sensor in use (option)
Measurable power	Depends on optical sensor in use (option)
Accuracy	±0.7 % (±5 % in combination with the optional sensor)
Wavelength sensitivity compensation	Can be set for every 1 nm, Automatic compensation for the sensor's sensitivity
Display	19999 max. Display resolution: 0.01 dBm / 0.01 dB, Measurement display unit: nW, µW, mW, dBm, dB
Analog output	Depends on optical sensor in use (option) (1 V approx. or 0.7 V approx. when the sensor calibration point input)
Functions	Scaling, Relative measurement, Max. value/ Min. value/ Average-value display, Auto power save, Setting backup, Battery check
Interfaces	USB 1.1 (Output measurement value and remote control)
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use : 60 hr (using with the 9742 optical sensor as correction input), or AC adapter 9445-02, 1.6 VA max.
Dimensions and mass	85 mm (3.35 in)W × 160 mm (6.30 in)H × 35 mm (1.38 in)D, 270 g (9.5 oz) (without batteries)
Accessories	AC adapter 9445-02 ×1, Output cord L9094 ×1, Driver software (CD-R) ×1, LR6 (AA) alkaline batteries ×4, USB cable ×1, Strap ×1, Instruction manual ×1

Bundled accessories

AC ADAPTER 9445-02
100 to 240 V AC

OUTPUT CORD L9094
3.5 mm (0.14 in) dia. mini plug to banana, 1.5 m (4.92 ft) length

USB Cable
1 m (3.28 ft) cord length

Options A — For blue-violet optical lasers

OPTICAL SENSOR 9743
Maximum rated value: 100 mW, for blue-violet optical lasers only

OPTICAL SENSOR 9743-10
Maximum rated value: 100 mW, for blue-violet optical lasers only

Options B

OPTICAL SENSOR 9742
Maximum rated value: 50 mW

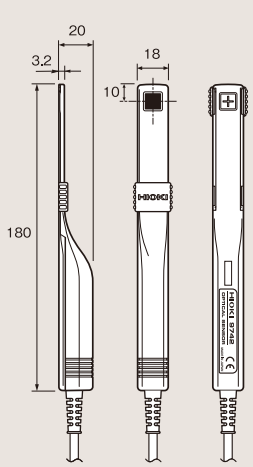
OPTICAL SENSOR 9742-10
Maximum rated value: 50 mW

CARRYING CASE 9246
Includes compartment for options

■ Optical sensor basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

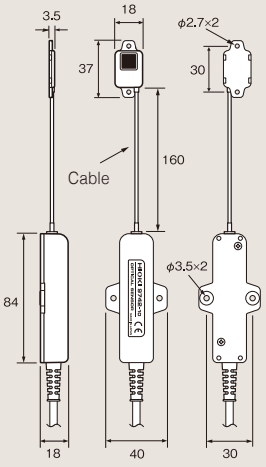
	9742, 9742-10	9743, 9743-10
Measurable wavelength	320 nm to 1100 nm	380 to 450 nm
Measurable power	-59 dBm to +17 dBm (at the calibration wavelength)	-50 dBm to + 20 dBm (at the calibration wavelength)
Max. rated measurable power	50 mW (+17 dBm) *at all direction irradiation	100 mW (+20 dBm) *at all direction irradiation
Optic receptacle element	Si photo-diode, 9.6 mm (0.38 in) × 9.6 mm (0.38 in)	Si photo-diode, 10 mm (0.39 in) × 10 mm (0.39 in)
Measurement accuracy	±4.3 % (±5 % in combination with the Optical power meter 3664)	±4.3 % (±5 % in combination with the Optical power meter 3664)
Calibration conditions	Calibration wavelength: 633 nm, Calibration power: 100 µW, φ 2 mm parallel beam, Perpendicular input to the center of optical sensor, by CW light	Calibration wavelength: 405 nm, Calibration power: 100 µW, φ 1.5 mm parallel beam, Perpendicular input to the center of optical sensor, by CW light
Dimensions and mass	See outline drawings; 100 g (3.5 oz)	See outline drawings; [9743] 100 g (3.5 oz) [9743-10] 110 g (3.9 oz)

■ OPTICAL SENSOR 9742
2 m (6.56 ft) cord length



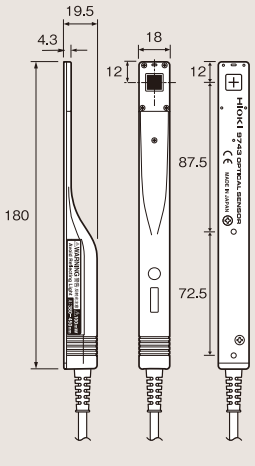
(can be secured with screws)

■ OPTICAL SENSOR 9742-10
2 m (6.56 ft) cord length



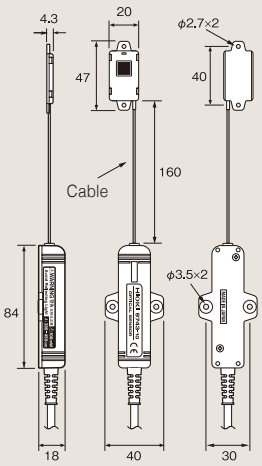
(can be secured with screws)

■ OPTICAL SENSOR 9743
2 m (6.56 ft) cord length



(can be secured with screws)

■ OPTICAL SENSOR 9743-10
2 m (6.56 ft) cord length



(can be secured with screws)

A LAN Cable Tester Capable of Identifying the Location of Wire Breaks

LAN CABLE HiTESTER **3665**

CE

3 year Warranty

Bundled accessories

TERMINATOR 9690
ID 0, ×1

CARRYING CASE
Stores the 3665-20 and 9690

- Wire map check : Detect split pairs with wiring check
- Cable length : Get NVP-Enhanced measurement accuracy
- Direction check : Identify up to 21 cable destinations

Model No. (Order Code) **3665-20** (English model)

Note: For direction checks enabling individual wires to be identified, please purchase optional Terminators 9690-01 to -04.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurable cable	Twisted-pair cable, characteristic impedance: 100 Ω, shielded and unshielded, CAT 3, 4, 5, 5e and 6
Compatible connectors	RJ-45 plugs
Wire Map test	Detectable errors: open, short, reversed, transposed, split pairs and other incorrect wiring (Wiring condition and shielding can be confirmed using the Terminator 9690)
Cable length measurement	Measurable lengths: 2 m to 300 m (6.6 ft to 984 ft) Measurement accuracy: ± 4 % rdg. ± 1 m (3.3 ft) Display resolution: 0.1 m (0.3 ft)
Direction measurement	Up to 21 cables can be identified using the supplied Terminator 9690 and optional Models 9690-01 to 9690-04
Power supply	LR6 (AA) alkaline battery ×2, 1.4 VA max., Continuous use : 50 hr (at measurement interval of 1 minute)
Dimensions and mass	85 mm (3.35 in)W × 130 mm (5.12 in)H × 33 mm (1.30 in)D, 160 g (5.6 oz) (without batteries)
Accessories	Terminator 9690 ×1, Carrying case ×1, LR6 (AA) alkaline battery ×2, Instruction manual ×1

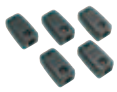
Options

TERMINATOR 9690-01
IDs 1 to 5, 5 piece set

TERMINATOR 9690-02
IDs 6 to 10, 5 piece set

TERMINATOR 9690-03
IDs 11 to 15, 5 piece set

CARRYING CASE 9249
Stores the main unit and options together



TERMINATOR 9690-04
IDs 16 to 20, 5 piece set

Robust Support for 3-Axis Magnetic Flux Density Measurement

MAGNETIC FIELD HiTESTER **FT3470**

3 cm² Sensor

100 cm² Sensor

USB 1.1

CE

3 year Warranty

Complies with ICNIRP 2010

- Complies with ICNIRP 2010 guidelines as well as other relevant standards for evaluation testing.
- Complies with IEC 62110/IEEE 644 as well as IEC 62233.
- Bundled with 3 cm² Sensor used for magnetic field distribution analysis, and 100 cm² Sensor used with the IEC/EN 62233 standard analysis
- User-selectable display units (T, A/m, and G)
- Simple operation for easy measurement
- Bundled with PC application software
- Level output for RMS value, or 3-axis waveform output for magnetic fields

100 cm² Sensor
(FT3470-51 and FT3470-52 bundled)
Cross-sectional area: 100 cm², Standard sensor for use with the IEC/EN 62233 standard.

3 cm² Sensor
(FT3470-52 only bundled)
Cross-sectional area: 3 cm², Enables detailed analysis of magnetic field distribution for measurement targets.

Model No. (Order Code) **FT3470-51** (100 cm² Sensor bundled)
FT3470-52 (100 cm² Sensor, 3 cm² Sensor bundled)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Magnetic flux density (Bandwidth)	10 Hz to 400 kHz/ 10 Hz to 2 kHz/ 2 kHz to 400 kHz
Exposure level	General Public/ Occupational
Display	Single axes X, Y, Z (2000 counts), Composite RMS value R (3464 counts), Magnetic flux density (unit: T, G, A/m), Exposure level (unit: %)
Magnetic flux density/ Ranges, Accuracy	[X, Y, Z axes] Effective measuring ranges: 2.000 µT to 2.000 mT, 4 ranges, Accuracy: ±3.5% rdg. ±0.5% f.s. [R axis] Effective measuring ranges: 3.464 µT to 3.464 mT, 4 ranges, Accuracy: ±3.5% rdg. ±0.5% f.s. [Valid measurement frequency range] at 10 Hz-400 kHz mode: 50 Hz to 100 kHz, at 10 Hz-2 kHz mode: 50 Hz to 1 kHz, at 2 kHz-400 kHz mode: 5 kHz to 100 kHz
Exposure level/ Ranges, Accuracy	[X, Y, Z axes] Effective measuring ranges: 20.00 % to 200.0 %, 2 ranges [R axis] Effective measuring ranges: 34.64 % to 346.4 %, 2 ranges, Accuracy: Smoothed edges 50 Hz to 1 kHz ±3.5% rdg. ±0.5% f.s. Accuracy: Smoothed edges 1 kHz to 100 kHz ±5.0% rdg. ±0.5% f.s.
Interfaces	[Supporting output] Resultant RMS level output, Exposure level output, Waveform output of magnetic flux density X/ Y/ Z each axis, Output rate: 0.1 mV/display value count [USB 1.1] Data saving with the PC application
Other functions	Memory function: Up to 99 measured value data, Slow function, Holds the maximum value, Auto power off, Buzzer sound on/off
Power supply	LR6 (AA) alkaline battery ×4, 0.8 VA (at battery operation), Continuous use of 10 hr, or AC adapter 9445-02 (1.0 VA max. consumption)
Dimensions and mass	Main unit: 100 mm (3.94 in)W × 150 mm (5.91 in)H × 42 mm (1.65 in)D, 830 g (29.3 oz), (including batteries) 100 cm² Sensor: φ122 mm (4.80 in) × 295 mm (11.61 in)L, 220 g (7.8 oz) 3 cm² Sensor: □ 27 mm (1.06 in) × 165 mm (6.50 in)L, 95g (3.4 oz)
Accessories for the FT3470-51	100 cm² Sensor ×1, Instruction manual ×1, CD-R (PC application software Data Viewer for FT3470) ×1, USB cable ×1, LR6 (AA) alkaline battery ×4, AC adapter 9445-02 ×1, Carrying case ×1
Accessories for the FT3470-52	100 cm² Sensor ×1, 3 cm² Sensor ×1, Instruction manual ×1, CD-R (PC application software Data Viewer for FT3470) ×1, USB cable ×1, LR6 (AA) alkaline battery ×4, AC adapter 9445-02 ×1, Extension cable 9758 ×1, Output cable 9759 ×1, Carrying case ×1

■ Bundled PC application software (DATA VIEWER for the FT3470)

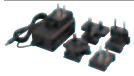
Operating environment	Computer running under Windows 7 (32/64-bit), Vista (32/64-bit), XP
Functions	RMS value data logging/ Save to a PC in a batch, CSV file format

Options (FT3470-52 Bundled)

*The 9445-02 is bundled

EXTENSION CABLE 9758
1.5 m (4.92 ft) length, to extend the length of the sensor to the instrument

OUTPUT CABLE 9759
1.5 m (4.92 ft) length, with 3-BNC connectors on the output end



AC ADAPTER 9445-02
100 to 240 V AC

Non-Contact Infrared Thermometer Featuring Simple, One-Touch Measurement

INFRARED THERMOMETER **FT3700, FT3701**

- Pistol design with easy-to-see display
- A full menu of basic measuring functions
- Easily test in difficult locations, moving objects or where there is danger of electric shock

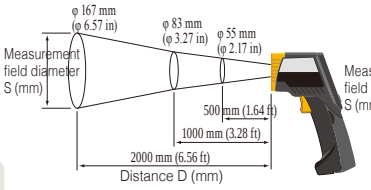
Model No. (Order Code) **FT3700-20** (Long-focus type)
FT3701-20 (Long focus, precise-field type)

Note: Laser Product Caution Notice
A caution label is attached to the thermometer. Be sure to observe the operating precautions on the label.

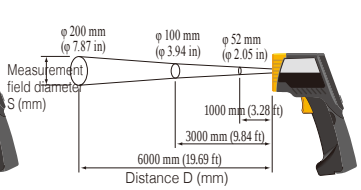
■ Basic specifications (Accuracy guaranteed for 1 year)

	FT3700-20	FT3701-20
Measurement temperature range	-60.0 to 550.0 °C (-76 to 1022 °F), 0.1 °C resolution	-60.0 to 760.0 °C (-76 to 1400 °F), 0.1 °C resolution
Accuracy	-35.0 to -0.1 °C (-31.0 to 31.9 °F) : ±10 %rdg. ±2 °C 0.0 to 100.0 °C (-32.0 to 212.0 °F) : ±2 °C 100.1 to 500.0 °C (212.1 to 932.0 °F) : ±2% rdg. *Note) -60.0 to -35.1 °C (-76.0 to -31.1 °F), and over 500.1 °C (932.0 °F) : Accuracy not specified*	
Response time	1 sec (90%)	
Measurement wavelength	8 to 14 µm	
Thermal emissivity compensation	ε=0.10 to 1.00 (0.01 step)	
Measurement field diameter	φ 83 mm at 1000 mm (3.27 in at 3.28 ft) (Distance : Spot = 12 : 1)	φ 100 mm at 3000 mm (3.94 in at 9.84 ft) (Distance : Spot = 30 : 1)
Sighting	Two-beam laser marker Max 1 mW (class 2), Red	
Functions	Continuous measurement mode, MAX/ MIN/ DIF (MAX - MIN)/ AVG measurement, Alarm, Backlight, Auto power-off	
Power supply	LR03 (AAA) alkaline battery ×2, 150 mVA, Continuous use of 140 hours (With laser marker, backlight and buzzer are OFF)	
Dimensions and mass	48 mm (1.89 in)W × 172 mm (6.77 in)H × 119 mm (4.69 in)D, 256 g (9.0 oz), (including batteries)	
Accessories	Instruction manual ×1, LR03 alkaline battery ×2, Carrying case ×1	

FT3700-20 Measurement distance and field diameter



FT3701-20 Measurement distance and field diameter



Bundled accessory

Carrying case

Convenient Measurement of Sound Levels from Electrical Equipment and Machinery

SOUND LEVEL METER **FT3432**

3 year Warranty

Wind screen WS-14 (Bundled)

Hand strap VM-63-017 (Bundled)

- Simple operation, no range switching needed
- Compact, lightweight design for easy one-handed operation
- 30 dB to 137 dB
- Analog output

Model No. (Order Code) **FT3432**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Applicable standards	IEC 61672-1: 2013 Class 2, JIS C 1509-1:2017 Class2, JIS C 1516:2014 Class2
Measurement functions	Sound level, Equivalent continuous sound level, Sound exposure level, Maximum Sound level, C weighting peak sound level (measurement possible only when peak range is selected)
Measurement times	1/5/10 minutes, or 1 hour
Frequency weighting characteristics	A weighting, or C weighting
Measurement level range	[Wide range] A weighting: 30 dB to 137 dB, C weighting: 36 dB to 137 dB [Peak range] A weighting: 65 dB to 137 dB, C weighting: 65 dB to 137 dB
Frequency range	20 Hz to 8000 Hz
Microphone	1/2-inch electret condenser microphone
Time weighting characteristics	Fast, or Slow
Other functions	Storing processing results (Storing capacity : 199 pieces of data), Warning indications, Bar graph
Output	DC output connector: DC output: 3 V (full scale), 25 mV/dB, Output impedance: 50 Ω AC monitor output connector: AC output: 1 Vrms +600 mVrms, -400 mVrms (at 110 dB) (Upper limit: 1.8 Vrms), Output impedance: 600 Ω, Frequency weighting characteristics: Z weighting
Power supply	LR03 (AAA) alkaline battery ×2, Continuous use 9 hr at wide range, R03 (AAA) manganese battery ×2, Continuous use 3 hr at wide range, Consumption: 80 mA
Dimensions and mass	63 mm (2.48 in)W × 120 mm (4.72 in)H × 23.5 mm (0.93 in)D, 105 g (3.7 oz), (including batteries)
Accessories	Wind screen WS-14 ×1, Hand strap VM-63-017 ×1, Windscreen fall out prevention rubber NL-27-014 ×1, Silicon cover NL-27-089 ×1, Carrying Case 9757 ×1, LR03 (AAA) alkaline batteries ×2, Instruction manual ×1

Options

*Carrying case 9757 is bundled

AC MONITOR OUTPUT CABLE CC-98A

DC OUTPUT CABLE CC-98D

SOUND LEVEL METER TRIPOD ST-80

TRIPOD EXTENSION ROD ST-80-100

CARRYING CASE 9757 Soft type

Wide Measurement Range from -100°C to 1300°C

TEMPERATURE HiTESTER 3441, 3442

- Model 3442 : Waterproof construction
- -100 to 199.9 ˚C: 0.1 ˚C resolution, 200 ˚C to 1300 ˚C: 1 ˚C resolution
- More than 200 hours (1 week) of continuous operation on a single battery
- Max./Min. value recording function and sensor disconnection check function

Model No. (Order Code)		
	3441	(°C only)
	3441-02	(°C/°F selectable)
	3442	(°C only, Waterproof construction)

Note: These products cannot perform measurement alone. Please purchase a temperature probe separately.

■ Basic specifications (Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

	3441	3442
Sensor	K type thermocouple, (Chromel / Almel)	
Measurement range	-100 °C to 1300 °C The actual measurement range is restricted by the temperature probe (0.1 °C Resolution/ -100 °C to 199.9 °C, 1°C Resolution/ 200 °C to 1300 °C)	
Unit accuracy	±0.1 % rdg. ±0.8 °C (-100 °C to 199.9 °C) ±0.2 % rdg. ± 1 °C (200 °C to 1300 °C) *Accuracy of temperature sensor is added	
Water-resistant construction	N/A	IP 54 (EN 60529: 1991)
Sampling rate	2 times/s	
Contact compensation	Auto compensation	
Functions	Max/Min data recording and display, display data hold, sensor broken down display, auto power save, low battery warning	
Power supply	R6P (AA) manganese battery ×4, or LR6 (AA) alkaline battery ×4, Continuous use : 200 hr or better (with manganese battery), Max. rated consumption : 35 mVA	
Dimensions and mass	74 mm (2.91 in)W × 155 mm (6.10 in)H × 24 mm (0.94 in)D, 160 g (5.6 oz)	
Accessories	R6P (AA) manganese battery ×4, Strap band ×1, Instruction manual ×1	

Options

CARRYING CASE
9386-01
Soft plastic type

■ Probe specifications (9472, 9473, 9474, 9475: Waterproof construction)

Model (Order Code)	9472	9473	9474	9475	9476
Material type	K type thermocouple (Chromel / Almel)				
Contact type	Non-grounded	Non-grounded	Non-grounded	Non-grounded	Grounded
Tolerance	*2				*3
Response (90%)*1	About 5 sec	About 10 sec	About 5 sec	About 10 sec	About 3 sec
Size of Sheath (mm), (inch)	φ 2.3 × 150 (mm) φ 0.09 × 5.91 (in)	φ 4.8 × 300 (mm) φ 0.19 × 11.81 (in)	φ 2.3 × 100 (mm) φ 0.09 × 3.94 (in)	φ 4.8 × 100 (mm) φ 0.19 × 3.94 (in)	φ 20 (mm) φ 0.79 (in)
Compensation lead	Conventional type (-20 to 90˚C, -4 to 194˚F), 1m (3.28 ft)				
Grip heat resistance	80 ˚C (176 ˚F)				
Measurement temperature	−100 to 300 °C −148 to 572 °F	0 to 800 °C 32 to 1472 °F	−100 to 300 °C −148 to 572 °F	−100 to 500 °C −148 to 932 °F	−40 to 500 °C −40 to 932 °F

*1 Sheath type: Responsiveness in ice water at 0 °C (32 °F) and in boiling water at 100 °C (212 °F)
Surface type: Responsiveness on a metal surface at 0 °C (32 °F) and at 100 °C (212 °F)
*2 At -40 °C (-40 °F) and more , the greater of ±1.5 °C (±2.7 °F) and ±0.4 % of the measured value
*3 ±2.5 °C [(T-Ts) ≤ 100°C], -0.03 × T °C to +2.5 °C [100 °C < (T-Ts)],
T : measured temperature (-40 °C to 500 °C), Ts : environmental temperature (0 °C to 40 °C)

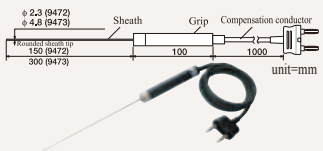
■ Probe specifications

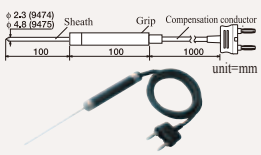
Model (Order Code)	9180, 9183	9181	9182
Material type	K type thermocouple (Chromel / Almel)		
Contact type	Non-grounded	Grounded	Non-grounded
Tolerance	9180 : *4 9183 : *2	±2.5 ˚C (±4.5 ˚F) [(T-Ts) ≤ 100 ˚C (180 ˚F)] −0.035×T ˚C to +2.5 ˚C [100 ˚C (180 ˚F) < (T-Ts)] T: measurement temp. (-50 °C to 400 °C) Ts: environment temp. (0 °C to 50 °C)	*4
Response (90%)*1	About 5 sec	About 3 sec	About 5 sec
Size of Sheath (mm), (inch)	φ 3.2 × 150 (mm) φ 0.13 × 5.91 (in)	φ 13 (mm) φ 0.51 (in)	φ 3.2 × 500 (mm) φ 0.13 × 19.69 (in)
Compensation lead	Conventional type (-20 to 90˚C, -4 to 194˚F), 1m (3.28 ft)		Heat resisting type (0 to 150 °C, 32 to 302 °F) 2m (6.56 ft)
Grip heat resistance	150 °C (302 °F), Grip size φ 13 × 100 mm (φ0.51 in × 3.94 in)		90 °C (194 °F), clamp size φ 8 × 30 mm (φ 0.31 × 1.18 in)
Measurement temperature	−50 to 750 °C −58 to 1382 °F	−50 to 400 °C −58 to 752 °F	−50 to 750°C −58 to 1382°F

*1 Sheath type: Responsiveness in ice water at 0 °C (32 °F) and in boiling water at 100 °C (212 °F)
Surface type: Responsiveness on a metal surface at 0 °C (32 °F) and at 100 °C (212 °F)
*2 At -40 °C (-40 °F) and more , the greater of ±1.5 °C (±2.7 °F) and ±0.4 % of the measured value
*4 At -40 °C (-40 °F) and more , the greater of ±2.5 °C (±4.5 °F) and ±0.75% of the measured value

Temperature probes A

Due to short range ordering, type K thermocouples exhibit increased thermal electromotive force when used to measure temperatures from 250°C to 600°C.

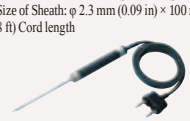




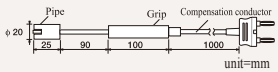
SHEATH TYPE TEMPERATURE PROBE 9472
K type, Size of Sheath: φ 2.3 mm (0.09 in) × 150 mm (5.91 in), 1 m (3.28 ft) Cord length

SHEATH TYPE TEMPERATURE PROBE 9474
K type, Size of Sheath: φ 2.3 mm (0.09 in) × 100 mm (3.94 in), 1 m (3.28 ft) Cord length

SHEATH TYPE TEMPERATURE PROBE 9473
K type, Size of Sheath: φ 4.8 mm (0.19 in) × 300 mm (11.81 in), 1 m (3.28 ft) Cord length



SHEATH TYPE TEMPERATURE PROBE 9475
K type, Size of Sheath: φ 4.8 mm (0.19 in) × 100 mm (3.94 in), 1 m (3.28 ft) Cord length

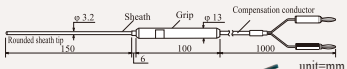


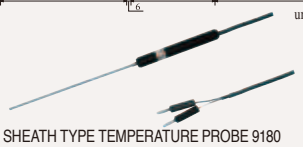
SURFACE TYPE TEMPERATURE PROBE 9476
K type, Tip dia. φ 20 mm (0.79 in), 1 m (3.28 ft) Cord length

Note: The 9472 to 9475 are waterproof probes. When used with Model 3442, you can achieve a complete water-resistant temperature measuring system.

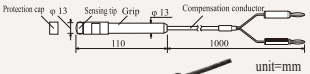
Temperature probes B

Due to short range ordering, type K thermocouples exhibit increased thermal electromotive force when used to measure temperatures from 250°C to 600°C.



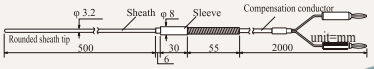


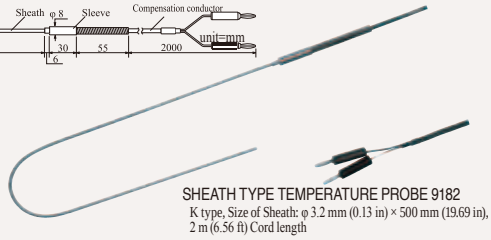
SHEATH TYPE TEMPERATURE PROBE 9180
K type, Size of Sheath: φ 3.2 mm (0.13 in) × 150 mm (5.91 in), 1 m (3.28 ft) Cord length



SURFACE TEMPERATURE PROBE 9181
K type, Tip dia.: φ 13 mm (0.51 in), 1 m (3.28 ft) Cord length

SHEATH TYPE TEMPERATURE PROBE 9183
K type, Size of Sheath: φ 3.2 mm (0.13 in) × 150 mm (5.91 in), 1 m (3.28 ft) Cord length

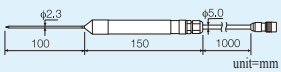




SHEATH TYPE TEMPERATURE PROBE 9182
K type, Size of Sheath: φ 3.2 mm (0.13 in) × 500 mm (19.69 in), 2 m (6.56 ft) Cord length

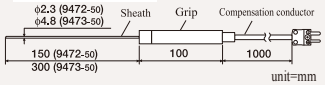
The 9478 is used for the LCR METER IM3533/IM3590 *These probes are options for the Temperature HiTester 3446-01, 3447-01, both of which are discontinued.

For the LCR meter IM3533/IM3590 *For Model 3447-01

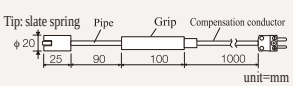


SHEATH TYPE TEMPERATURE PROBE 9478
Pt100 type, Tip dia. φ 2.3 mm (0.09 in), 1 m (3.28 ft) Cord length

For Model 3446-01



SHEATH TYPE TEMPERATURE PROBE 9472-50
K type, Size of Sheath: φ 2.3 mm (0.09 in) × 150 mm (5.91 in), 1 m (3.28 ft) Cord length



SURFACE TYPE TEMPERATURE PROBE 9476-50
K type, Tip dia. φ 20 mm (0.79 in), 1 m (3.28 ft) Cord length

High Reliability LUX METER Series, Complies with DIN Class B and JIS Class AA, Compatible with LED/OLED Lighting

LUX METER FT3424, FT3425


FT3424


FT3425

New

3 year Warranty


Sensor unit and main display can be separated: Sold separately

Bluetooth®

- Measured illuminance data is automatically sent to smartphone or tablet with Bluetooth® wireless technology (FT3425)
- Compatible with LED/OLED lighting
- Complies with DIN 5032-7:1985 class B and JIS C 1609-1:2006 general AA class
- Timer hold function lets you make measurements in remote locations while avoiding the effects of shadows and reflections
- Save up to 99 measured values in the instrument's internal memory and transfer them to a computer later for improved work efficiency

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. (FT3425 only)
Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play

Download on the App Store

Model No. (Order Code) **FT3424**
FT3425 (Built in Bluetooth(R) wireless technology)

■ Basic specifications (Accuracy guaranteed for 2 years, Post-adjustment accuracy guaranteed for 2 years)

Standards	DIN 5032-7: 1985 class B, JIS C 1609-1: 2006 general AA class
Light receiving element	Silicon photo diode
Range selection	Auto/ Manual
Linearity	±2% rdg. (Multiply by 1.5 for display values in excess of 3000 lx.)
Accuracy guarantee for temperature and humidity	21 °C to 27 °C (69.8 °F to 80.6 °F), 75% rh or less (non-condensing)
Response time	Auto range: within 5 seconds, Manual range: within 2 seconds
D/A output	Output level: 2 V/range f.s. (2.5 V is output when the range f.s. is exceeded.) Output accuracy: ±1% rdg. ±5 mV (at display count)
Functions	Timer hold function, Memory function (Up to 99 measured data can be saved.), Hold, Auto power off , Buzzer sound, Backlight, Zero adjustment
Interfaces	USB 2.0 (FT3424/FT3425), Bluetooth® 4.0LE (FT3425) Supported OS: iOS 10 or later / Supported devices: Android 4.3 or later
Power supply	LR6 Alkaline battery ×2, Max. rated power 500 mVA, or R6 Manganese battery ×2, or USB bus power (5 VDC)
Continuous battery operation time	Approx. 300 hours (when using AA alkaline batteries, no Bluetooth® wireless technology) Approx. 80 hours (when using AA alkaline batteries, with Bluetooth® wireless technology)
Dimensions and mass (including the batteries)	78 mm (3.07 in)W × 170 mm (6.69 in)H × 39 mm (1.54 in)D, 310 g (10.9 oz, FT3424) / 320 g (11.3 oz, FT3425)
Accessories	Instruction Manual ×1, AA/LR6 Alkaline battery ×2, Sensor cap (with strap) ×1, Carrying case (soft) ×1, Strap (for instrument) ×1, USB cable (0.9 m/2.95 ft) ×1, CD (USB driver, dedicated computer application software, and communications specifications) ×1, Precautions Concerning Use of Equipment that Emits Radio Waves ×1 (only FT3425)

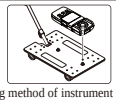
Only FT3425 is equipped with Bluetooth® wireless technology, others are shared specifications

■ Measurement ranges

Range	Measurement range	Display steps
20 lx	0.00 lx to 20.00 lx	1 count step
200 lx	0.0 lx to 200.0 lx	1 count step
2000 lx	0 lx to 2000 lx	1 count step
20000 lx	0₀ lx to 2000₀ lx	10 count step
200000 lx	0₀₀ lx to 2000₀₀ lx	100 count step

Options

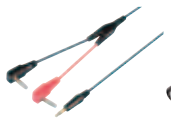

Extendible length: 0.5 m (1.64 ft) to 1.6 m (5.25 ft)


Mounting method of instrument

EXTENSION CART Z5023
This cart with caster wheels can be easily moved between measurement locations.


CONNECTION CABLE L9820
Use when positioning the sensor unit and display unit separately during use.
2 m (6.56 ft) length

C0202: For storing the instrument with the CONNECTION CABLE, OUTPUT CORD, and USB Cable
C0201: For storing the instrument with OUTPUT CORD and USB Cable


OUTPUT CORD L9094
3.5 mm (0.14 in) dia. mini plug to banana, 1.5 m (4.92 ft) length


OUTPUT CORD L9095
Connect to BNC terminal, 1.5 m (4.92 ft) length


OUTPUT CORD L9096
Connect to terminal block, 1.5 m (4.92 ft) length


CARRYING CASE C0202
Soft case


CARRYING CASE C0201
Semi-hard case

Rugged Design and Optimal Functionality

TACHO HiTESTER FT3405, FT3406


FT3406

3 year Warranty

Drop-proof

- Convenient analog and pulse output functions
- Dust-proof construction and drop-proof to 1 meter
- Wide measurement range of 0.5000 r/s (30.00 r/min) to 99990 r/min
- Contact style testing available with optional contact adapter
- Convenient analog and pulse output functions (FT3406 only)
- Optional AC Adapter (FT3406 only)

Model No. (Order Code) **FT3405**
FT3406 (With analog output, pulse output)

■ Basic specifications (Accuracy guaranteed for 1 year)

	FT3405	FT3406
Measurement method	Non-contact: Using red visible-spectrum light and reflective tape Contact: Using optional Contact Adapter	
Measurement ranges Non-contact, AVG=ON	Rotation (r/min) : (30.00 to 199.99) to (20000 to 99990), Rotation (r/s) : (0.5000 to 1.9999) to (200.0 to 1600.0), Period (ms) : (0.6000 to 1.9999) to (200.0 to 1999.9), Count : 0 to 999999	
Measurement ranges Contact, AVG=ON	Rotation (r/min) : (15.00 to 199.99) to (2000 to 19999), Rotation (r/s) : (0.2500 to 1.9999) to (200.0 to 333.00), Period (ms) : (3.000 to 19.999) to (200.0 to 3999.9), Count : 0 to 999999	
Measurement ranges Contact, AVG=ON	Straight-line speed (meter/min) : (1.500 to 19.999) to (200.0 to 1999.9) Straight-line speed (meter/s) : (0.0250 to 1.9999) to (20.00 to 33.30) **Using with the Peripheral ring 9212 (option)*	
Accuracy	Up to 9999 counts: ±1 dgt. (AVG=ON), ±10 dgt. (AVG=OFF) 10000 counts or more: ±2 dgt. (AVG=ON), ±20 dgt. (AVG=OFF) 20000 counts or more (r/min mode only) : ±20 dgt. (AVG=ON), ±100 dgt. (AVG=OFF) Straight-line speed measurement only: ±0.5 % rdg. add to above-mentioned accuracy	
Non-contact measuring detection range	50 mm (1.97 inch) to 500 mm (19.7 inch)	
Display refresh rate	Approx. 0.5 to 10 times/s	
Functions (FT3406 only)	N/A	[Analog output] 0 to 1 V f.s., Accuracy: ±2 % f.s., Output resistance: 1 kΩ [Pulse output] 0 to 3.3 V, Output resistance: 1 kΩ, Can use with the AC adapter for power supply
Dust and water proof	IP50 (EN60529)	
Common functions	MAX/MIN display, Display hold, Average, Auto power save, Buzzer sound, Drop-proof (1 m distance onto concrete surface)	
Power supply	LR6 (AA) alkaline battery ×2, Max. rated consumption 0.5 VA	
Operating time	Continuous use 30 hr	Continuous use 25 hr
AC power supply	N/A	AC adapter Z1004
Dimensions and mass	71 mm (2.80 in)W × 186 mm (7.32 in)H × 38 mm (1.50 in)D, 230 g (8.1 oz) (including batteries)	
Accessories	Instruction manual ×1, Reflective tape 9211 ×1 sheet (30 pieces/ 12 mm (0.47 in) × 12 smm (0.47 in) per piece), Carrying case C0202 ×1, LR6 (AA) alkaline battery ×2,	Instruction manual ×1, Reflective tape 9211 s ×1 sheet (30 pieces/ 12 mm (0.47 in) × 12 mm (0.47 in) per piece), Carrying case C0202 ×1, LR6 (AA) alkaline battery ×2, Output cord L9094 ×1

Options

*Carrying case C0202 is bundled


CONTACT ADAPTER Z5003
(includes 9212 ×1, 9033 ×2, 9032 ×1), set model


PERIPHERAL RING 9212


RUBBER CONTACT TIP 9033


METAL CONTACT TIP 9032


CARRYING CASE C0202

*Output cord 9094 is bundled with the FT3406 only, AC adapter Z1004 is for use with the FT3406 only

Other options


REFLECTIVE TAPE 9211
30 pieces/sheet, 10 sheets/1 set, 12 mm (0.47 in) × 12 mm (0.47 in) per piece


OUTPUT CORD L9094
3.5 mm (0.14 in) dia. mini plug to banana, 1.5 m (4.92 ft) length


AC ADAPTER Z1004

World's Premier Digital Multimeter! Superior Accuracy and High Response, Topped with Safety Terminal Shutters

DIGITAL MULTIMETER DT4281, DT4282

DT4281

DT4282

USB 2.0 Option

True RMS

CE
CAT IV 600 V
CAT III 1000 V

3 year Warranty

Drop-proof

- 60000 count, 5-digit display, high-resolution measurements
- ±0.025% DC V basic accuracy, wide 20 Hz to 100 kHz AC V frequency characteristics
- Low-pass filter cuts high harmonics (when measuring inverter fundamental waveforms)
- Includes multiple measurement functions such as DC+ACV, temperature, capacitance, and frequency
- Terminal shutter mechanism (prevents erroneous test lead insertion)
- Measures large currents with optional clamp probe (only for DT4281, which has no 10 A terminal for accident prevention)
- Measure up to 10A with direct input (DT4281 only)
- Dual display lets you check voltage and frequency simultaneously
- Magnetic strap (Optional)
- Rear kickstand
- Store probes at the back of the tester
- Identify excessively high input with a red screen backlight
- Robust design capable of withstanding a drop from a height of 1 m
- USB communications function supports PC measurements (optional)
- Broad -15 (5°F) to 55°C (131°F) operating temperature range

Model No. (Order Code)		
	DT4281	(Direct and current clamp input terminals)
	DT4282	(10 A direct input)

Regarding DMM Accuracy Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	DT4281	DT4282
DC Voltage range	60.000 mV to 1000.0 V, 6 ranges, Basic accuracy: ±0.025 % rdg. ±2 dgt.	
AC Voltage* range	60.000 mV to 1000.0 V, 6 ranges, Frequency characteristics: 20 Hz - 100 kHz Basic accuracy 45 - 65 Hz : ±0.2 % rdg. ±25 dgt. (True RMS, crest factor 3)	
DC + AC Voltage* range	6.0000 V to 1000.0 V, 4 ranges, Frequency characteristics: 20 Hz - 100 kHz Basic accuracy 45 - 65 Hz : ±0.3 % rdg. ±30 dgt. (True RMS, crest factor 3)	
Resistance range	60.000 Ω to 600.0 MΩ, 8 ranges, (Conductance: 600.00 nS, DT4282 only) Basic accuracy: ±0.03 % rdg. ±2 dgt.	
DC Current range	600.00 µA to 600.00 mA, 4 ranges	600.00 µA to 10.000 A, 6 ranges
	Basic accuracy: ±0.05 % rdg. ±5 dgt.	
AC Current* range	600.00 µA to 600.00 mA, 4 ranges	600.00 µA to 10.000 A, 6 ranges
	Basic accuracy 45 - 65 Hz : ±0.6 % rdg. ±5 dgt. (True RMS, crest factor 3) Frequency characteristics: 20 Hz - 20 kHz (at 600 µA to 600 mA range)	
AC Current* range	10.00 A to 1000 A, 7 ranges	N/A
(use with Clamp on probes)	Add the Clamp on probe accuracy to Basic accuracy 40 - 65 Hz : ±0.6 % rdg. ±2 dgt. (True RMS, crest factor 3)	N/A
Peak	DC V measurement: Signal width 4 msec or more (single), 1 msec or more (repeated)	
	AC V, DC/AC A measurement: Signal width 1 msec or more (single), 250 µsec or more (repeated)	
Capacitance range	1.000 nF to 100.0 mF, 9 ranges, Basic accuracy: ±1.0 % rdg. ±5 dgt.	
Continuity check	Continuity threshold: 20/50/100/500 Ω, Response time: 10 ms or more	
Diode test	Open terminal voltage: 4.5 V or less, Testing current 1.2 mA or less, Threshold of forward voltage: 0.15 V to 3 V, seven stages	
Frequency range	AC V, DC+AC V, AC A measurement, at pulse width 1 µs or more (50 % duty ratio) 99.999 Hz (0.5 Hz or more) to 500.00 kHz, 5 ranges, ±0.005 % rdg. ±3 dgt.	
dB conversion	Standard impedance setting (dBm), 4 Ω to 1200 Ω, 20 stages Display dB conversion value of AC voltage (dBV)	
Temperature (thermocouples)	K: -40.0 °C to 800.0 °C (-40.0 °F to 1472.0 °F) Add accuracy of the Thermocouple probe to main unit accuracy: ±0.5 % rdg. ±3 °C	
Other functions	Filter function (Remove harmonic noise, use only at 600 VAC, 1000 VAC ranges), Display value hold, Auto hold, Max/Min value display, Sampling select, Relative display, Measurement memory (400 data), Auto-power save, USB communication (option), 4-20 mA % conversion	
Display	Main and Sub displays: 5-digits LCD, max. 60000 digits	
Display refresh rates	5 times/s (Capacitance measurement: 0.05 to 2 times/s, depending on measured value, Temperature: 1 time/s)	
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use: 100 hours	
Dimensions and mass	93 mm (3.66 in)W × 197 mm (7.76 in)H× 53 mm (2.09 in)D, 650 g (22.9 oz) (including test leads holder and batteries)	
Accessories	Test lead L9207-10 ×1, Instruction manual ×1, LR6 alkaline battery ×4	

** Zero-suppression: For small inputs below the guarantee range, zero is effectively displayed*

Shared options for the DT4280 series, DT4250 series

Test leads — Options for the L9207-10 (L9207-10 is a bundled accessory)

TEST LEAD L9207-10
90 cm (2.95 ft) length

CONTACT PIN SET L4933
Attaches to the tip of the Test Lead L9207-10/DT4911, L9206, 60V DC/ 30V AC

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

Current measurement — For DT4251/4253 Clamp-on current sensor (Note: Use with the Conversion Adapter 9704, required for connecting Clamp On Probes to DT4281/4251/4253)

CLAMP ON PROBE 9010-50
10 to 500 AAC, φ46 mm (φ1.81 in), 3 m (9.84 ft) length

CLAMP ON PROBE 9018-50
Wide-band type, 10 to 500 AAC, φ46 mm (φ1.81 in), 3 m (9.84 ft) length

CLAMP ON PROBE 9132-50
20 to 1000 AAC, φ55 mm (φ2.17 in) or 80×20 mm (3.15×0.79 in), 3 m (9.84 ft) length

CONVERSION ADAPTER 9704
Receiving end: Female BNC; Output end: Male banana-plug *Not compatible with older generation MEMORY HiCORDERs with banana input terminals

Options for Test leads — Options for the L4930, Test Pin Set L4932 is required when using the Small Alligator Clip Set L4934

CONNECTION CABLE SET L4930
1.2 m (3.94 ft) length

EXTENSION CABLE SET L4931
Expands the length of the cable with banana plug, 1.5 m (4.92 ft) length

TEST PIN SET L4932
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

ALLIGATOR CLIP SET L4935
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

BUS BAR CLIP SET L4936
Attaches to the tip of the banana plug cable, CAT III 600V

MAGNETIC ADAPTER SET L4937
Attaches to the tip of the banana plug cable, CAT III 1000V

TEST PIN SET L4938
Attaches to the tip of the banana plug cable, CAT III 600V

BREAKER PIN SET L4939
Attaches to the tip of the banana plug cable, CAT III 600V

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, CAT III 1000 V, 196 mm (7.72 in) length

Temperature measurement

THERMOCOUPLES(K) DT4910
K type, tip exposed, 0.3 mm (0.01 in) diameter, 80 cm (2.62 ft) length, -40 to 260 °C (-40 to 500 °F)

Other options

COMMUNICATION PACKAGE(USB) DT4900-01
For DT4280s/4250s, compatible to Windows 8.1/ 8/ 7/ Vista

MAGNETIC STRAP Z5020
Extra strength

CARRYING CASE C0202

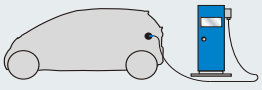
For DT4250 series — Not compatible with DT 4281, DT4282

CARRYING CASE C0201

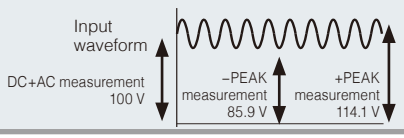
CARRYING CASE 3853

Ideal for checking ripple voltage in DC supply systems

DC + ACV



Peak measurement function & DC+AC voltage measurement
Capture ripple voltage component on direct current signals.

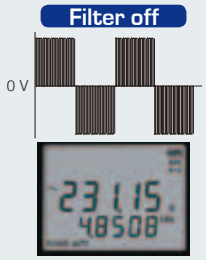


Optimized for inverter system measurements

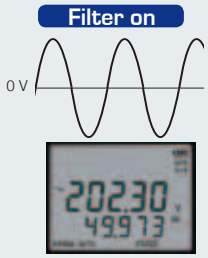
LPF 1kHz

Low-pass filter cuts harmonic waveform components

The (1 kHz cutoff) low-pass filter function cuts high harmonic components when measuring the secondary output voltage of an inverter.



Typical waveform + harmonic components



Typical waveform component

Refer to the detailed catalog

Standard DMM that Delivers Top Safety and Reliability - General Purpose Testers with Rich Measurement Functions

DIGITAL MULTIMETER DT4252, DT4256


DT4252


DT4256

USB2.0 Option
True RMS
CE
CAT Ⅳ 600 V
CAT Ⅲ 1000 V
3 year Warranty
Drop-proof

- ±0.3% DC V basic accuracy, wide 40 Hz to 1 kHz AC V frequency characteristics
- Measure up to 10A with direct input
- Dual display lets you check voltage and frequency simultaneously
- Low-pass filter cuts high harmonics (when measuring inverter fundamental waveforms)
- USB communications function supports PC measurements (optional)
- Broad -25 (-13°F) to 65°C (149°F) operating temperature range (DT4256)

Model No. (Order Code)		
	DT4252	(10 A direct input)
	DT4256	(Multi-functional model, with 10 A direct input)

Regarding DMM Accuracy — Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	DT4252	DT4256
DC Voltage range	600.0 mV to 1000 V, 5 ranges	
	Basic accuracy: ±0.3 % rdg. ±5 dgt.	Basic accuracy: ±0.3 % rdg. ±3 dgt.
AC Voltage range	6.000 V to 1000 V, 4 ranges, Frequency characteristics: 40 Hz to 1 kHz	
	Basic accuracy 40 - 500 Hz : ±0.9 % rdg. ±3 dgt. (True RMS, crest factor 3)	
AUTO AC/DCV	N/A	Yes
Resistance range	600.0 Ω to 60.00 MΩ, 6 ranges, Basic accuracy: ±0.7 % rdg. ±5 dgt.	600.0 Ω to 60.00 MΩ, 6 ranges, Basic accuracy: ±0.7 % rdg. ±3 dgt.
DC Current range	6.000 A / 10.00 A, 2 ranges, Basic accuracy: ±0.9 % rdg. ±5 dgt.	60.00 mA to 10.00 A, 4 ranges, Basic accuracy: ±0.9 % rdg. ±3 dgt.
AC Current range	6.000 A / 10.00 A, 2 ranges, Basic accuracy 40 - 500 Hz : ±1.4 % rdg. ±3 dgt. (True RMS, crest factor 3, 40 Hz to 1 kHz)	600.0 mA to 10.00 A, 3 ranges, Basic accuracy 40 - 500 Hz : ±1.4 % rdg. ±3 dgt. (True RMS, crest factor 3, 40 Hz to 1 kHz)
AC Current range (use with Clamp on probes)	N/A	10.00 A to 1000 A, 7 ranges, Add the Clamp on probe accuracy to basic accuracy 40 - 1 kHz : ±0.9 % rdg. ±3 dgt. (True RMS, crest factor 3)
Voltage detection (50/60 Hz)	N/A	Hi: AC40 V to 600 V, Lo: AC80 V to 600 V
Capacitance range	1.000 µF to 10.00 mF, 5 ranges, Basic accuracy: ±1.9 % rdg. ±5 dgt.	
Frequency range	99.99 Hz (5 Hz or more) to 99.99 kHz, 4 ranges (limited by the minimum detectable voltage and current), Basic accuracy: ±0.1 % rdg. ±1 dgt.	
Continuity check	Continuity threshold [ON]: 25 Ω or less (Indicate buzzer sound, red LED), [OFF]: 245 Ω or more, Response time: 0.5 ms or more	
Diode test	Open terminal voltage: 5.0 V or less, Testing current 0.5 mA or less, Threshold of forward voltage: 0.15 V to 1.5 V	
Other functions	Filter function, Display value hold, Auto hold, Max/Min/Average value display, Relative display, Auto-power save, USB communication (option)	
Display	Main and Sub displays: 4-digits LCD, max. 6000 digits, bar graph	
Display refresh rates	5 times/s (Capacitance measurement: 0.05 to 5 times/s, depending on measured value, Frequency: 1 to 2 time/s, Temperature: 1 time/s)	
Power supply	LR03 alkaline batteries ×4, Continuous use: 130 hours (backlight OFF)	
Dimensions and mass	84 mm (3.31 in)W × 174 mm (6.85 in)H× 52 mm (2.05 in)D, 390 g (13.8 oz) (including batteries and holster)	
Accessories	Test lead L9207-10 ×1, Holster ×1, Instruction manual ×1, LR03 alkaline battery ×4	

Standard DMM that Delivers Top Safety and Reliability - Application-Specific Testers to Meet Your Needs

DIGITAL MULTIMETER DT4253, DT4254, DT4255


DT4253


DT4254


DT4255

USB2.0 Option
True RMS
CE
CAT Ⅳ 600 V
CAT Ⅲ 1000 V
3 year Warranty
Drop-proof

- Ideal for measuring currents ranging from instrumentation signals (4 to 20 mA) to flame currents (µA) with built in high-sensitivity current ranges (DT4253)
- The voltage measurement model, which is ideal for solar power system and power equipment management, measures up to 1700 V DC during open voltage inspections (DT4254)
- Prevents short-circuit accidents with a fast-blow fuse and current-limiting resistor (DT4255)
- Prevents accidents with clamp-on sensor-based current measurement (DT4254, DT4255)
- Voltage detection function (DT4254, DT4255)
- Low-pass filter cuts high harmonics (when measuring inverter fundamental waveforms)
- Broad -25°C (-13°F) to 65°C (149°F) operating temperature range (DT4254, DT4255)
- Dual display lets you check voltage and frequency simultaneously

Model No. (Order Code)		
	DT4253	(With mA DC, temperature)
	DT4254	(Voltage measurement only)
	DT4255	(With fused measurement terminals)

Regarding DMM Accuracy — Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

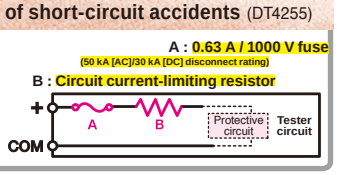
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	DT4253	DT4254	DT4255
DC Voltage range	600.0 mV to 1000 V	600.0 mV to 1500 V	600.0 mV to 1000 V
	5 ranges, Basic accuracy: ±0.3 % rdg. ±5 dgt.	5 ranges, Basic accuracy: ±0.3 % rdg. ±3 dgt.	5 ranges, Basic accuracy: ±0.3 % rdg. ±3 dgt.
AC Voltage range	6.000 V to 1000 V, 4 ranges, Frequency characteristics: 40 Hz to 1 kHz		
	Basic accuracy 40 - 500 Hz : ±0.9 % rdg. ±3 dgt. (True RMS, crest factor 3)		
AUTO AC/DCV	Yes		
Resistance range	600.0 Ω to 60.00 MΩ, 6 ranges, Basic accuracy: ±0.7 % rdg. ±5 dgt.	N/A	600.0 Ω to 60.00 MΩ, 6 ranges, Basic accuracy: ±0.7 % rdg. ±3 dgt.
DC Current range	60.00 µA to 60.00 mA, 4 ranges, Basic accuracy: ±0.8 % rdg. ±5 dgt.	N/A	N/A
From 4 to 20mA Percentage conversion display	Yes	N/A	N/A
AC Current range (use with Clamp on probes)	10.00 A to 1000 A, 7 ranges, Add the Clamp on probe accuracy to basic accuracy 40 - 1 kHz : ±0.9 % rdg. ±3 dgt. (True RMS, crest factor 3)	N/A	10.00 A to 1000 A, 7 ranges, Add the Clamp on probe accuracy to basic accuracy 40 - 1 kHz : ±0.9 % rdg. ±3 dgt. (True RMS, crest factor 3)
Temperature (thermocouples)	K: -40.0 to 400.0 °C , Add the Temperature probe accuracy to basic accuracy: ±0.5 % rdg. ±2 °C	N/A	N/A
Voltage detection	N/A	Hi: AC40 V to 600 V, Lo: AC80 V to 600 V	
Capacitance range	1.000 µF to 10.00 mF, 5 ranges, Basic accuracy: ±1.9 % rdg. ±5 dgt.	N/A	1.000 µF to 10.00 mF, 5 ranges, Basic accuracy: ±1.9 % rdg. ±5 dgt.
Frequency range	99.99 Hz to 99.99 kHz, 4 ranges (limited by the minimum detectable voltage), Basic accuracy: ±0.1 % rdg. ±1 dgt.		
Continuity check	Continuity threshold [ON]: 25 Ω or less , [OFF]: 245 Ω or more, Response time: 0.5 ms or more	N/A	Continuity threshold [ON]: 25 Ω or less , [OFF]: 245 Ω or more, Response time: 0.5 ms or more
Diode test	Open terminal voltage: 5.0 V or less, Testing current 0.5 mA or less, Threshold of forward voltage: 0.15 V to 1.5 V	N/A	Open terminal voltage: 5.0 V or less, Testing current 0.5 mA or less, Threshold of forward voltage: 0.15 V to 1.5 V
Other functions	Filter function, Display value hold, Auto hold, Max/Min/Average value display, Relative display, Auto-power save, USB communication (option)		
Display	Main and Sub displays: 4-digits LCD, max. 6000 digits, bar graph		
Display refresh rates	5 times/s (Capacitance measurement: 0.05 to 5 times/s, depending on measured value, Frequency: 1 to 2 time/s)		
Power supply	LR03 alkaline batteries ×4, Continuous use: 130 hours (backlight OFF)		
Dimensions and mass	84 mm (3.31 in)W × 174 mm (6.85 in)H× 52 mm (2.05 in)D, 390 g (13.8 oz) (including batteries and holster)		
Accessories	Test lead L9207-10 ×1, Holster ×1, Instruction manual ×1, LR03 alkaline battery ×4		

Key Point

Absolute prevention of short-circuit accidents (DT4255)

In the event of erroneous operation, a protective circuit functions to prevent a short-circuit. A current-limiting resistor limits the short-circuit current if damage to the tester's circuitry results in a short-circuit condition, and a fast-blow fuse quickly disconnects the circuit to ensure safety.



Premier Pocket DMM with CAT IV 300V/ CAT III 600V Safety

DIGITAL MULTIMETER DT4221, DT4222

DT4221

DT4222

True RMS
CE
CAT IV 300 V
CAT III 600 V
3 year Warranty
Drop-proof

- Achieving a high level of safety in a compact body and lightweight design
- No resistance measurement and diode testing for enhanced safety (DT4221)
- Voltage detection function (DT4221)
- Resistance, capacitance measurement and diode testing (DT4222)
- Robust design capable of withstanding a drop from a height of 1 m
- Test leads conveniently wrap around the back
- ±0.5% DC V basic accuracy, wide 40 Hz to 1 kHz AC V frequency characteristics
- Low-pass filter cuts high harmonics (when measuring inverter fundamental waveforms)
- Broad -10 (14°F) to 50°C (122°F) operating temperature range
- Display backlight

Model No. (Order Code)		
	DT4221	(V measurement only, for electrical work)
	DT4222	(With C/R measurement, for general use)

Regarding DMM Accuracy Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	DT4221	DT4222
DC Voltage range	600.0 mV to 600.0 V, 4 ranges, Basic accuracy: ±0.5 % rdg. ±5 dgt.	
AC Voltage range	6.000 V to 600.0 V, 3 ranges, Frequency characteristics: 40 Hz - 1 kHz Basic accuracy 40 - 500 Hz : ±1.0 % rdg. ±3 dgt. (True RMS, crest factor 3)	
Resistance range	N/A	600.0 Ω to 60.00 MΩ, 6 ranges Basic accuracy: ±0.9 % rdg. ±5 dgt.
Capacitance range	N/A	1.000 µF to 10.00 mF, 5 ranges Basic accuracy: ±1.9 % rdg. ±5 dgt.
Frequency range	AC V measurement: 99.99 Hz (5 Hz or more) to 9.999 kHz, 3 ranges Basic accuracy: ±0.1 % rdg. ±2 dgt.	
Continuity check	Continuity threshold [ON]: 25 Ω or less (buzzer sound), [OFF]: 245 Ω or more Response time: 0.5 ms or more	
Diode test	N/A	Open terminal voltage: 2.5 V or less, Testing current 0.5 mA or less, Threshold of forward voltage: 0.15 V to 1.5 V
Voltage detection	80 V to 600 V AC	N/A
Other functions	Filter function, Display value hold, Relative display, Auto-power save	
Display	Main and Sub displays: 4-digits LCD, max. 6000 digits, bar graph	
Display refresh rates	5 times/s (Capacitance measurement: 0.05 to 5 times/s, depending on measured value, Frequency: 1 to 2 time/s)	
Power supply	LR03 alkaline batteries ×4, Continuous use: 40 hours (backlight OFF)	
Dimensions and mass	72 mm (2.83 in)W × 149 mm (5.87 in)H× 38 mm (1.50 in)D,190 g (6.7 oz) (including batteries and holster)	
Accessories	Test lead DT4911 ×1, Holster ×1, Instruction manual ×1, LR03 alkaline battery ×1	

Proprietary Protection Function Against Accidental Voltage Input Prevents Power Failure and Fires

DIGITAL MULTIMETER DT4223, DT4224

DT4223

DT4224

True RMS
CE
CAT IV 300 V
CAT III 600 V
3 year Warranty
Drop-proof

- Achieving a high level of safety in a compact body and lightweight design
- Circuit breaker false trip prevention function helps avoid accidents resulting from breakers that mistakenly trip due to incorrect input
- Resistance measurement and voltage detection function (DT4223)
- Resistance, Capacitance measurement and diode testing (DT4224)
- Robust design capable of withstanding a drop from a height of 1 m
- Test leads conveniently wrap around the back
- ±0.5% DC V basic accuracy, wide 40 Hz to 1 kHz AC V frequency characteristics
- Low-pass filter cuts high harmonics (when measuring inverter fundamental waveforms)
- Broad -10 (14°F) to 65°C (149°F) operating temperature range
- Display backlight

Model No. (Order Code)		
	DT4223	(With resistance measurement, for electrical work)
	DT4224	(With C/R measurement, for general use)

Regarding DMM Accuracy Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	DT4223	DT4224
DC Voltage range	600.0 mV to 600.0 V, 4 ranges, Basic accuracy: ±0.5 % rdg. ±5 dgt.	
AC Voltage range	6.000 V to 600.0 V, 3 ranges, Frequency characteristics: 40 Hz - 1 kHz Basic accuracy 40 - 500 Hz : ±1.0 % rdg. ±3 dgt. (True RMS, crest factor 3)	
Resistance range	600.0 Ω to 60.00 MΩ, 6 ranges Basic accuracy: ±0.9 % rdg. ±5 dgt.	
Capacitance range	N/A	1.000 µF to 10.00 mF, 5 ranges, Basic accuracy: ±1.9 % rdg. ±5 dgt.
Frequency range	AC V measurement: 99.99 Hz (5 Hz or more) to 9.999 kHz, 3 ranges Basic accuracy: ±0.1 % rdg. ±2 dgt.	
Continuity check	Continuity threshold [ON]: 25 Ω or less (buzzer sound), [OFF]: 245 Ω or more Response time: 0.5 ms or more	
Diode test	N/A	Open terminal voltage: 2.5 V or less, Testing current 0.5 mA or less, Threshold of forward voltage: 0.15 V to 1.5 V
Voltage detection	80 V to 600 V AC	N/A
Other functions	Circuit breaker false trip prevention function, Filter function, Display value hold, Relative display, Auto-power save	
Display	Main and Sub displays: 4-digits LCD, max. 6000 digits, bar graph	
Display refresh rates	5 times/s (Capacitance measurement: 0.05 to 5 times/s, depending on measured value, Frequency: 1 to 2 time/s)	
Power supply	LR03 alkaline batteries ×4, Continuous use: 35 hours (backlight OFF)	
Dimensions and mass	72 mm (2.83 in)W × 149 mm (5.87 in)H× 38 mm (1.50 in)D,190 g (6.7 oz) (including batteries and holster)	
Accessories	Test lead DT4911 ×1, Holster ×1, Instruction manual ×1, LR03 alkaline battery ×1	

Shared options for the DT4220 series

Options for the DT4911 (DT4911 is a bundled accessory)

Test leads


TEST LEAD DT4911
CAT IV 300V, CAT III 600V, 54cm (1.77ft) length


CONTACT PIN SET L4933
Attaches to the tip of the Test Lead L9207-10/ DT4911, L9206, 60V DC/ 30V AC


SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

Other options


MAGNETIC STRAP Z5020
Extra strength


MAGNETIC STRAP Z5004


CARRYING CASE C0200

Pencil-type DMM with LED Light

PENCIL HiTESTER **3246-60**

CAT IV 300 V
CAT III 600 V

3 year Warranty

- Test lead and main unit in a single body
- Overload protection to 600 V at resistance or continuity functions
- LED light brightly illuminates test points

Model No. (Order Code) **3246-60**

Regarding DMM Accuracy: Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Voltage range	419.9 mV to 600 V, 5 ranges, Basic accuracy: ±1.3 % rdg. ±4 dgt.
AC Voltage range	4.199 V to 600 V, 4 ranges, Basic accuracy 50 - 500 Hz : ±2.3 % rdg. ±8 dgt. (Average rectified)
Resistance range	419.9 Ω to 41.99 MΩ, 6 ranges, Basic accuracy: ±2.0 % rdg. ±4 dgt.
Continuity buzzer	Detection level 50 Ω ±40 Ω
Diode check	Judges the right direction only, Open terminal voltage: 3.4 V or less, Testing current: 800 µA or less
Auto power save	Available (cancel selectable)
Display	Digital LCD, max. 4199 digits
Sampling rate	2.5 times/sec
Power supply	Coin type lithium battery (CR2032) ×1, Continuous use: 150 hours (at DC V function), 30 hours (with light turned on for 10 seconds and off for 20 seconds per cycle and in DC V function)
Dimensions and mass	30 mm (1.18 in)W × 182 mm (7.17 in)H × 26.5 mm (1.04 in)D, 80 g (2.8 oz)
Accessories	Instruction manual ×1, Coin type lithium battery (CR2032) ×1 (for trial purposes only), Sleeves (Red/ Black each 1)

Compact ! Palm Size Body, Less Than 1cm Thin!

CARD HiTESTER **3244-60**

Rugged external case C0204 protects the DMM. Standard accessory.

CAT III 300 V
CAT II 600 V

3 year Warranty

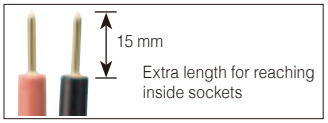
- Better contact test leads with 15 mm gold-plated tip pin
- Only 9.5 mm(0.37 in) thick and 60 g(2.1 oz) in weight
- Full auto-ranging function and automatic power saving function
- Overload protection to 500 V at resistance or continuity functions

Model No. (Order Code) **3244-60**

Regarding DMM Accuracy: Due to the many ranges and functions available in a DMM, only the basic accuracy is indicated for reference. Please refer to the individual catalogs for detailed accuracy information.

■ Basic specifications (Accuracy guaranteed for 1 year)

DC Voltage range	419.9 mV to 500 V, 5 ranges, Basic accuracy: ±0.7 % rdg. ±4 dgt.
AC Voltage range	4.199 V to 500 V, 4 ranges, Basic accuracy 50 - 500 Hz : ±2.3 % rdg. ±8 dgt. (Average rectified)
Resistance range	419.9 Ω to 41.99 MΩ, 6 ranges, Basic accuracy: ±2.0 % rdg. ±4 dgt.
Continuity buzzer	Detection level 50 Ω ±40 Ω, Diode check: Not available
Auto power save	Available (cancel selectable)
Display	Digital LCD, max. 4199 digits
Sampling rate	2.5 times/sec
Power supply	Coin type lithium battery (CR2032) ×1, Continuous use: 150 hours
Dimensions and mass	55 mm (2.17 in)W × 109 mm (4.29 in)H × 9.5 mm (0.37 in)D, 60 g (2.1 oz)
Accessories	Instruction manual ×1, Carrying case ×1, Coin type lithium battery (CR2032) ×1 (for trial purposes only), Sleeves (Red/ Black each 1)



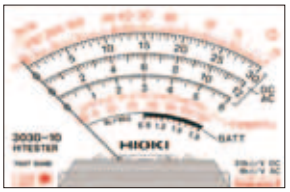
Options
*The C0204 is bundled

CARRYING CASE C0204
For the 3244

When used in CAT III environments, test pin sleeves are required.

Basic Analog Tester (20 kΩ/V)

HiTESTER **3030-10**



3030-10 Scale

3 year Warranty

Drop-proof

Not CE Marked
CAT III 600 V

- Drop proof design withstands drop onto a concrete floor from a height of 1 meter
- LED check, Battery check support

Model No. (Order Code) **3030-10**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Voltage range	0.3 V (16.7 kΩ/V), 3/12/30/120/300/600 V (20 kΩ/V) Accuracy: ±2.5 % f.s. Max. rated voltage: 600 V
AC Voltage range	12 V (9 kΩ/V) Accuracy: ±4 % f.s. 30/120/300/600 V (9 kΩ/V) Accuracy: ±2.5 % f.s. Average rectifier effective value, Max. rated voltage: 600 V
DC Current range	60 µA/30 m/300 mA (300 mV internal voltage drop) Accuracy: ±3 % f.s.
Resistance range	0 to 3 kΩ (center scale 30 Ω), R × 1, R × 10, R × 100, R × 1 k Accuracy: ±3 % of scale length
Battery check	0.9 to 1.8 V, load resistance 10 Ω, Accuracy: ±6 % f.s.
Temperature scale	*Note: The 3030-10 includes a temperature measurement scale, but because the optional Thermister Temperature Probe 9021-01 has been discontinued, the scale is not available for new customers.*
Power supply	For resistance measurement range, R6P (AA) ×2 batteries
Dimensions and mass	95 mm (3.74 in)W × 141 mm (5.55 in)H × 39 mm (1.54 in)D, 280 g (9.9 oz)
Accessories	Test lead L9207-30 ×1, Spare fuse ×1, R6P (AA) manganese batteries ×2, Instruction manual ×1, Carrying case 9390 ×1

Options
*The L9207-30 and the 9390 are bundled


TEST LEAD L9207-30
70 cm (2.30 ft) length


CARRYING CASE
9390
Plastic type


HIGH-VOLTAGE PROBE 9017
Up to 30kV DC, 1.4 m (4.59 ft) length, not CE marked

INSULATION TESTER SERIES
Selection Guide

Model	IR4056	IR4057, IR4058	IR4053	IR4016 to IR4018	3490	IR3455
						
Basic Specifications						
Display	Digital	Digital (Bar graph) IR4057 / IR4058	Digital	Analog Meter IR4016 / IR4017 / IR4018	Analog Meter	Digital (Bar graph)
Display backlight function	✓	✓	✓	✓ / ✓ / ✓	✓	✓
Testing voltage 50V DC	✓	✓	✓	N/A / N/A / N/A	N/A	N/A
Testing voltage 125V DC	✓	✓	✓	N/A / N/A / N/A	N/A	N/A
Testing voltage 250V DC	✓	✓	✓	N/A / N/A / N/A	✓	✓
Testing voltage 500V DC	✓	✓	✓	✓ / ✓ / N/A	✓	✓
Testing voltage 1000V DC	✓	✓	✓	N/A / N/A / ✓	✓	✓
Testing voltage 2500V DC	N/A	N/A	N/A	N/A / N/A / N/A	N/A	✓
Testing voltage 5000V DC	N/A	N/A	N/A	N/A / N/A / N/A	N/A	✓
Effective maximum indicated value	100 MΩ (50 V) 250 MΩ (125 V) 500 MΩ (250 V) 2000 MΩ (500 V) 4000 MΩ (1000 V)	100 MΩ (50 V) 250 MΩ (125 V) 500 MΩ (250 V) 2000 MΩ (500 V) 4000 MΩ (1000 V)	100 MΩ (50 V) 250 MΩ (125 V) 500 MΩ (250 V) 2000 MΩ (500 V) 4000 MΩ (1000 V)	100 MΩ (500 VDC) / 1000 MΩ (500 VDC) / 2000 MΩ (1000 VDC)	100 MΩ (250, 500 VDC) 4000 MΩ (1000 VDC)	500 GΩ (250 V) 1.00 TΩ (500 V) 2.00 TΩ (1 kV) 5.00 TΩ (2.50 kV) 10.00 TΩ (5.00 kV)
Low resistance	✓	✓	N/A	N/A / N/A / N/A	✓	N/A
AC Voltage	✓	✓	✓	✓ / ✓ / ✓	✓	✓
DC Voltage	✓	✓	✓	N/A / N/A / N/A	N/A	✓
PV dedicated function	N/A	N/A	✓	N/A / N/A / N/A	N/A	N/A
Functions						
Bluetooth® wireless technology	N/A	N/A / ✓	N/A	N/A / N/A / N/A	N/A	N/A
Comparator	✓	✓	✓	N/A / N/A / N/A	N/A	N/A
Memory	N/A	N/A	N/A	N/A / N/A / N/A	N/A	✓

Quick Response Comparator Offering Reading Stability in High-speed Digital Format

INSULATION TESTER IR4058, IR4057

IR4058


IR4057

CE
CAT III 600 V
3 year Warranty
Drop-proof

- Measured values held on the display are sent immediately to a smartphone or tablet via Bluetooth® wireless technology (IR4058)
- 5-range testing voltage of 50 V/100 MΩ to 1000 V/4000 MΩ
- Digital bar graph
- Stable & high-speed digital readings, 0.3 second response time for PASS/ FAIL decisions
- Drop proof onto concrete from 1m (3.28 feet)
- Bright LED, luminous LCD, test lead with bright LED lamp to illuminate near hand (Option L9788-11 or L9788-10)
- Continuity check via 200 mA testing
- Built in AC/DC voltage meter, useful for testing solar power generation systems and electric vehicles

Model No. (Order Code) **IR4057-20** (High-speed model)
IR4058-20 (High-speed model, built-in Bluetooth® wireless technology)

■ For the IR4058 only: Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play
Download on the App Store

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated output voltage	50 V DC	125 V DC	250 V DC	500 V DC	1000 V DC
Effective maximum indicated value	100 MΩ	250 MΩ	500 MΩ	2000 MΩ	4000 MΩ
Accuracy 1st effective measuring range MΩ	±2 % rdg. ±2 dgt. 0.200 - 10.00	±2 % rdg. ±2 dgt. 0.200 - 25.0	±2 % rdg. ±2 dgt. 0.200 - 50.0	±2 % rdg. ±2 dgt. 0.200 - 500	±2 % rdg. ±2 dgt. 0.200 - 1000
Lower limit resistance	0.05 MΩ	0.125 MΩ	0.25 MΩ	0.5 MΩ	1 MΩ
Overload protection	600 V AC (10s)				660 V AC (10s)

DC voltage measurement	4.2 V (0.001 V resolution) to 600 V (1 V resolution), 4 ranges, Accuracy: ±1.3% rdg. ±4 dgt., Input resistance: 100 kΩ or higher
AC voltage measurement	420 V (0.1 V resolution) / 600 V (1 V resolution), 2 ranges, 50/60 Hz, Accuracy: ±2.3% rdg. ±8 dgt., Input resistance: 100 kΩ or higher, Average rectifier
Low resistance measurement	For checking the continuity of ground wiring, 10 Ω (0.01 Ω resolution) to 1000 Ω (1 Ω resolution), 3 ranges, Basic accuracy: ±3 % rdg. ±2 dgt., testing current 200 mA or more (at 6 Ω or less)
Display	Semi-transmissive FSTN LCD with back lighting, bar-graph indicator
Response time	Approx. 0.3 second for PASS/FAIL decision (based on in-house testing)
Other functions	Indicate MΩ measurement value after a lapse of one minute, Live circuit indicator, Automatic electric discharge, Automatic DC/AC detection, Comparator, Drop proof, Auto power save
Interface (IR4058 only)	Bluetooth® 4.0LE, Supported devices: iOS, Android™ smartphone/tablet GENNECT Cross (free downloadable app) : display measured values, Simple logging function, Hold save function
Power supply	LR6 (AA) alkaline batteries × 4, Continuous use: 20 hours (based on in-house testing), 10 hours (Bluetooth® ON)
Dimensions and mass	159 mm (6.26 in)W × 177 mm (6.97 in)H× 53 mm (2.09 in)D, 640 g (22.6 oz) (including batteries, excluding test leads)
Accessories	Test lead L9787 ×1, Neck strap ×1, Instruction manual ×1, LR6 (AA) alkaline batteries ×4

Our Most Popular Model Offering Reading Stability in Medium-speed Digital Format

INSULATION TESTER **IR4056**


IR4056-20


IR4056-21

CAT Ⅲ 600 V
Excluding IR4056-21

3 year Warranty

Drop-proof


Comparator function
Fail alert with Red LCD illuminator


Test lead L9788-10
Bright LED lamp & comparator indicator (green lamp)

- 5-range testing voltage of 50 V/100 MΩ to 1000 V/4000 MΩ
- Stable & medium-speed digital readings, 0.8 second response time of PASS/ FAIL decisions
- Drop proof onto concrete from 1m (3.28 feet)
- Bright LED, luminous LCD, test lead with bright LED lamp to illuminate near hand (Also available in the IR4056-21)
- Continuity check via 200 mA testing
- Built in AC/DC voltage meter, useful for testing solar power generation systems and electric vehicles

Model No. (Order Code) **IR4056-20** (Economic model)
IR4056-21 (Economic model, Not CE marked)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated output voltage	50 V DC	125 V DC	250 V DC	500 V DC	1000 V DC
Effective maximum indicated value	100 MΩ	250 MΩ	500 MΩ	2000 MΩ	4000 MΩ
Accuracy 1st effective measuring range MΩ	±2 % rdg. ±2 dgt. 0.200 - 10.00	±2 % rdg. ±2 dgt. 0.200 - 25.0	±2 % rdg. ±2 dgt. 0.200 - 50.0	±2 % rdg. ±2 dgt. 0.200 - 500	±2 % rdg. ±2 dgt. 0.200 - 1000
Lower limit resistance	0.05 MΩ	0.125 MΩ	0.25 MΩ	0.5 MΩ	1 MΩ
Overload protection	600 V AC (10s)				660 V AC (10s)

DC voltage measurement	4.2 V (0.001 V resolution) to 600 V (1 V resolution), 4 ranges, Accuracy: ±1.3 % rdg. ±4 dgt., Input resistance: 100 kΩ or higher
AC voltage measurement	420 V (0.1 V resolution) / 600 V (1 V resolution), 2 ranges, 50/60 Hz, Accuracy: ±2.3% rdg. ±8 dgt., Input resistance: 100 kΩ or higher, Average rectifier
Low resistance measurement	For checking the continuity of ground wiring, 10 Ω (0.01 Ω resolution) to 1000 Ω (1 Ω resolution), 3 ranges, Basic accuracy: ±3 % rdg. ±2 dgt., testing current 200 mA or more (at 6 Ω or less)
Display	Semi-transmissive FSTN LCD with back lighting, bar-graph indicator
Response time	Approx. 0.8 second for PASS/FAIL decision (based on in-house testing)
Other functions	Live circuit indicator, Automatic electric discharge, Automatic DC/AC detection, Comparator, Drop proof, Auto power save
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use: 20 hours (Comparator off, back-light off, 500 V range, no load) Number of measurements: 1000 times (at 5 s ON, 25 s OFF cycle, insulation measurement of lower limit resistance value to maintain nominal output voltage)
Dimensions and mass	159 mm (6.26 in)W × 177 mm (6.97 in)H× 53 mm (2.09 in)D, 600 g (21.2 oz) (including batteries, excluding test leads)
Accessories	[IR4056-20] Test lead L9787 ×1, Neck strap ×1, Instruction manual ×1, LR6 (AA) alkaline batteries ×4 [IR4056-21] Test lead set with remote switch L9788-11 ×1, Neck strap ×1, Instruction manual ×1, LR6 (AA) alkaline batteries ×4

Measure PV Insulation Resistance Safely, Accurately and Quickly

INSULATION TESTER **IR4053**

option


TEST LEAD SET WITH REMOTE SWITCH L9788-11
Bundled with Remote switch type test lead L9788-10/ Earth lead, alligator clip, 1.2 m (3.94 ft) length

CAT Ⅲ 600 V

3 year Warranty

Drop-proof

- Safely and accurately measure PV insulation resistance even while generating solar power
- Built-in PV dedicated function, display measurements in 4 seconds
- Five ranges (50/125/250/500/1000V) built in for normal insulation resistance measurement
- Built-in 1000 VDC voltage measurement for open voltage tests of PV systems that support 1000 V
- Built-in comparator function
- Drop proof design withstands drop onto concrete from a height of 1 meter

Model No. (Order Code) **IR4053-10** (Bundled with standard Test Lead L9787)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

PVΩ measurement

Rated output voltage	500 V DC	1000 V DC
Effective maximum indicated value	2000 MΩ	4000 MΩ
Measuring range/ Accuracy	0.200 to 500 MΩ / ±4% rdg. 501 to 2000 MΩ / ±8% rdg.	0.200 to 1000 MΩ / ±4% rdg. 1010 to 4000 MΩ / ±8% rdg.
Other measuring range / Accuracy	0 to 0.199 MΩ / ±2% rdg. ±6 dgt.	

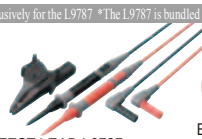
Insulation resistance measurement

Rated output voltage	50 V DC	125 V DC	250 V DC	500 V DC	1000 V DC
Effective maximum indicated value	100 MΩ	250 MΩ	500 MΩ	2000 MΩ	4000 MΩ
Accuracy 1st effective measuring range MΩ	±4% rdg. 0.200 to 10.00	±4% rdg. 0.200 to 25.0	±4% rdg. 0.200 to 50.0	±4% rdg. 0.200 to 500	±4% rdg. 0.200 to 1000
Lower limit resistance	0.05 MΩ	0.125 MΩ	0.25 MΩ	0.5 MΩ	1 MΩ
Overload protection	600 V AC (10 s)				1200 V DC (10 s)

DC voltage measurement	4.2 V (0.001 V resolution) to 1000 V (1 V resolution), 4 ranges, Accuracy: ±1.3% rdg. ±4 dgt., (Ranges in excess of 1000 V are not guaranteed for accuracy.)
AC voltage measurement	420 V (0.1 V resolution)/600 V (1 V resolution), 2 ranges, 50/60 Hz, Accuracy: ±2.3% rdg. ±8 dgt., (Ranges in excess of 600 V are not guaranteed for accuracy.)
Display	Semi-transmissive FSTN LCD with back lighting, Backlight
Response time	Insulation resistance range: 1 second, PVΩ function: 4 seconds (based on in-house tests)
Other functions	Live circuit indicator, automatic electric discharge, automatic DC/AC detection, comparator, drop proof, auto power save
Power supply	AA alkaline batteries (LR6) ×4, Continuous operating time: Approx. 20 hours (based on in-house tests)
Dimensions and mass	159 mm (6.26 in) W × 177 mm H (6.97 in) H × 53 mm (2.09 in) D, Approx. 600 g (21.2 oz) (including batteries, excluding test lead)
Accessories	TEST LEAD L9787 ×1, Neck strap ×1, Instruction manual ×1, AA alkaline batteries (LR6) ×4

Shared options for the Insulation Tester IR4058, IR4057, IR4056, and IR4053

L9787 options — Exclusively for the L9787 *The L9787 is bundled (IR4058-20, IR4057-20, IR4056-20, IR4053-10)

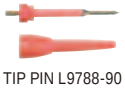

TEST LEAD L9787
Bundled with Line/ Earth lead, alligator clip, 1.2 m (3.94 ft) length


BREAKER PIN L9787-91
For checking breaker terminal, Detachable for tip of the L9787, 48 mm (1.89 in) length, φ 2.6 mm (0.10 in)

L9788 options — Exclusively for the L9788-10/ L9788-11 *The L9788-11 is bundled (IR4056-21)


TEST LEAD SET WITH REMOTE SWITCH L9788-11
Bundled with Test Lead with Remote Switch L9788-10/ Earth lead, alligator clip, 1.2 m (3.94 ft) length


TEST LEAD WITH REMOTE SWITCH (RED) L9788-10
Lighting LED lamp & comparator indicator (Operate only when main unit provides a comparator function), 1.2 m (3.94 ft) length


TIP PIN L9788-90
Spare parts for tip of the L9788/ L9788-10, Tip length 35 mm (1.38 in)


BREAKER PIN L9788-92
For checking breaker terminal, Detachable for tip of the L9788-10, 65 mm (2.56 in) length, φ 2.6 mm (0.10 in)

Shared Option


MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm (0.43 in)

PC peripherals — *For the IR4058-20 only

GENNECT Cross SF4071, SF4072
Mobile app for iOS, Android

Field Measuring Instruments

Reliable and Efficient Insulation Testing in the Field

ANALOG MΩ HiTESTER **IR4018**

CE
CAT III 600 V
3 year Warranty
Drop-proof

- Single range testing voltage of 1000 V
- Test insulation resistance up to 2000 MΩ
- Built tough to withstand a 1-meter drop onto a concrete floor
- Bright LED luminous scale
- Check for live circuits and battery status
- Integrated hard case for quick and easy storage without disconnecting the leads

Model No. (Order Code) **IR4018-20**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated output voltage	1000 V DC
Effective maximum indicated value	2000 MΩ
Accuracy 1st effective measuring range	±5 % of indicated value 2 to 1000 MΩ
Lower limit resistance	1 MΩ (measurement resistance value to maintain testing voltage)
Overload protection	660 V AC (10 sec.)
AC voltage measurement	0 to 600 V (50/60 Hz), ±5 % of maximum scale value accuracy, 500 kΩ or more input resistance
Other functions	Bright LED luminous scale, Drop proof (on concrete, 1 m/1 time), Battery check, Live circuit check, Auto discharge
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use: 15 hours (no load)
Dimensions and mass	159 mm (6.26 in)W × 177 mm (6.97 in)H × 53 mm (2.09 in)D, 610 g (21.5 oz), (including battery, excluding test lead)
Accessories	Test lead L9787 ×1, LR6 (AA) alkaline batteries ×4, Instruction manual ×1, Shoulder strap ×1

Reliable and Efficient Insulation Testing in the Field

ANALOG MΩ HiTESTER **IR4017**

CE
CAT III 600 V
3 year Warranty
Drop-proof

- Single range testing voltage of 500 V
- Test insulation resistance up to 1000 MΩ
- Built tough to withstand a 1-meter drop onto a concrete floor
- Bright LED luminous scale
- Check for live circuits and battery status
- Integrated hard case for quick and easy storage without disconnecting the leads

Model No. (Order Code) **IR4017-20**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated output voltage	500 V DC
Effective maximum indicated value	1000 MΩ
Accuracy 1st effective measuring range	±5 % of indicated value 1 to 500 MΩ
Lower limit resistance	0.5 MΩ (measurement resistance value to maintain testing voltage)
Overload protection	600 V AC (10 sec.)
AC voltage measurement	0 to 600 V (50/60 Hz), ±5 % of maximum scale value accuracy, 500 kΩ or more input resistance
Other functions	Bright LED luminous scale, Drop proof (on concrete, 1 m/1 time), Battery check, Live circuit check, Auto discharge
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use: 20 hours (no load)
Dimensions and mass	159 mm (6.26 in)W × 177 mm (6.97 in)H × 53 mm (2.09 in)D, 610 g (21.5 oz), (including battery, excluding test lead)
Accessories	Test lead L9787 ×1, LR6 (AA) alkaline batteries ×4, Instruction manual ×1, Shoulder strap ×1

Reliable and Efficient Insulation Testing in the Field

ANALOG MΩ HiTESTER **IR4016**

CE
CAT III 600 V
3 year Warranty
Drop-proof

- Single range testing voltage of 500 V
- Test insulation resistance up to 100 MΩ
- Built tough to withstand a 1-meter drop onto a concrete floor
- Bright LED luminous scale
- Check for live circuits and battery status
- Integrated hard case for quick and easy storage without disconnecting the leads

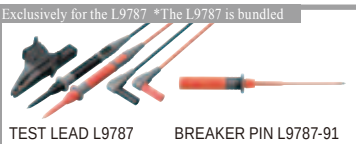
Model No. (Order Code) **IR4016-20**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated output voltage	500 V DC
Effective maximum indicated value	100 MΩ
Accuracy 1st effective measuring range	±5 % of indicated value 0.1 to 50 MΩ
Lower limit resistance	0.5 MΩ (measurement resistance value to maintain testing voltage)
Overload protection	600 V AC (10 sec.)
AC voltage measurement	0 to 600 V (50/60 Hz), ±5 % of maximum scale value accuracy, 500 kΩ or more input resistance
Other functions	Bright LED luminous scale, Drop proof (on concrete, 1 m/1 time), Battery check, Live circuit check, Auto discharge
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use: 20 hours (no load)
Dimensions and mass	159 mm (6.26 in)W × 177 mm (6.97 in)H × 53 mm (2.09 in)D, 610 g (21.5 oz), (including battery, excluding test lead)
Accessories	Test lead L9787 ×1, LR6 (AA) alkaline batteries ×4, Instruction manual ×1, Shoulder strap ×1

Shared options for the Analog MΩ HiTester series IR4018 to IR4016, 3490

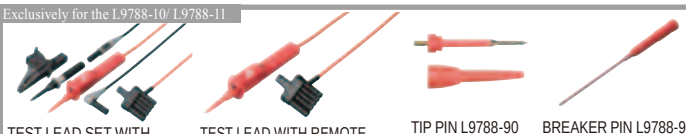
L9787 options — Exclusively for the L9787 *The L9787 is bundled



TEST LEAD L9787
Bundled with Line/ Earth lead, alligator clip, 1.2 m (3.94 ft) length

BREAKER PIN L9787-91
For checking breaker terminal, Detachable for tip of the L9787, 48 mm (1.89 in) length, φ 2.6 mm (0.10 in)

L9788 options — Exclusively for the L9788-10/ L9788-11



TEST LEAD SET WITH REMOTE SWITCH L9788-11
Bundled with Test Lead with Remote Switch L9788-10/ Earth lead, alligator clip, 1.2 m (3.94 ft) length

TEST LEAD WITH REMOTE SWITCH (RED) L9788-10
Lighting LED lamp & comparator indicator (Operate only when main unit provides a comparator function), 1.2 m (3.94 ft) length

TIP PIN L9788-90
Spare parts for tip of the L9788/ L9788-10, Tip length 35 mm (1.38 in)

BREAKER PIN L9788-92
For checking breaker terminal, Detachable for tip of the L9788-10, 65 mm (2.56 in) length, φ 2.6 mm (0.10 in)

Shared option — Attached to the Earth side lead tip

MAGNETIC ADAPTER 9804-02
Attaches to the tip of cord, black ×1, φ11 mm (0.43 in)

Insulation Testing in 3 Easy Steps: Flip the Cover, Select Range & Test

ANALOG MΩ HiTESTER **3490**

CE
CAT III 600 V
3 year Warranty
Drop-proof

- 3-range testing voltage of 250/500 V (insulation resistance testing up to 100 MΩ), and 1000 V (insulation testing up to 4000 MΩ)
- Continuity check at 3 Ω range via 200 mA testing
- Bright LED luminous scale
- Check for live circuits and battery status

Model No. (Order Code) **3490** (Bundled with standard Test Lead L9787)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Rated output voltage	250 V DC	500 V DC	1000 V DC
Effective maximum indicated value	100 MΩ	100 MΩ	4000 MΩ
Accuracy 1st effective measuring range	±2 % of scale length 0.05 to 50 MΩ	±2 % of scale length 0.05 to 50 MΩ	±2 % of scale length 2 to 1000 MΩ
Lower limit resistance	0.25 MΩ	0.5 MΩ	1 MΩ
	(Measurement resistance value to maintain testing voltage)		
Overload protection	660 V AC (10 sec.)		
Low resistance measurement	3 Ω (at 200 mA testing current), ±0.09 Ω accuracy, 30 Ω (at 20 mA testing current), ±0.9 Ω accuracy, Open-circuit voltage: 4.1 to 6.9 V		
AC voltage measurement	0 to 600 V (50/60 Hz), ±5 % of maximum scale value accuracy, 100 kΩ or more input resistance		
Other functions	Bright LED luminous scale, Drop proof (on concrete, 1 m/1 time), Battery check, Live circuit check, Auto discharge		
Power supply	LR6 (AA) alkaline batteries ×4, Continuous use: 20 hours (at 500 V range, no load)		
Dimensions and mass	159 mm (6.26 in)W × 177 mm (6.97 in)H × 53 mm (2.09 in)D, 610 g (21.5 oz), (including battery, excluding test lead)		
Accessories	Test lead L9787 ×1, Instruction manual ×1, Shoulder strap ×1, LR6 (AA) alkaline batteries ×4		

Maximum 5kV Test Voltage - Up to 10TΩ of Insulated Resistance Testing

HIGH VOLTAGE INSULATION TESTER **IR3455**

USB2.0
CE
CAT IV 600 V
3 year Warranty

- Measure insulation of high-voltage equipment (such as transformers, cables, and motors)
- Wide testing voltage range, up to 5.00 kV from 250 V DC
- Wide measurement insulation range, up to 10 TΩ
- PI (Polarization Index) and DAR (Dielectric Absorption Ratio) automatically calculated / display
- Data memory function to reduce handwritten notes
- Bright LED luminous scale
- Extended operating temperature range of -10 °C to 50 °C

Model No. (Order Code) **IR3455** (250 V to 5 kV/ 10 TΩ)

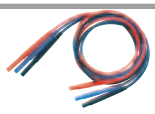
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Test voltage	250 V to 5.00 kV DC, (Possible in 25 V steps between 250 V and 1 kV and in 100 V steps between 1 and 5 kV)
Measurement range	0.00 MΩ to 500 GΩ (250 V) 0.00 MΩ to 1.00 TΩ (500 V) 0.00 MΩ to 2.00 TΩ (1 kV) 0.00 MΩ to 5.00 TΩ (2.5 kV) 0.00 MΩ to 10.0 TΩ (5 kV)
Measurement current	1 mA (Test voltage 250 V to 1.00 kV), 0.5 mA (Test voltage 1.10 kV to 2.50 kV) 0.25 mA (Test voltage 2.60 kV to 5.00 kV), Short-circuit current: 2 mA or less
Resistance range	10 MΩ to 10 TΩ, 7 ranges (auto range)
Accuracy	±5% rdg. ±5 dgt. Up to [Test voltage (setting value)/Resistance measurable at 100 nA] ±20% rdg. ±5 dgt. [Test voltage (setting value)/Resistance measurable at 100 nA] to [Test voltage (setting value)/Resistance measurable at 1 nA] or 500 GΩ ±30% rdg. ±50 dgt. [Test voltage (setting value)/Resistance measurable at 1 nA] or 501 GΩ to 9.99 TΩ
Leakage current measurement	1.00 nA to 1.20 mA, 6 ranges (current measurement that occurs when test voltage is generated) Accuracy ±2.5% rdg. ±5 dgt. (1 mA range); refer to complete catalog for other ranges
Voltage measurement	±50 V to ±1.00 kV DC, 50 V to 750 V AC (50/60 Hz), Accuracy: ±5 % rdg. ±5 dgt. , Input resistance: Approx. 10 MΩ
Temperature measurement	-10.0 °C to 70.0 °C, 3 ranges (used with optional sensor) Accuracy ±1.0 °C (0.0 °C to 40.0 °C); refer to complete catalog for other ranges
Other functions	Insulation Diagnosis (Temperature compensation, PI/DAR display, Step voltage test), Data memory, Communication (USB 2.0, PC application software), auto discharge, hot conductor warning indication, etc.
Display	Digital LCD, max. 999 dgt. with backlight, Bar graph display
Power supply	LR6 (AA) alkaline batteries ×6, Battery pack 9459, or AC adapter 9753 or 9418-15 (100 - 240 VAC) Continuous use : [LR6] 5 hr, [9459] 9 hr, (Occur 5 kV, +/- open terminal)
Dimensions and mass	260 mm (10.24 in)W × 250.6 mm (9.87 in)H × 119.5 mm (4.70 in)D, 2.8 kg (98.8 oz)
Accessories	Test lead 9750-01 ×1, Test lead 9750-02 ×1, Test lead 9750-03 ×1, Alligator clip 9751-01 ×1, Alligator clip 9751-02 ×1, Alligator clip 9751-03 ×1, Instruction manual ×1, LR6 (AA) alkaline batteries ×6, USB cable ×1, PC application software (CD-R) ×1

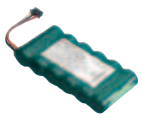
Options

TEMPERATURE SENSOR 9631-01
Molded type, 1 m (3.28 ft) length, -40 to 180 °C, 100 sec response time, sensor part dimensions φ 6 × 28 mm (φ 0.24 in × 1.10 in)

TEMPERATURE SENSOR 9631-05
Molded type, 50 mm (1.97 in) length, -40 to 180 °C, 100 sec response time, sensor part dimensions φ 6 × 28 mm (φ 0.24 in × 1.10 in)



TEST LEAD 9750-11
Red ×1, 10 m (32.81 ft) length
TEST LEAD 9750-12
Black ×1, 10 m (32.81 ft) length
TEST LEAD 9750-13
Blue ×1, 10 m (32.81 ft) length



BATTERY PACK 9459
NiMH, Charges while installed in the main unit

AC ADAPTER 9418-15
100 to 240 V AC

Bundled Accessories

TEST LEAD 9750-01
Red ×1, 3 m (9.84 ft) length
TEST LEAD 9750-02
Black ×1, 3 m (9.84 ft) length
TEST LEAD 9750-03
Blue ×1, 3 m (9.84 ft) length

ALLIGATOR CLIP 9751-01
Red ×1
ALLIGATOR CLIP 9751-02
Black ×1
ALLIGATOR CLIP 9751-03
Blue ×1

Send Data to a Smartphone, Rugged AC/DC Clamp for the Toughest Situations

AC/DC CLAMP METER **CM4372, CM4374**

True RMS
CE
CAT Ⅳ 600 V
CAT Ⅲ 1000 V
3 year Warranty
DESIGN AWARD 2016
Germany iF Design Award
CM4371 series

- Send measured values to a smartphone or tablet using Bluetooth® wireless technology
- Multiple measurement functions
- Automatic AC/DC function helps boost work efficiency
- Measure DC voltages of up to 1700 V
- Simultaneously measure inrush current in RMS and crest values
- Expanded -25 °C to 65 °C operating temperature range
- IP54 dustproof and waterproof enclosure *Jaws (current sensor portion): IP50

Model No. (Order Code)	**CM4372**	(Built-in Bluetooth® wireless technology)
	CM4374	(Built-in Bluetooth® wireless technology)

For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play
Download on the App Store

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CM4372	CM4374
DC Current range	20.00 A/600.0 A, Basic accuracy: ±1.3% rdg. ±0.08 A (20 A range)	600.0 A/2000 A, Basic accuracy: ±1.3% rdg. ±0.3 A (600A range)
AC Current range	20.00 A/600.0 A (10 Hz to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.3% rdg. ±0.08 A (at 20 A)	600.0 A/2000 A (10 Hz to 1 kHz, True RMS), Basic accuracy: ±1.3% rdg. ±0.3 A (600A range)
Crest factor	20.00 A range: 7.5, 600.0A range: 3 or less	600.0 A range: 3 or less, 2000 A range: 2.84 or less
DC+AC Current range	20.00 A/600.0 A (10 Hz to 1 kHz, True RMS), Basic accuracy DC, 45-66 Hz: ±1.3% rdg. ±0.13 A (at 20 A)	600.0 A/2000 A (10 Hz to 1 kHz, True RMS), Basic accuracy DC, 45-66 Hz: ±1.3% rdg. ±1.3 A (at 600 A)
DC Voltage range	600.0 mV to 1500 V, 5 ranges, Basic accuracy: ±0.5% rdg. ±0.5 mV (at 600 mV)	
AC Voltage range	6.000 V to 1000 V, 4 ranges (15 Hz to 1 kHz, True RMS), Basic accuracy: ±0.9% rdg. ±3 dgt.	
DC+AC Voltage range	6.000 V to 1000 V, 4 ranges, Basic accuracy: ±1.0% rdg. ±7 dgt.	
Resistance range	600.0 Ω to 600.0 kΩ, 4 ranges, Basic accuracy: ±0.7% rdg. ±5 dgt.	
Capacitance range	1.000 µF to 1000 µF, 4 ranges, Basic accuracy: ±1.9% rdg. ±5 dgt.	
Frequency range	9.999 Hz to 999.9 Hz, Basic accuracy: ±0.1% rdg. ±1 dgt.	
Temperature (K)	-40.0 to 400.0 ˚C, add temperature probe accuracy to basic accuracy of ±0.5% rdg. ±3.0 ˚C	
Voltage detection	Hi: 40 V to 600 V AC, Lo: 80 V to 600 V AC, 50/60 Hz	
Other functions	Automatic AC/DC detection, Plus/Minus judgement function of DC A, DC V, Max/Min/ Average/PEAK MAX/ PEAK MIN value display, Filter function, Display value hold, Auto hold, Back light, Auto-power save, Buzzer sounds, Zero-adjustment	
Dustproof, waterproof	Grip: IP54 (when measuring an insulated conductor only), Jaw (the current sensor portion of the instrument)/ barrier: IP50 *Risk of electric shock from the conductor being measured increases when wet.	
Interface	Bluetooth® 4.0LE, Supported devices: iOS, Android™ smartphone/tablet GENNECT Cross (free downloadable app) : display measured values and waveforms, Simple logging function, Waveform monitor function, Hold save function	
Power supply	LR03 Alkaline battery ×2, Continuous use: 24 hr (Backlight OFF, Bluetooth® ON), 45 hr (Backlight OFF, Bluetooth® OFF)	
Core jaw diameter	69 mm (2.72 in) W× 14 mm (0.55 in) D, φ33 mm (1.30 in)	92 mm (3.62 in) W×18 mm (0.71 in) D, φ55 mm (2.17 in)
Dimensions and mass	65 mm (2.56 in) W × 215 mm (8.46 in) H × 35 mm (1.38 in) D mm, 340 g (12.0 oz)	65 mm (2.56 in) W×250 mm (9.84 in) H×35 mm (1.38 in) D mm, 530 g (18.7 oz)
Accessories	TEST LEAD L9207-10, CARRYING CASE C0203, LR03 Alkaline battery ×2, Instruction Manual ×1, Precautions Concerning Use of Equipment that Emits Radio Waves ×1	

Rugged AC/DC Clamp for the Toughest Situations

AC/DC CLAMP METER **CM4371, CM4373**

True RMS
CE
CAT Ⅳ 600 V
CAT Ⅲ 1000 V
3 year Warranty
DESIGN AWARD 2016
Germany iF Design Award
CM4371 series

- Multiple measurement functions
- Automatic AC/DC function helps boost work efficiency
- Measure DC voltages of up to 1700 V
- Simultaneously measure inrush current in RMS and crest values
- Expanded -25 °C to 65 °C operating temperature range
- IP54 dustproof and waterproof enclosure *Jaws (current sensor portion): IP50

Model No. (Order Code)	**CM4371**
	CM4373

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CM4371	CM4373
DC Current range	20.00 A/600.0 A, Basic accuracy: ±1.3% rdg. ±0.08 A (20 A range)	600.0 A/2000 A, Basic accuracy: ±1.3% rdg. ±0.3 A (600 A range)
AC Current range	20.00 A/600.0 A (10 Hz to 1 kHz, True RMS), Basic accuracy: ±1.3% rdg. ±0.08 A (at 20 A)	600.0 A/2000 A (10 Hz to 1 kHz, True RMS), Basic accuracy: ±1.3% rdg. ±0.3 A (at 600 A)
Crest factor	20.00 A range: 7.5 600.0 A range: 3 or less	600.0 A range: 3 or less, 2000 A range: 2.84 or less
DC+AC Current range	20.00 A/600.0 A (10 Hz to 1 kHz, True RMS), Basic accuracy:±1.3% rdg. ±0.13 A (at 20 A)	600.0 A/2000 A (10 Hz to 1 kHz, True RMS), Basic accuracy: ±1.3% rdg. ±1.3 A (at 600 A)
DC Voltage range	600.0 mV to 1500 V, 5 ranges, Basic accuracy: ±0.5% rdg. ±3 dgt.	
AC Voltage range	6.000 V to 1000 V, 4 ranges (15 Hz to 1 kHz, True RMS), Basic accuracy: ±0.9% rdg. ±3 dgt.	
DC+AC Voltage range	6.000 V to 1000 V, 4 ranges, Basic accuracy: ±1.0% rdg. ±7 dgt.	
Resistance range	600.0 Ω to 600.0 kΩ, 4 ranges, Basic accuracy: ±0.7% rdg. ±5 dgt.	
Capacitance range	1.000 µF to 1000 µF, 4 ranges, Basic accuracy: ±1.9% rdg. ±5 dgt.	
Frequency range	9.999 Hz to 999.9 Hz, Basic accuracy: ±0.1% rdg. ±1 dgt.	
Temperature (K)	-40.0 to 400.0 ˚C, add temperature probe accuracy to basic accuracy of ±0.5% rdg. ±3.0 ˚C	
Voltage detection	Hi: 40 V to 600 V AC, Lo: 80 V to 600 V AC, 50/60 Hz	
Other functions	Automatic AC/DC detection, Plus/Minus judgement function of DC A, DC V, Max/Min/ Average/PEAK MAX/ PEAK MIN value display, Filter function, Display value hold, Auto hold, Back light, Auto-power save, Buzzer sounds, Zero-adjustment	
Dustproof, waterproof	Grip: IP54 (when measuring an insulated conductor only), Jaw (the current sensor portion of the instrument)/ barrier: IP50 *Risk of electric shock from the conductor being measured increases when wet.	
Power supply	LR03 Alkaline battery ×2, Continuous use 45 hr (Backlight OFF)	
Core jaw diameter	69 mm (2.72 in) W× 14 mm (0.55 in) D, φ33 mm (1.30 in)	92 mm (3.62 in) W×18 mm (0.71 in) D, φ55 mm (2.17 in)
Dimensions and mass	65 mm (2.56 in) W × 215 mm (8.46 in) H × 35 mm (1.38 in) D mm, 340 g (12.0 oz)	65 mm (2.56 in) W×250 mm (9.84 in) H×35 mm (1.38 in) D mm, 530 g (18.7 oz)
Accessories	TEST LEAD L9207-10, CARRYING CASE C0203, LR03 Alkaline battery ×2, Instruction Manual×1	

Shared options for CM4371 to CM4374

Test leads

Options for the L9207-10 (L9207-10 is a bundled accessory)

TEST LEAD L9207-10
90 cm (2.95 ft) length

CONTACT PIN SET L4933
Attaches to the tip of the Test Lead L9207-10/ DT4911, L9206, 60V DC/ 30V AC

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

Temperature measurement

THERMOCOUPLES(K) DT4910
K type, tip exposed, 0.3 mm (0.01 in) diameter, 80 cm (2.62 ft) length, -40 to 260 °C (-40 to 500 °F)

Other options

Bundled accessory

CARRYING CASE C0203

PC peripherals

*For the CM4372, CM4374 only

GENNECT Cross SF4071, SF4072
Mobile app for iOS, Android

Options for Test leads

Options for the L4930, Test Pin Set L4932 is required when using the Small Alligator Clip Set L4934

CONNECTION CABLE SET L4930
1.2 m (3.94 ft) length

EXTENSION CABLE SET L4931
Expands the length of the cable with banana plug, 1.5 m (4.92 ft) length

TEST PIN SET L4932
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/DT4911, L9206, CAT III 300V, CAT II 600V

ALLIGATOR CLIP SET L4935
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

BUS BAR CLIP SET L4936
Attaches to the tip of the banana plug cable, CAT III 600V

MAGNETIC ADAPTER SET L4937
Attaches to the tip of the banana plug cable, CAT III 1000V

TEST PIN SET L4938
Attaches to the tip of the banana plug cable, CAT III 600V

BREAKER PIN SET L4939
Attaches to the tip of the banana plug cable, CAT III 600V

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, CAT III 1000 V, 196 mm (7.72 in) length

Compact & Easy, One-Touch Maintenance on All Types of AC/DC Equipment

CLAMP ON AC/DC HiTESTER 3288

3288

3288-20

CE
CAT III 600 V (Current)
CAT III 300 V (Voltage)
CAT II 600 V (Voltage)
3 year Warranty
True RMS

- Model 3288-20: True RMS
- Use the 3288 for high current measurements such as UPS emergency batteries and train motors
- Voltage, resistance, and continuity check functions

Model No. (Order Code) **3288:** (Average rectified)
3288-20: (True RMS)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	3288	3288-20
DC Current range	100.0/ 1000 A, Basic accuracy: ±1.5 % rdg. ±5 dgt.	
AC Current range	100.0/ 1000 A, (10 Hz to 500 Hz, Average rectified), Basic accuracy: ±1.5 % rdg. ±5 dgt.	100.0/ 1000 A, (10 Hz to 500 Hz, True RMS), Basic accuracy: ±1.5 % rdg. ±5 dgt.
DC Voltage range	419.9 mV to 600 V, 5 ranges, Basic accuracy: ±1.3 % rdg. ±4 dgt.	
AC Voltage range	4.199 V to 600 V, 4 ranges, Basic accuracy: ±2.3 % rdg. ±8 dgt. (30 to 500 Hz, Average rectified)	4.199 V to 600 V, 4 ranges, Basic accuracy: ±2.3 % rdg. ±8 dgt. (30 to 500 Hz, True RMS)
Resistance range	419.9 Ω to 41.99 MΩ, 6 ranges, Basic accuracy: ±2 % rdg. ±4 dgt.	
Crest factor	N/A	3 or less (2 at 1000 A range, 1.5 at Voltage)
Other functions	Continuity: (50 Ω ±40 Ω) or less buzzer sounds, Data hold, Auto power save, Auto zero (DC A)	
Display	LCD, max. 4199 dgt., Display refresh rate: 2.5 times/s	
Power supply	Coin type lithium battery (CR2032) ×1, Continuous use 60 hours	Coin type lithium battery (CR2032) ×1, Continuous use 35 hours
Core jaw dia.	φ 35 mm (1.38 in)	
Dimensions and mass	57 mm (2.24 in)W × 180 mm (7.09 in)H × 16 mm (0.63 in)D, 150 g (5.3 oz)	
Accessories	Instruction manual ×1, Test lead L9208 ×1, Carrying case 9398 ×1	

Bundled Accessories

CARRYING CASE 9398

TEST LEAD L9208
70 cm (2.30 ft) length

TEST LEADS HOLDER 9209
Secures one end of each test lead to the rear of the meter

Compact & Easy, One-Touch Maintenance on All Types of AC/DC Equipment

CLAMP ON AC/DC HiTESTER 3287

True RMS
CE
CAT III 600 V (Current)
CAT III 300 V (Voltage)
CAT II 600 V (Voltage)
3 year Warranty

- True RMS
- Accurately measure even small currents with 10 A range
- Voltage, resistance, and continuity check functions

Model No. (Order Code) **3287**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Current range	10.00/ 100.0 A, Basic accuracy: ±1.5 % rdg. ±5 dgt.
AC Current range	10.00/ 100.0 A (10 Hz to 1 kHz, True RMS) Basic accuracy: ±1.5 % rdg. ±5 dgt.
DC Voltage range	419.9 mV to 600 V, 5 ranges, Basic accuracy: ±1.3 % rdg. ±4 dgt.
AC Voltage range	4.199 V to 600 V, 4 ranges (30 to 500 Hz, True RMS) Basic accuracy: ±2.3 % rdg. ±8 dgt.
Resistance range	419.9 Ω to 41.99 MΩ, 6 ranges, Basic accuracy: ±2 % rdg. ±4 dgt
Crest factor	2.5 or less (150 A, 1000 V max.)
Other functions	Continuity: (50 Ω ±40 Ω) or less buzzer sounds, Data hold, Auto power save, Auto zero (DC A)
Display	LCD, max. 4199 dgt., Display refresh rate: 2.5 times/s
Power supply	Coin type lithium battery (CR2032) ×1, Continuous use 25 hours
Core jaw dia.	φ 35 mm (1.38 in)
Dimensions and mass	57 mm (2.24 in)W × 180 mm (7.09 in)H × 16 mm (0.63 in)D, 170 g (6.0 oz)
Accessories	Instruction manual ×1, Test lead L9208 ×1, Carrying case 9398 ×1

Bundled Accessories

CARRYING CASE 9398

TEST LEAD L9208
70 cm (2.30 ft) length

TEST LEADS HOLDER 9209
Secures one end of each test lead to the rear of the meter

AC/DC Current Measurements Up to 2000 A

CLAMP ON AC/DC HiTESTER 3285

True RMS
3 year Warranty
Not CE Marked

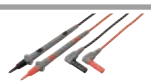
- Analog output for current measuring level, current measuring waveform, or frequency measuring level.
- Peak hold function displays the crest value peak current up to 2840 A
- AC+DC mode enables measurement of the RMS value of full- or half-wave rectified waveforms

Model No. (Order Code) **3285** (Not CE marked, with monitor/analog output)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Current range	200.0/ 2000 A, Basic accuracy: ±1.3 % rdg. ±3 dgt.
AC Current range	200.0/ 2000 A (10 Hz to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.3 % rdg. ±3 dgt.
DC Voltage range	30.00 V to 600 V, 3 ranges, Basic accuracy: ±1.0 % rdg. ±3 dgt.
AC Voltage range	30.00 V to 600 V, 3 ranges (10 to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.0 % rdg. ±3 dgt.
Crest factor	2.5 or less (1.42 at 2000 A, 1.7 at 600 V)
Monitor, Analog output	DC, or AC 1 V/ f.s., Level output, Waveform output: DC to 15 kHz bandwidth (±3dB)
Resistance, Continuity check	N/A
Frequency range	1.00 Hz to 1000 Hz, Basic accuracy: ±0.3 % rdg. ±1 dgt.
Other functions	AC+DC mode, Maximum/ Minimum/ Average value record function, Data hold, Peak hold, Auto power off, Auto zero
Display	Display refresh rate: 4 times/s (Fast), 1 time/3s (Slow), 4 times/s (bar graph)
Power supply	6F22 (Stacked manganese battery) ×1, Continuous use: 25 hours, or AC adapter 9445-02/-03
Core jaw dia.	φ 55 mm (2.17 in)
Dimensions and mass	62 mm (2.44 in) W × 260 mm (10.24 in) H × 39 mm (1.54 in) D, 540 g (19.0 oz)
Accessories	Test lead L9207-10 ×1, Carrying case 9345 ×1, Hand strap ×1, 6F22 (Stacked manganese battery) ×1, Instruction manual ×1

Bundled Accessories



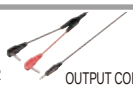
TEST LEAD L9207-10
90 cm (2.95 ft) length

CARRYING CASE 9345

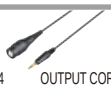
Options

AC ADAPTER 9445-02
100 to 240 V AC

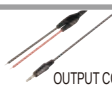
AC ADAPTER 9445-03
For EU 100 to 240 V



OUTPUT CORD L9094
Connect to Banana terminal, 1.5 m (4.92 ft) length



OUTPUT CORD L9095
Connect to BNC terminal, 1.5 m (4.92 ft) length



OUTPUT CORD L9096
Connect to terminal block, 1.5 m (4.92 ft) length

Analysis for DC to Distorted Waves

CLAMP ON AC/DC HiTESTER 3284

True RMS

3 year Warranty

Not CE Marked

- Analog output for current measuring level, current measuring waveform, or frequency measuring level.
- Peak hold function displays the crest value of the inrush current occurring when electrical equipment starts
- AC+DC mode enables measurement of the RMS value of full- or half-wave rectified waveforms

Model No. (Order Code) **3284** (with monitor/analog output)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

DC Current range	20.00/ 200.0 A, Basic accuracy: ±1.3 % rdg. ±3 dgt.
AC Current range	20.00/ 200.0 A (10 Hz to 2 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.3 % rdg. ±3 dgt.
DC Voltage range	30.00 V to 600 V, 3 ranges, Basic accuracy: ±1.0 % rdg. ±3 dgt.
AC Voltage range	30.00 V to 600 V, 3 ranges (10 to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.0 % rdg. ±3 dgt.
Crest factor	2.5 or less (1.5 at 200 A, 1.7 at 600 V)
Monitor, Analog output	DC, or AC 1 V/ f.s., Level output, Waveform output: DC to 20 kHz bandwidth (±3dB)
Resistance, Continuity check	N/A
Frequency range	1.00 Hz to 1000 Hz, Basic accuracy: ±0.3 % rdg. ±1 dgt.
Other functions	AC+DC mode, Maximum/ Minimum/ Average value record function, Data hold, Peak hold, Auto power off, Auto zero
Display	Display refresh rate: 4 times/s (Fast), 1 time/3s (Slow), 4 times/s (bar graph)
Power supply	6F22 (Stacked manganese battery) ×1, Continuous use: 25 hours, or AC adapter 9445-02/-03
Core jaw dia.	φ 33 mm (1.30 in)
Dimensions and mass	62 mm (2.44 in) W × 230 mm (9.06 in) H × 39 mm (1.54 in) D, 460 g (16.2 oz)
Accessories	Test lead L9207-10 ×1, Carrying case 9399 ×1, Hand strap ×1, 6F22 (Stacked manganese battery) ×1, Instruction manual ×1

Bundled Accessories

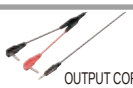
TEST LEAD L9207-10
90 cm (2.95 ft) length

CARRYING CASE 9399

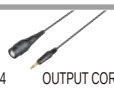
Options

AC ADAPTER 9445-02
100 to 240 V AC

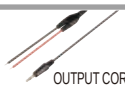
AC ADAPTER 9445-03
For EU 100 to 240 V



OUTPUT CORD L9094
Connect to Banana terminal, 1.5 m (4.92 ft) length



OUTPUT CORD L9095
Connect to BNC terminal, 1.5 m (4.92 ft) length



OUTPUT CORD L9096
Connect to terminal block, 1.5 m (4.92 ft) length

True RMS Multi-Functional Clamp Testers for Distorted Waveforms

DIGITAL CLAMP ON HiTESTER 3281, 3282

Not CE Marked
Current : CAT Ⅲ 600 V
Voltage : CAT Ⅳ 600 V
3281

CE
CAT Ⅳ 600 V
3282

True RMS

- Choose from two models to measure current up to 600A or 1000A
- Multi-functional testing of AC current, voltage, frequency, resistance and wave peak value
- Non-fuse type protects up to 600 V AC

Model No. (Order Code) **3281**
3282

Note: The 3281/3282 includes a temperature measurement function, but because the optional Thermister Temperature Probe 9462 has been discontinued, the function is not available for new customers.

Bundled Accessories

TEST LEAD L9207-10
90 cm (2.95 ft) length

CARRYING CASE 9399

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	3281	3282
AC Current range	30.00 to 600 A, 3 ranges (40 Hz to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.0 % rdg. ±5 dgt.	30.00 to 1000 A, 3 ranges (40 Hz to 1 kHz, True RMS), Basic accuracy45-66 Hz: ±1.0 % rdg. ±5 dgt.
AC Voltage range	300.0/ 600 V (40 Hz to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.0 % rdg. ±3 dgt.	
Crest factor	2.5 or less (1.7 at 600 A, 1.7 at 600 V)	2.5 or less (1.7 at 1000 A, 1.7 at 600 V)
Monitor, Analog output	N/A	
Frequency range	30.0 Hz to 1000 Hz, Basic accuracy: ±0.3 % rdg. ±1 dgt.	
Resistance, Continuity check	1000 Ω/ 10.00 kΩ, Basic accuracy: ±1.5 % rdg. ±5 dgt., Continuity: Beep sound at 30 Ω or less	
Other functions	Current wave peak value, Voltage wave peak value, Distortion check (Crest factor 1.00 to 5.00), Maximum/ Minimum/ Average value record function, Data hold, Auto power off	
Display	LCD, Max. 3000 dgt., Display refresh rate: 4 times/s (Fast), 1 time/3s (Slow), 4 times/s (bar graph)	
Power supply	Stacked manganese battery (6F22) ×1, Continuous use: 45 hours	
Core jaw dia.	φ 33 mm (1.30 in)	φ 46 mm (1.81 in)
Dimensions and mass	62 mm (2.44 in) W × 218 mm (8.58 in) H × 39 mm (1.54 in) D, 350 g (12.3 oz)	62 mm (2.44 in) W × 230 mm (9.06 in) H × 39 mm (1.54 in) D, 400 g (14.1 oz)
Accessories	Test lead L9207-10 ×1, Instruction manual ×1, Carrying case 9399 ×1, Hand strap ×1, Stacked manganese battery (6F22) ×1	

Rugged & Compact, Quickly clamp wires in even more confined spaces!

AC CLAMP METER 3280-10F, CM3289

3280-10F

New

CM3289

CE
CAT Ⅳ 300 V (Current)
CAT Ⅲ 600 V (Current)
CAT Ⅲ 300 V (Voltage)
CAT Ⅱ 600 V (Voltage)

3 year Warranty

Drop-proof

True RMS

- The CM3289 is the successor to the popular 3280-20F with a redesigned thinner sensor to help you get into the tightest spaces.
- New redesigned sensor for even easier clamping (CM3289)
- Expanded -25 °C to 65 °C operating temperature range
- Model CM3289: Measure even harmonic waveform components using the True RMS method
- Model 3280-10F: Measure the fundamental waveform component using the average rectified method
- Connect the CT6280 flexible sensor to measure up to 4199 A in thick or paired wires

Model No. (Order Code) **3280-10F** (Average rectified)
3280-70F (3280-10F, CT6280 bundled model)
CM3289 (True RMS)

Note: The 3280-70F includes both the meter and an AC Flexible Current Sensor.
1: AC CLAMP METER 3280-10F×1
2: AC FLEXIBLE CURRENT SENSOR CT6280×1 3: CARRYING CASE C0205×1

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	3280-10F	CM3289
AC Current range	42.00 to 1000 A, 3 ranges (50 to 60 Hz, Average rectified), Basic accuracy: ±1.5 % rdg. ±5 dgt.	42.00 to 1000 A, 3 ranges (40 Hz to 1 kHz, True RMS), Basic accuracy: ±1.5 % rdg. ±5 dgt.
DC Voltage range	420.0 mV to 600 V, 5 ranges, Basic accuracy: ±1.0 % rdg. ±3 dgt.	
AC Voltage range	4.200 V to 600 V, 4 ranges (45 to 500 Hz, Average rectified), Basic accuracy: ±1.8 % rdg. ±7 dgt.	4.200 V to 600 V, 4 ranges (45 to 500 Hz, True RMS), Basic accuracy: ±1.8 % rdg. ±7 dgt.
Crest factor	N/A	2.5 or less at 2500 counts (Linearly decreases to 1.5 or less at 4200 count)
Resistance range	420.0 Ω to 42.00 MΩ, 6 ranges, Basic accuracy: ±2 % rdg. ±4 dgt.	
Other functions	Continuity: Buzzer sounds at 50 Ω ±40 Ω or less, Data hold, Auto power save, Drop-proof from height of 1 meter	
Display	LCD, max. 4199 dgt., Display refresh rate: 400 ms	
Power supply	Coin type lithium battery (CR2032) ×1 Continuous use 120 hours	Coin type lithium battery (CR2032) ×1 Continuous use 70 hours
Core jaw dia.	φ 33 mm (1.30 in)	
Dimensions and mass	57 mm (2.24 in) W × 175 mm (6.89 in) H × 16 mm (0.63 in) D, 100 g (3.5 oz)	57 mm (2.24 in) W × 181 mm (7.13 in) H × 16 mm (0.63 in) D, 100 g (3.5 oz)
Accessories	CARRYING CASE 9398 × 1, TEST LEAD L9208 × 1, Coin type lithium battery (CR2032) × 1, Instruction manual × 1	

■ CT6280 Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Core jaw dia.	φ 130 mm (5.12 in) (Cable cross-section diameter: 5 mm (0.20 in); tip cap diameter: 7 mm (0.28 in))
AC Current	419.9 A/ 4199 A, 2 ranges (±3.0 % rdg. ±5 dgt.)
Cable length	800 mm (31.5 in)

Bundled Accessories

TEST LEAD L9208
70 cm (2.30 ft) length

CARRYING CASE 9398

Options

The C0205 is a bundled accessory for the CT6280. 3280-70F. L4933, L4934 can be used on TEST LEAD L9208.

AC FLEXIBLE CURRENT SENSOR CT6280
Includes C0205 and attachment

CARRYING CASE C0205
For storing the CT6280, L9208 and main body

CONTACT PIN SET L4933
Attaches to the tip of the Test Lead L9207-10/ DT4911, L9206, 60V DC/ 30V AC

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

TEST LEADS HOLDER 9209
Secures one end of each test lead to the rear of the meter

Innovative Current Sensor Design, Easily Get Into Tight Spaces

AC CLAMP METER **CM4141, CM4142**

CAT Ⅳ 600 V
CAT Ⅲ 1000 V
True RMS
3 year Warranty

Bluetooth®
CM4142

- Easily get into tight spaces between cables thanks to thin sensor with a section minimum dimension of 11 mm
- Measurable up to 2000 A AC
- Various measurement functions such as resistance as well as AC voltage
- Expanded -25 °C to 65 °C operating temperature range
- Send measured values to a smarthone or tablet using Bluetooth® wireless technology (CM4142)

Model No. (Order Code) **CM4141**
CM4142 (Built-in Bluetooth® wireless technology)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CM4141	CM4142
AC Current range	60.00 to 2000 A, 3 ranges	
Other functions	To be determined	
Interface	N/A	Bluetooth® 4.0LE (Bluetooth®), Supported devices: iOS 8 or later, Android™ 4.3 or later smartphone/tablet GENNECT Cross (free downloadable app) : display measured values and more
Core jaw diameter	φ55 mm (2.17 in)	

For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store.
Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play
Download on the App Store

Innovative Current Sensor Design, Easily Get Into Tight Spaces

AC/DC CLAMP METER **CM4375, CM4376**

CAT Ⅳ 600 V
CAT Ⅲ 1000 V
True RMS
3 year Warranty

Bluetooth®
CM4376

- Easily get into tight spaces between cables thanks to thin sensor structure
- Measure up to 1000 A
- Automatic AC/DC function helps boost work efficiency
- Measure DC voltages of up to 1700 V
- Simultaneously measure inrush current in RMS and crest values
- Expanded -25 °C to 65 °C operating temperature range
- Send measured values to a smarthone or tablet using Bluetooth® wireless technology (CM4376)

Model No. (Order Code) **CM4375**
CM4376 (Built-in Bluetooth® wireless technology)

For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store.
Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play
Download on the App Store

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

	CM4375	CM4376
DC Current range	1000 A, (Max. display 999.9 A) , Basic accuracy: ±1.3% rdg. ±0.3 A (at 30.1 A - 999.9 A)	
AC Current range	1000 A (Max. display 999.9 A, 10 Hz to 1 kHz, True RMS), Basic accuracy 45-66 Hz: ±1.3% rdg. ±0.3 A (at 30.1 A - 900.0 A)	
Crest factor	1.5	
DC+AC Current range	1000 A (DC, 10 Hz to 1 kHz, True RMS), Basic accuracy DC, 45-66 Hz: ±1.3% rdg. ±1.3 A (at 30.1 A - 900.0 A)	
DC Power range	0.0 VA to 1700 kVA (Automatically switched based on voltage range), Basic accuracy: ±2.0% rdg. ±20 dgt.	
DC Voltage range	600.0 mV to 1500 V, 5 ranges, Basic accuracy: ±0.5% rdg. ±0.5 mV (at 600 mV)	
AC Voltage range	6.000 V to 1000 V, 4 ranges (15 Hz to 1 kHz, True RMS), Basic accuracy: ±0.9% rdg. 0.003 V (at 6 V)	
DC+AC Voltage range	6.000 V to 1000 V, 4 ranges, Basic accuracy: DC, 45-66 Hz: ±1.0% rdg. ±0.023 V (at 6 V)	
Resistance range	600.0 Ω to 600.0 kΩ, 4 ranges, Basic accuracy: ±0.7% rdg. ±5 dgt.	
Electrostatic capacity range	1.000 μF to 1000 μF, 4 ranges, Basic accuracy: ±1.9% rdg. ±5 dgt.	
Frequency range	9.999 Hz to 999.9 Hz, Basic accuracy: ±0.1% rdg. ±1 dgt.	
Temperature (K)	-40.0 to 400.0 °C, add temperature probe accuracy to basic accuracy of ±0.5% rdg. ±3.0 °C	
Other functions	Automatic AC/ DC detection, DC current and DC voltage polarity detection function, MAX/ MIN/ AVG/ PEAK MAX/ PEAK MIN value display, Low-pass filter function, Display value hold, Auto hold, Backlight, Auto power save, Buzzer sound, Zero-adjustment	
Dustproof, waterproof	IP20 (Measurement of voltage or current of a hazardous live conductor under completely dry conditions) IP50 (Measurement of resistance under completely dry conditions) IP54 (Storage or measurement of current of an insulated conductor)	
Interface	N/A	Bluetooth® 4.0LE (Bluetooth®), Supported devices: iOS 8 or later, Android™ 4.3 or later smartphone/tablet GENNECT Cross (free downloadable app) : display measured values and waveforms, Simple logging function, Waveform monitor function, Hold save function
Power supply	LR03 Alkaline battery ×2, Continuous use: 40 hr (Backlight OFF)	LR03 Alkaline battery ×2, Continuous use: 20 hr (Backlight OFF, Bluetooth® ON)
Core jaw diameter	φ34 mm (1.34 in)	
Smallest dimension of jaw cross-section	9.5 mm (0.37 in)	
Dimensions and mass	65 mm (2.56 in) W × 242 mm (9.53 in) H × 35 mm (1.38 in) D mm, 330 g (11.6 oz)	
Accessories	TEST LEAD L9207-10, CARRYING CASE C0203, LR03 Alkaline battery ×2, Instruction Manual ×1, Precautions Concerning Use of Equipment that Emits Radio Waves ×1	

Shared options for CM4141, CM4142, CM4375, CM4376

Test leads

Options for the L9207-10 (L9207-10 is a bundled accessory)

TEST LEAD L9207-10
90 cm (2.95 ft) length

CONTACT PIN SET L4933
Attaches to the tip of the Test Lead L9207-10/ DT4911, L9206, 60V DC/30V AC

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/ DT4911, L9206, CAT III 300V, CAT II 600V

Temperature measurement

THERMOCOUPLES(K) DT4910
K type, tip exposed, 0.3 mm (0.01 in) diameter, 80 cm (2.62 ft) length, -40 to 260 °C (-40 to 500 °F)

Other options

Bundled accessory

CARRYING CASE C0203

Software

*For the CM4142, CM4376 only

GENNECT Cross SF4071, SF4072
Mobile app for iOS, Android

Options for Test leads

Options for the L4930, Test Pin Set L4932 is required when using the Small Alligator Clip Set L4934

CONNECTION CABLE SET L4930
1.2 m (3.94 ft) length

EXTENSION CABLE SET L4931, Expands the length of the cable with banana plug, 1.5 m (4.92 ft) length

TEST PIN SET L4932
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

SMALL ALLIGATOR CLIP SET L4934
Attaches to the tip of the L4932, L9207-10/DT4911, L9206, CAT III 300V, CAT II 600V

ALLIGATOR CLIP SET L4935
Attaches to the tip of the banana plug cable, CAT IV 600V, CAT III 1000V

BUS BAR CLIP SET L4936
Attaches to the tip of the banana plug cable, CAT III 600V

MAGNETIC ADAPTER SET L4937
Attaches to the tip of the banana plug cable, CAT III 1000V

MAGNETIC ADAPTER 9804
Attaches to the tip of voltage cord, φ11 mm (0.43 in), compatible M6 pan screws

TEST PIN SET L4938
Attaches to the tip of the banana plug cable, CAT III 600V

BREAKER PIN SET L4939
Attaches to the tip of the banana plug cable, CAT III 600V

GRABBER CLIP 9243
Attaches to the tip of the banana plug cable, CAT III 1000 V, 196 mm (7.72 in) length

Easily Read Measured Values from All Heights with the Adjustable Display

CLAMP ON LEAK HiTESTER 3293-50

Slim core opens wide for easier clamping.

Display rotates freely through 180° to keep measurements in view.

180° Open and Close system

True RMS

CE

CAT III 300 V

3 year Warranty

- Measure for leakage current and load all with the same device
- Innovative flip clamp design
- Flip display to see measurement readings from any angle
- 1mA to 1000A accuracy guaranteed, 6 ranges and bar graph display
- Measure and display only the leakage current of commercial frequency components using the filter function

Model No. (Order Code) **3293-50**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

AC Current range	30.00 m/ 300.0 m/ 6.000/ 60.00/ 600.0/ 1000 A, 6 ranges, 45 Hz to 400 Hz, True RMS Basic accuracy: ±1.5% rdg. ±5dgt. (50/60 Hz, filter ON)
AC Voltage range	N/A
Frequency range	N/A
Crest factor	2.8 or less (1.68 or less at 1000 A range)
Filter function	Cut off frequency 180 Hz at filter ON (–3 dB)
Output function	N/A
Other functions	Flip-open mechanism (but still retaining proper orientation of display), Backlight, Maximum value display, Data hold, Auto power off
Display	Digital LCD, max. 6000 dgt., 91 segments Display refresh rate: 1.1 sec or less
Power supply	Coin type lithium battery (CR2032) ×1, Continuous use 18 hours
Core jaw dia.	φ 24 mm (0.94 in)
Dimensions and mass	50 mm (1.97 in) W × 130 mm (5.12 in) H × 26 mm (1.02 in) D, 135 g (4.8 oz)
Accessories	Carrying case 9757 ×1, Strap ×1, Instruction manual ×1, Coin type lithium battery (CR2032, for trial purposes only) ×1

Bundled Accessories

CARRYING CASE 9757
Soft type

Easily Monitor Leak Current Fluctuations

CLAMP ON LEAK HiTESTER 3283

Not CE Marked
3283

CE
CAT III 300 V
3283-20

True RMS

Insulated conductor

3 year Warranty

- Measure leak current using highly sensitive 10µA resolution (at 10.00 mA range)
- Indicate 50/60 Hz leak current components with the filtering function
- Monitor leak current conditions in combination with a Memory HiCorder (monitor output, Model 3283 only)
- 3283-20: EN 61010-2-032:2012 Type A to measure uninsulated hazardous live conductors such as busbars

Model No. (Order Code) **3283** (Not CE marked, with monitor/analog output)
3283-20 (CE marked, without monitor/analog output)

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

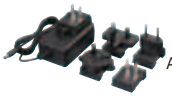
	3283	3283-20
AC Current range	10.00 m/ 100.0 m/ 1.000/ 10.00/ 200.0 A, 5 ranges, (40 Hz to 2 kHz, True RMS), Basic accuracy: ±1.0 % rdg. ±5 dgt., Guaranteed accuracy: from 1.00 mA	
AC Voltage range	N/A	
Frequency range	30.0 Hz to 1000 Hz, 2 ranges, Basic accuracy: ±0.3 % rdg. ±1 dgt.	
Crest factor	2.5 or less (1.5 at 200 A range)	
Filter function	Cut off frequency at filter ON: 180 Hz (-3dB)	
Output	REC output for current: DC 1 V/f.s. (2 V/f.s. at only 200 A range), response time: less than 200 ms. MON output for current: AC 1 V/f.s. (2 V/f.s. at only 200 A range), 5 Hz to 15 kHz frequency bandwidth (-3 dB)	N/A
Other functions	Max./ Min./ Average value record, Data hold, Auto power off	
Display	LCD, max. 2000 dgt., Display refresh rate: 4 times/s (Fast), 1 time/3s (Slow), 4 times/s (bar graph)	
Power supply	6LR61 (Stacked alkaline battery) ×1, or 6F22 (Stacked manganese battery), Continuous use: 40 hours (using 6F22), AC adapter 9445-02/-03	6LR61 (Stacked alkaline battery) ×1, or 6F22 (Stacked manganese battery), Continuous use: 40 hours (using 6F22)
Core jaw dia.	φ 40 mm (1.57 in)	
Dimensions and mass	62 mm (2.44 in) W × 225 mm (8.86 in) H × 39 mm (1.54 in) D, 400 g (14.1 oz)	
Accessories	Carrying case 9399 ×1, Hand strap ×1, Stacked manganese battery (6F22) ×1, Instruction manual ×1	Carrying case 9399 ×1, Hand strap ×1, Alkaline battery (6LR61) ×1, Instruction manual ×1

Bundled Accessories

CARRYING CASE 9399

Options

*For the 3283 only



AC ADAPTER 9445-02
100 to 240 V AC

AC ADAPTER 9445-03
For EU 100 to 240 V

OUTPUT CORD L9094
Connect to Banana terminal, 1.5 m (4.92 ft) length

OUTPUT CORD L9095
Connect to BNC terminal, 1.5 m (4.92 ft) length

OUTPUT CORD L9096
Connect to terminal block, 1.5 m (4.92 ft) length

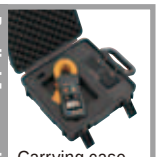
Easy Pole Earth Resistance Measurement with Super Slim Jaw

CLAMP ON EARTH TESTER **FT6380, FT6381**


FT6380


Bluetooth® FT6381

True RMS
CE
CAT IV 600 V
3 year Warranty

Bundled Accessories

Carrying case

- Earth resistance measurement for multi-grounded systems
- Measure leak current with absolute certainty with highly sensitive 0.01 mA resolution (at 20.00 mA range)
- Measure load current up to 60.0 A range
- Clamp at the narrowest point
- Data transfer to Android™ phones using Bluetooth® wireless technology (FT6381)
- Real time data transfer, automatic report generation on Android™ phone (FT6381)

Model No. (Order Code) **FT6380**
FT6381 (Built in Bluetooth(R) wireless technology)

Note: The application supports Android™ OS 2.1 or later, but proper operation is not guaranteed on all Android™ handsets. Please download and install the "FT6381 Communication Software" from the Google Play™ store in order to use the wireless connection function with an Android™ phone.
**For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.*

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement principle	Instrument has two cores for voltage injection and current measurement. From the defined voltage and measured current, the total circuit loop resistance is calculated *Note: For multi grounded systems only. In a multi-grounded system, the larger the number of grounding poles, the more accurate the measured value.*
Earthing resistance range	0.20 Ω (0.01 Ω resolution) to 1600 Ω (20 Ω resolution), 10 ranges, Zero suppression: Less than 0.02 Ω, Accuracy: ±1.5 % rdg. ±0.02 Ω
AC Current range	20.00 mA (0.01 mA resolution) to 60.0 A (0.1 A resolution), 5 ranges, Zero suppression: Less than 0.05 mA, Accuracy: ±2.0 % rdg. ±0.05 mA (30 Hz to 400 Hz, True RMS), Crest factor 5.0 or less (for the 60 A range, 1.7 or less)
Max. allowable input	100 A AC continuous, AC 200 A for 2 minutes or shorter (at 50/60 Hz, requires derating at frequency)
Max. rated voltage to earth	600 V AC CAT IV
Memory function	2000 data
Alarm function	For resistance measurement and current measurement, Beeps when measured value is less than or greater than threshold
Other functions	Data hold, Backlight, Filter, Auto power save
Display	Digital LCD, max. 2000 dgt., Display refresh rate: 500 ms (2 times/s)
Dustproof and waterproof	IP40 (EN60529) with clamp sensor closed
Communication interface	Model FT6381 only: *Bluetooth*® v2.1+EDR, Compatibility for Smartphone / Tablet, Displays measured values on the screen of an Android™ handset via *Bluetooth*®, Applicable OS: Android™ 2.1 or later
Power supply	LR6 (AA) alkaline battery ×2, Max. rated power: 450 mVA, Continuous use : 35 hr (in-house testing conditions)
Core jaw dia.	φ 32 mm (1.26 in)
Dimensions and mass	73 mm (2.87 in)W × 218 mm (8.58 in)H × 43 mm (1.69 in)D, 620 g (21.9 oz)
Accessories	Carrying case ×1, Resistance check loop (1 Ω, 25 Ω) ×1, Strap ×1, LR06 (AA) alkaline battery ×2, Instruction manual ×1

Tough and Ready for the Field, IP67 Dustproof and Waterproof

EARTH TESTER **FT6031**

CE
CAT IV 100 V
CAT III 150 V
CAT II 300 V
3 year Warranty
Drop-proof

- IP67 protected – top of the industry
- Test all ground types from Class A to Class D with a single meter
- Wide 0 to 2000Ω measurement range
- Minimize cabling time with innovative earthing rods and cable winder

Model No. (Order Code) **FT6031-03**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement system	Switchable between two- and three- electrode methods		
Measurement range	20 Ω (0 to 20.00 Ω)	200 Ω (0 to 200.0 Ω)	2000 Ω (0 to 2000 Ω)
Accuracy	±1.5 %rdg. ±8 dgt.	±1.5 %rdg. ±4 dgt.	±1.5 %rdg. ±4 dgt.
Earth voltage	0 to 30.0 Vrms, Accuracy: ±2.3 %rdg. ±8 dgt. (50/60 Hz), ±1.3 %rdg. ±4 dgt. (DC)		
Dustproof and waterproof	IP65/IP67 (EN60529)		
Power supply	LR6 Alkaline battery ×4, Possible number of measurements: 100 times (measurement conditions: three-electrode method, measuring 10 Ω)		
Dimensions and mass	185 mm (7.28 in)W × 111 mm (4.37 in)H × 44 mm (1.73 in)D, 570 g (20.1 oz) (including protector and batteries)		
Accessories	Auxiliary earthing rod L9840 (2 piece set) ×1, Measurement cable (black 4 m) L9841 ×1, Measurement cable (yellow 10 m, equipped with winder) L9842-11 ×1, Measurement cable (red 20 m, equipped with winder) L9842-22 ×1, Carrying case C0106 ×1, Protector ×1, LR6 Alkaline battery ×4, Instruction manual ×1		

To ensure safety, use the optional Test Lead L9787 when making measurements using the two-electrode method.

Classic Ground Resistance Tester via 3-Pole Method with Easy Cord Winding System

ANALOG EARTH TESTER **FT3151**

CE
CAT II 300 V
3 year Warranty

- Three-electrode method, Two-electrode method (Simple Measurement)
- Wide measurement range for 0 to 1150 Ω, based on EN standard
- Switchable measurement frequency to reduce the effects of power supply harmonics
- Dramatically faster setup: Comes with improved grounding rods and cord winders.

Model No. (Order Code) **FT3151**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Measurement system	AC potentiometer method, Three-electrode method/ two-electrode method (switchable) Measuring frequency: 575 Hz/ 600 Hz Measurement current: Three-electrode method: 15 mA rms or less; Two-electrode method: 3 mA rms or less Open circuit voltage: 50 V AC rms or less		
Measurement range	10 Ω (0 to 11.5 Ω)	100 Ω (0 to 115 Ω)	1000 Ω (0 to 1150 Ω)
Nominal Deviation	±0.25 Ω	±2.5 Ω	±25 Ω
Functions	Auxiliary earth resistance check S (P)/ H(C)		
Earth potential measurement	0 to 30 V, Nominal Deviation: ±3.0 % f.s.		
Power supply	LR6 (AA) Alkaline battery ×6, 1100 times operation (at 30 sec. measurement/ 30 sec. rest cycle)		
Dimensions and mass	164 mm (6.46 in)W × 119 mm (4.69 in)H × 88 mm (3.46 in)D, 760 g (26.8 oz)		
Accessories	Auxiliary Earthing Rod L9840 (2 piece set) ×1, Measuring cable L9841 (alligator clip, black 4 m (13.12 ft)), Measurement Cable L9842-11 (yellow 10 m (32.81 ft), equipped with winder), Measurement Cable L9842-22 (red 20 m (65.62 ft), equipped with winder) ×1, LR6 (AA) Alkaline battery ×6, Carrying Case C0106 ×1, Instruction manual ×1		

To ensure safety, use the optional Test Lead L9787 when making measurements using the two-electrode method.

Shared options for FT6031 and FT3151

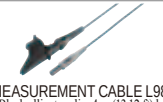
Option

SHOULDER STRAP Z5022
(Photograph shows strap affixed to instrument.)

Bundled Accessories

MEASUREMENT CABLE L9842-11
Yellow, 10 m (32.81 ft), equipped with winder


MEASUREMENT CABLE L9842-22
Red, 20 m (65.62 ft), equipped with winder

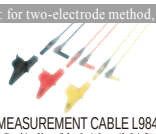

MEASUREMENT CABLE L9841
Black alligator clip, 4 m (13.12 ft) length

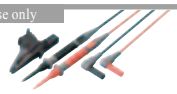

AUXILIARY EARTHING ROD L9840
2 piece set


CARRYING CASE C0106
Soft type, includes compartment for options

Options
L9844: for earthing terminal board, L9787: for two-electrode method, indoor use only


EARTH NETS 9050
Set of two, 30 cm (11.81 in) × 30 cm (11.81 in)


MEASUREMENT CABLE L9844
Red/yellow/black 1.2 m (3.94 ft) length


TEST LEAD L9787
Bundled with alligator clip, 1.2 m (3.94 ft) length


MEASUREMENT CABLE L9843-51
Yellow, 50 m (164.06 ft) length, equipped with flat cable winder

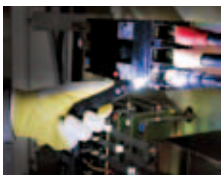

MEASUREMENT CABLE L9843-52
Red, 50 m (164.06 ft) length, equipped with flat cable winder

Non-Metallic Contact Voltage Detector with LED Light

VOLTAGE DETECTOR **3481**

CAT IV 600 V

3 year Warranty



White LED light illuminates dim locations.

- Non-contact detection of AC voltage from 40 V to 600 V with bright LED light
- Pen-style, compact detector with pocket clip
- Both visual and audible voltage detection indication
- Meets safety standards for CAT IV 600 V environments
- Prevent dead batteries with battery self-check function and auto power-off function

Model No. (Order Code) **3481-20**

■ Basic specifications

Measurement function	Voltage detection
Operating voltage range	40 V to 600 V AC (When brought into contact with a 2 mm² insulated cable equivalent to 600 V polyvinyl chloride insulated wire) Maximum sensitivity variable range 40 V to 80 V AC (80 V at the time of shipment)
Operating frequency	50 Hz/ 60 Hz
Pilot light	Red LED lights up and the buzzer sounds when the wire is live
Battery check	White LED is dim or out when the batteries are low.
Auto power off	The power will be turned off automatically if the instrument remains idle for 3 minutes after the power is turned on.
Power supply	LR44 button alkaline batteries ×3, Continuous use: 5 hr (Power ON standby state)
Dimensions and mass	20 mm (0.79 in)W× 126 mm (4.96 in)H× 15 mm (0.59 in)D (excluding projections), 30 g (1.1 oz) (including LR44 button alkaline batteries)
Accessories	Instruction manual ×1, LR44 button alkaline batteries ×3 (for trial purposes only)

Twin Light Audible Voltage Detector

VOLTAGE DETECTOR **3120**

CAT IV 1000 V

3 year Warranty

- Top “primary supply level” safety class rating for voltage detectors
- CAT IV 1000 V design meets CE Mark qualifications
- Continuously indicate battery status with green indicator lamp
- Both visual and audible voltage detection indication
- Automatic power switching prevents battery discharge

Model No. (Order Code) **3120**

■ Basic specifications

Measurement function	Voltage detection
Measurement voltage	70 to 1000 VAC, 50/60 Hz (when in contact with an IV 2 mm² or equivalent insulated wire)
Pilot light	The red LED lights up and the buzzer sounds when the wire is live
Battery check	Green LED
Power supply	R03 (AAA) manganese or LR03 (AAA) alkaline battery ×2, Continuous use: 200 hr (using the LR03 batteries)
Dimensions and mass	149 mm (5.87 in)H × φ 18.5 mm (0.73 in), 38 g (1.3 oz)
Accessories	Instruction manual ×1, R03 (AAA) manganese battery ×2 (for trial purposes only)

Just Clip onto Covered Cables for Safe and Fast 3-phase Line Inspection

DIGITAL PHASE DETECTOR **PD3259**

CAT IV 600 V

3 year Warranty

Drop-proof

- World’s first non-metallic contact voltage detection and testing
- Simply clip onto wire insulation
- Phase detection check and line-to-line voltage inspection at the same time
- Easy and intuitive phase detection check with backlight and buzzer
- Ideal for work certification photos, offering simultaneous display of phase sequence and 3-phase voltage

Note: Only the voltage value is displayed when measuring a single-phase/3-wire circuit.

Model No. (Order Code) **PD3259**

■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Detection functions	Positive phase, negative phase (Three-phase 3-wire, Three-phase 4-wire), open phase, prediction of ground phase (Three-phase 3-wire)
Measurement parameters	Three-phase AC voltage (line-to-line voltage and voltage to ground), Frequency • Voltage measurement accuracy: ±2.0% rdg. ±8 dgt., • Frequency measurement accuracy: ±0.5% rdg. ±1 dgt., • Response time: 3 s or less, Display update rate: 500 ms
Measurement targets	Covered cables, Metal portions *Use on shielded cables not supported Three-phase 90.0 to 520.0 V AC (45 to 66 Hz)
Diameter of measurable conductors	Finished outer diameter: 6 to 30 mm (0.24 to 1.18 in)
Maximum rated voltage to earth	600 V AC (CAT IV)
Environmental protection	Main unit (excluding voltage sensors): IP54 (EN60529) dustproof and waterproof
Other functions	Hold function, Backlight, Buzzer, Auto power-off, Low battery warning, Drop proof (on concrete, 1 m/ 1 time)
Power supply	AA alkaline batteries (LR6) ×4, Maximum rated power: 3 VA, Continuous operating time: 5 hours (Backlight off, standby state)
Dimensions and mass	84 mm (3.31 in)W × 146 mm (5.75 in)H × 46 mm (1.81 in)D, 590 g (20.8 oz, including batteries), cord length: 0.5 m (1.64 ft)
Accessories	AA alkaline batteries (LR6) ×4, Instruction manual ×1, Carrying case C0203 ×1, Spiral tubes (black ×1, red ×2, blue ×2, yellow ×2)

*C0203 is bundled.

Bundled Accessory

CARRYING CASE
C0203

Options

MAGNETIC STRAP
Z5020
Extra strength

Field Measuring Instruments

Easy-To-Read Arrow and No-Metal-Contact Clips for the Ultimate in Safety

PHASE DETECTOR **PD3129-10**

CE
CAT Ⅳ 600 V
CAT Ⅲ 1000 V
3 year Warranty

- Simply clip clamps onto wire insulation
- Green LED arrow clearly shows phase direction, perfect for visual reports
- CAT III 1000V
- Rotating LED indicator shows the phase sequence for a 3-phase power supply at a glance
- Intermittent beeps signal positive phase; continuous tone signals reverse phase
- Magnetic base allows the instrument to be secured on a distribution panel

Model No. (Order Code) **PD3129-10** (Large clips)

■ Basic specifications

Functions	Phase detection (positive and negative)
Voltage detection method	Static induction
Voltage range	70 to 1000 V AC (50/60 Hz) (sine wave, continuous input)
Frequency range	45 Hz to 66 Hz
Object to be connected	7 mm (0.28 in) to 40 mm (1.57 in) of insulated wiring
Display	Phase detection : Positive ; 4 LEDs lit in clockwise order and the buzzer sounds intermittently, green arrow lights up Negative ; 4 LEDs lit in counterclockwise order and the buzzer sounds continuously
Battery check function	Power ON lamp: lights up (Power ON), blinks (Battery LOW)
Auto power off	Auto shut off if no activity is detected after power is turned ON for 15 minutes
Power supply	R6P (AA) manganese battery ×2, Continuous use: 70 hr
Dimensions and mass	70 mm (2.76 in)W × 75 mm (2.95 in)H × 30 mm (1.18 in)D, 240 g (8.5 oz), Cord length : 0.7 m (2.30 ft)
Accessories	Carrying case ×1, Strap ×1, Spiral tube ×1, Instruction manual ×1, R6P (AA) manganese battery ×2

Easy-To-Read Arrow and No-Metal-Contact Clips for the Ultimate in Safety

PHASE DETECTOR **PD3129**

CE
CAT Ⅲ 600 V
3 year Warranty

- Simply clip clamps onto wire insulation
- Green LED arrow clearly shows phase direction, perfect for visual reports
- Rotating LED indicator shows the phase sequence for a 3-phase power supply at a glance
- Intermittent beeps signal positive phase; continuous tone signals reverse phase
- Magnetic base allows the instrument to be secured on a distribution panel

Model No. (Order Code) **PD3129**

■ Basic specifications

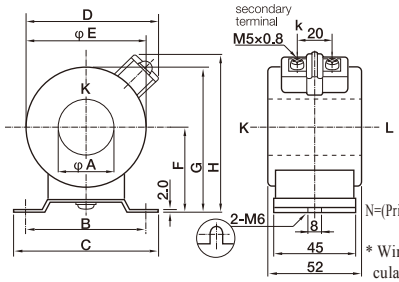
Functions	Phase detection (positive and negative)
Voltage detection method	Static induction
Voltage range	70 to 600 V AC (50/60 Hz) (sine wave,continuous input)
Frequency range	45 Hz to 66 Hz
Object to be connected	2.4 mm (0.09 in) to 17 mm (0.67 in) of insulated wiring
Display	Phase detection :Positive ; 4 LEDs lit in clockwise order and the buzzer sounds intermittently, green arrow lights up Negative ; 4 LEDs lit in counterclockwise order and the buzzer sounds continuously
Battery check function	Power ON lamp: lights up (Power ON), blinks (Battery LOW)
Auto power off	Auto shut off if no activity is detected after power is turned ON for 15 minutes
Power supply	R6P (AA) manganese battery ×2, Continuous use: 70 hr
Dimensions and mass	70 mm (2.76 in)W × 75 mm (2.95 in)H × 30 mm (1.18 in)D, 200 g (7.1 oz), Cord length : 0.7 m (2.30 ft)
Accessories	Carrying case ×1, Strap ×1, Spiral tube ×1, Instruction manual ×1, R6P (AA) manganese battery ×2

Expand Input Range for Use with Meter Relays (50/60 Hz, 1.0 % class)

CURRENT TRANSFORMER **CT-5MRN** series

Not CE Marked

■ Dimensions and connecting diagrams



N=(Primary current of the CT)÷(Full scale value of the Meter)

* Wind so that N loops of the conductor (as calculated above) pass through the center hole. For example, for 120 A:30 A, 4 loops (120 A / 30 A = 4) should pass through the center hole.

■ Basic specifications

Model	Primary	Secondary	Rated load	Class	Max. rated voltage
CT-5MRN100	100 A	5 A	5 VA	1.0 %	1150 V
CT-5MRN120	120 A	5 A	5 VA	1.0 %	1150 V
CT-5MRN150	150 A	5 A	5 VA	1.0 %	1150 V

Model No. (Order Code)
CT-5MRN100 (Primary current 100 A, output 5 VA)
CT-5MRN120 (Primary current 120 A, output 5 VA)
CT-5MRN150 (Primary current 150 A, output 5 VA)

■ Dimensions table

Symbol	φ A	B	C	D
Length	23 mm (0.91 in)	70 mm (2.76 in)	85 mm (3.35 in)	68 mm (2.68 in)

Symbol	φ E	F	G	H
Length	60 mm (2.36 in)	45 mm (1.77 in)	75 mm (2.95 in)	83 mm (3.27 in)

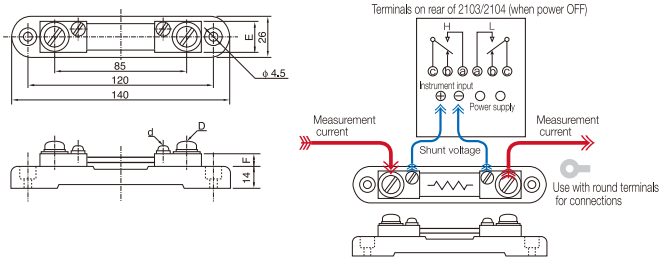
Expand Current Range for Use with the 50 mV Full Scale Meter (50/60 Hz, 0.5 % class)

EXTERNAL SHUNT **HS-1** series

Not CE Marked

- Expand current range for the Meter Relay, or a switchboard meter
- Combination use with the 50 mV meter

■ Dimensions and connecting diagrams



* Please note that connections' cores are not included. The total resistance of all shunt devices used should not exceed 0.1 Ω
* If product includes an instrument number or is packaged with an instrument, use in combination with that instrument
* Select a model such that input does not exceed 80 % of the rating. (0.5 accuracy definition requirements: 80 % or less of rated input, ambient temperature of 60 °C or less)

■ Basic specifications

Model	Rated current	Class
HS-1-30	30 A	±0.5 % at 80 % of rated current 60 °C or less around temperature
HS-1-50	50 A	
HS-1-75	75 A	
HS-1-100	100 A	
HS-1-150	150 A	
HS-1-200	200 A	
HS-1-300	300 A	±0.5 % at 0 A to 200 A ±1.0 % at 200 A to 240 A 60 °C or less around temperature

The total resistance of the connection cord must be 0.1 Ω or less

Model No. (Order Code)
HS-1-30 (30 A, class 0.5%)
HS-1-50 (50 A, class 0.5%)
HS-1-75 (75 A, class 0.5%)
HS-1-100 (100 A, class 0.5%)
HS-1-150 (150 A, class 0.5%)
HS-1-200 (200 A, class 0.5%)
HS-1-300 (300 A, class 1.0%)

Note: These products are built-to-order so please confirm specifications and delivery time with your local HIOKI distributor.

■ Dimensions table

Symbol	E	F	d	D
HS-1-30	20 mm (0.79 in)	6 mm (0.24 in)	M4 mm	M5 mm
HS-1-50	20 mm (0.79 in)	8 mm (0.31 in)	M4 mm	M8 mm
HS-1-75	20 mm (0.79 in)	8 mm (0.31 in)	M4 mm	M8 mm
HS-1-100	20 mm (0.79 in)	15 mm (0.59 in)	M5 mm	M8 mm
HS-1-150	20 mm (0.79 in)	15 mm (0.59 in)	M5 mm	M8 mm
HS-1-200	25 mm (0.98 in)	15 mm (0.59 in)	M5 mm	M10 mm
HS-1-300	25 mm (0.98 in)	15 mm (0.59 in)	M5 mm	M10 mm

Advancing Power Saving and Automation

METER RELAY 2103, 2104

3 year Warranty

Not CE Marked, Photo shows Model 2103HL

Not CE Marked, Photo shows Model 2104HL

- Ultra sensitive 1 μA, 10 mV DC movement
- Includes a display lamp to illuminate movement at a glance
- Relay action delays circuit closure upon power on
- Both power circuitry and relay built-in

H-type: Red LED lights up and output relay contact operates at deflection of the needle to the right of the setting needle

L-type: Green LED lights up and output relay contact operates at deflection of the needle to the left of the setting needle

HL-type: Provides functionality of both H- and L-type models

Model No. (Order Code)		
	2103H	(H type, upper-limit setting)
	2103L	(L type, lower-limit setting)
	2103HL	(HL type, upper/lower-limit setting)
	2104H	(H type, upper-limit setting)
	2104L	(H type, upper-limit setting)
	2104HL	(H type, upper-limit setting)

• 2.5 % class, Panel size: 84 mm (3.31 in): 2103H, 2103L, 2103HL
• 1.5 % class, Panel size: 104 mm (4.09 in): 2104H, 2104L, 2104HL

Note: These products are built-to-order so please confirm specifications and delivery time with your local HIOKI distributor.

When considering the purchase of Meter Relays:

- A Product Guide describing the specifications as well as a Meter Relay Specifications Check List are available.
- Please contact your local Hioki distributor or sales subsidiary for more information.

The Product Guide is also available for download at www.hioki.com

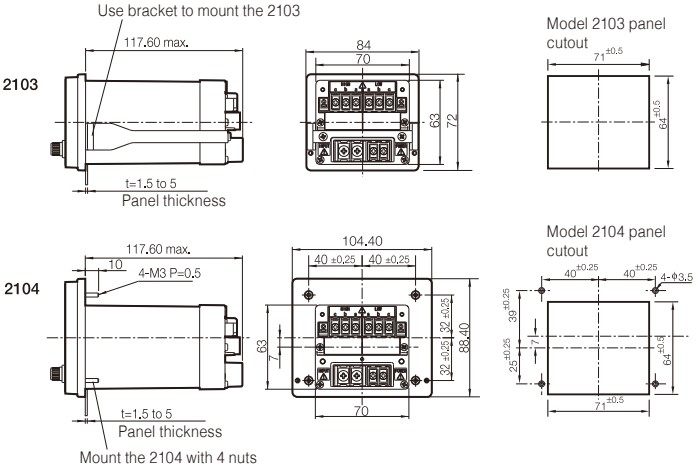
Special Specifications

- ±1.5% class: For Model 2103
- Extended scale: Double or triple extended scale
- Segmented scale: Magnified scale for up to 40 % of the maximum scale value, exclusive 4-20 mA scale model, or 1-5 V scale model
- Double deflection meter: For example, zero-centered scale
- Relay response time: Time constant 0.05 second fixed (DC) and variable types also available
- Delay time: Version with variable delay time after power on. 0.1 to 10 seconds: (for instruments input DC), 2 to 12 seconds: (for instruments input AC)
- Output signal: Version with 1 V DC /f.s. output terminal
  *Not isolated from input circuit ground.
- True RMS rectified with AC current meter, or AC voltage meter
- Specify a scale, or a unit

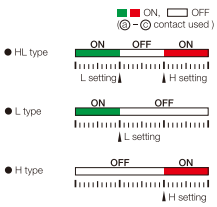
■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Indicator shape	φ 0.3 mm (0.01 in) pin
Accuracy class	[2103H/L/HL]: 2.5 %, [2104H/L/HL]: 1.5 %
Setting accuracy	Within 1.5 % of the full scale value (Independent of meter section)
Dead-zone width	Within 0.5 % of the scale length
Indicator operating range	Within the scale (passing indicator needle system)
Setting indicator (shape and color)	Spear shape H indicator (upper-limit side): Red, L indicator (lower-limit side): Green
Setting indicator setting range	Within the all range of scale for both H and L
Minimum H/L space	Within 3 % of the scale length
Delay time from power on	Approx. 2 s
Relay contact structure	One transfer for both H and L
Relay output response	Approx. 0.5 s (time constant)
Max. current of relay contact	5 A (Under condition of 250 V AC, 30 V DC, resistance load)
Power supply	100 V/200 VAC (to be specified at the time of ordering) 50/60 Hz, 3 VA max.

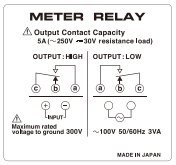
■ Dimensions



■ Contact operation



2103, 2104 (Rear view)
Terminal arrangement
(When power is OFF)



■ Standard scale graduations

e.g. for full-scale value	Graduations	Guraduation illustration
1, 10, 100	50	0 2 4 6 8 10
1.5, 15, 150	30	0 5 10 15
2, 20, 200	40	0 5 10 15 20
2.5, 25, 250	50	0 5 10 15 20 25
3, 30, 300	30	0 1 2 3
4, 8, 40	40	0 1 2 3 4
5, 50, 500	50	0 1 2 3 4 5
6, 60, 600	30	0 2 4 6
7.5, 75, 750	37.5	0 2 4 6 7.5

■ Standard Full-scale Values

DC Ammeter		DC Voltmeter	
Standard full-scale value	Meter sensitivity spec.	Standard full-scale value	Meter sensitivity spec.
1 μA	50 mV	10 mV	100 kΩ/V
10 μA		15 mV	100 kΩ/V
20 μA		30 mV	100 kΩ/V
50 μA		50 mV*1	100 kΩ/V
100 μA		100 mV	100 kΩ/V
200 μA		150 mV	100 kΩ/V
500 μA		300 mV	100 kΩ/V
1 mA		500 mV	10 kΩ/V
2 mA		1 V	10 kΩ/V
5 mA		1.5 V	10 kΩ/V
10 mA		3 V	10 kΩ/V
20 mA		5 V	10 kΩ/V
50 mA		10 V	10 kΩ/V
100 mA		15 V	10 kΩ/V
200 mA		30 V	10 kΩ/V
500 mA		50 V	10 kΩ/V
1 A		100 V	10 kΩ/V
2 A		150 V	10 kΩ/V
5 A		300 V	10 kΩ/V
10 A			
20 A			
Full-scale: 4 - 20 mA	50 mV	Full-scale: 1 - 5 V	10 kΩ/V

Rectifying AC ammeter		Rectifying AC voltmeter	
Standard full-scale value	Meter sensitivity spec.	Standard full-scale value	Meter sensitivity spec.
200 μA	50 mV	50 mV	10 kΩ/V
500 μA		100 mV	10 kΩ/V
1 mA		150 mV	10 kΩ/V
2 mA		300 mV	10 kΩ/V
5 mA		500 mV	1 kΩ/V
10 mA		1 V	1 kΩ/V
20 mA		1.5 V	1 kΩ/V
50 mA		3 V	1 kΩ/V
100 mA		5 V	1 kΩ/V
200 mA		10 V	1 kΩ/V
500 mA		15 V	1 kΩ/V
1 A		30 V	1 kΩ/V
2 A		50 V	1 kΩ/V
3 A		100 V	1 kΩ/V
5 A*2		150 V	1 kΩ/V
		300 V	1 kΩ/V

*1. When the full-scale value is larger than 20 A DC, an external shunt device is used with the 50 mV instrument denoted by.
*2. When the full-scale value is larger than 5 A AC, an external CT is used with the 5 A instrument denoted by.

Free App for Easy Instrument Connectivity, Data Recording, and Report Creation

GENNECT CROSS SF4071, SF4072

GENNECT Cross

Bluetooth®

- Connect instruments to your smart phone or tablet
- Save all measured values on your smart phone
- Use the logging function to save measured values automatically at a set interval
- Use the simple oscilloscope function to view current and voltage waveforms on your smart phone (CM4372/ CM4374, and CM7291 only)
- Continuously measure the internal resistance and voltage of lead-acid batteries (BT3554-01/-11 only)

Model No. (Order Code)			
	SF4072	(Mobile app for Android)	Free
	SF4071	(Mobile app for iOS)	Free

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app.

GET IT ON Google Play

Download on the App Store

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*For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ SF4071, SF4072 Basic specifications (Free software)

Bluetooth® connection	Bluetooth® 4.0 LE (N/A: Bluetooth® 2.1+EDR)
Supported OS	SF4071: iOS 10.0 or later (iPhone, iPad, iPod touch) SF4072: Android ™ 4.3 or later
Measurement data management	Local, e-mail / cloud sharing
Report function	Various template reports
Picture / Memo recording	Ok
Measurement functions	General measurement: Ok Logging: Ok Pass/Faile judge: Ok Waveform display: CM4372, CM4374, CM7291 and CM3286-01 only Battery: BT3554-01/-11 only Detect electricity theft: CM3286-01 only Harmonic measurement: CM3286-01 only Lux measurement: FT3425 only

Compatible products

(As of Jan. 2018.) *For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

For the PC

Application for Windows

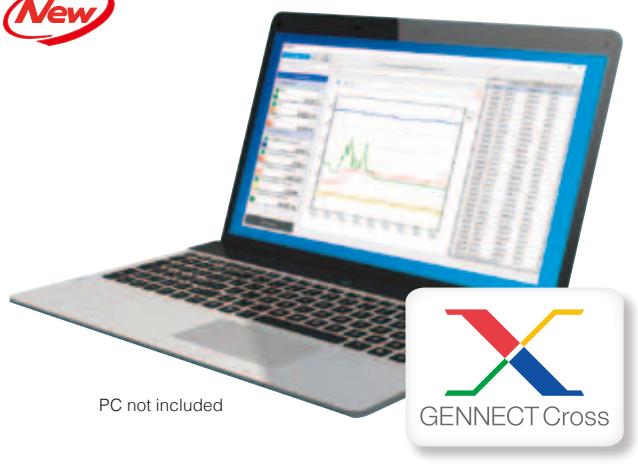
GENNECT CROSS SF4000

Free Application for Windows, cannot communicate with Bluetooth® wireless technology

Get Results from the Job Site in Real-Time & Capture Data on the PC while Testing Remotely

GENNECT CROSS SF4000

New



PC not included

- Connect measuring instruments to PC with LAN cable
  Note: Operation guaranteed for up to 15 units. Please contact your nearest Hioki distributor for connections exceeding 15.
- Software automatically recognizes LAN-connected measuring instrument
- Display acquired data as graphs in real-time
- Manage and save results with software
- List MAX, MIN and AVG values (Display time of MAX & MIN data)

Model No. (Order Code)			
	SF4000	(Application for Windows)	Free

■ Basic specifications (Free software)

[Real-time measuring function (Data Logging)]

Monitor and log on PC	PQ3100, PW3365, PW3360: Voltage, Current, Power Instantaneous value of each interval; MAX, MIN, AVG value of each interval
Monitor and log on PC	LR8400, LR8401, LR8402, LR8410, LR8416: Temperature, Analog Input Instantaneous value of each interval
Number of log items	Save up to 512 items *Maximum 32 items when simultaneously displaying graphs
Recording time	When memory size of acquired data reaches 64MB, data will be separated automatically [Continuous measurement] When storage capacity falls below 512MB, measurement will stop

[Data function]

Data import	Data acquired by GENNECT Cross for iOS/Android Note: Direct Bluetooth (R) connection using the SF4000 is not available. To download data via Bluetooth (R), please use the GENNECT Cross for iOS/Android apps.
Data import from measuring instruments	Model BT3554, BT3554-01, 3554, and PQ3100
CSV output	Export all 512 items at one time (Logging function)
Data statistics	See AVG, MAX and MIN values for each saved item at a glance. Times for MAX and MIN data also provided for quick analysis. (Logging function)
Report generation	PDF, Word, and Excel formats

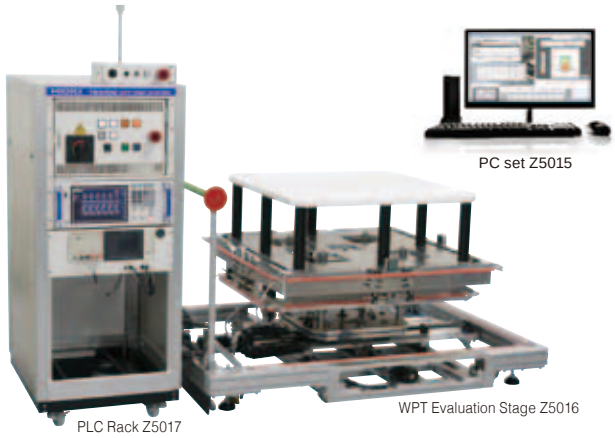
Compatible products

Last update: July 31, 2018

Fully Automated Transmission Coil Evaluation of WPT, High-Speed Measurement System of 3000 Points/Hour

WPT TEST SYSTEM **TS2400**

Not CE marked



- Combines a measurement unit with an XYZ stage for high-speed analysis of multi-model, multi-point measurement results
- Generates four types of characteristics graphs in real time, even while testing is still in progress
- Features a large, 900 mm stage designed for use with automotive magnetic resonance devices
- Can position transmission coils with a radius of up to 800 mm
- Incorporates POWER ANALYZER PW6001 to measure power transmission efficiency
- Incorporates IMPEDANCE ANALYZER IM3570 to measure combined coefficients automatically

Model No. (Order Code) **TS2400** (System product)

■ TS2400 Basic specifications

Setup	Standard set: Z5015 + Z5016 + Z5017 + Z5018, Measuring instruments: PW6001, IM3570 (IM3536), LR8410, FT3470 Basic set: Z5015 + Z5016 + Z5017, Measuring instruments: PW6001, LR8431, FT3470 Data analysis: Z5015 only (no measuring instruments)

■ PC set Z5015 Basic specifications

Operating environment	Microsoft Windows 7 Professional (64bit)
Installed software	WPT Evaluation Software SF2400
Data collection item	PW6001: Selected optionally from all measurement parameters, IM3570 (IM3536): Inductance, Capacitance, DC resistance, Impedance, Z5016: Each axial coordinate, etc.
Functions	Data collection, Control equipment, Calculation (coupling coefficient, etc.), Graph generation (Smith chart, etc.)
Power supply	100 V to 240 V AC, 50/60 Hz, 180 VA (supplied by PLC Rack Z5017)
Dimensions and mass	180 mm (7.09 in)W × 33 mm (1.3 in)H × 121 mm (4.76 in)D, 0.8 kg (28.2 oz)
Accessories	License key (USB) ×1, Recovery media (USB) ×1, keyboard ×1, mouse ×1, AC adapter ×1, monitor ×2, Instruction manual ×1

■ WPT Evaluation Stage Z5016/PLC Rack Z5017 Basic specifications

Functions	XYZ axis automatic control, output a power supply
Movable range	X-axis Y-axis: ±300 mm, Z-axis: ±100 mm
Target workspace	Max. 800 mm (31.5 in)W × 70 mm (2.76 in)H × 800 mm (31.5 in)D , 100 kg (3527.4 oz)
Power supply	Single phase 200 V/220 V/230 V/240 V (specify at time of order), 50/60 Hz, 3 kVA
Dimensions and mass	Z5016: 1600 mm (62.99 in)W × 900 mm (35.43 in)H × 1200 mm (47.24 in)D, 350 kg (12345.9 oz) Z5017: 570 mm (22.44 in)W × 1250 mm (49.21 in)H × 710 mm (27.95 in)D, 100 kg (3527.4 oz)

■ Switching Box Z5018 Basic specifications

Measurement terminal	Two terminal clip ×2
Other	Built-in PLC rack Z5017, characteristic impedance: 50 Ω, connectable model: IM3570, IM3536 (Accuracy guarantee valid only for Model IM3570.)

By synergizing complementary technologies, HIOKI delivers solutions that fully meet next-generation needs.

Ours is a global era underpinned by state-of-the-art electronic technologies. HIOKI's bare board testing systems and populated board testing systems are hard at work in plants that manufacture printed circuit boards with increasingly advanced, high-density designs. HIOKI's printed circuit board testing systems are an ideal choice for manufacturing plants seeking to achieve rational production through high precision, reliability, and ease of use and for companies striving to ship products with the world's fastest cycle times.

With product series ranging from flying probe systems designed to test small lots of boards representing multiple models to bed-of-nails systems engineered for use with mass-produced boards, HIOKI's ATE offerings deliver optimized functionality and cost performance for bare board and populated board testing processes. HIOKI's printed circuit board testing systems, which can accommodate BGAs, CSPs, boards with embedded passive and active devices, and silicon interposers, continue to evolve. We invite you to put them to work in your own demanding applications.

Bare Board and Package Testing

■ FLYING PROBE TESTER
FA1283

■ FEB-LINE INSPECTION DATA CREATION SYSTEM
UA1781

■ FLYING PROBE TESTER
FA1811

■ BARE BOARD TESTER
1232

■ FLYING PROBE TESTER
FA1116

New

■ FLYING PROBE TESTER
FA1817

Populated Board Testing

■ FLYING PROBE TESTER
FA1240-60 series

1220-50

1220-51

1220-52

1220-55

■ IN-CIRCUIT HiTESTER **1220** series

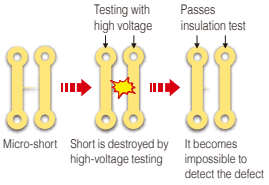
Complete Electrical Testing of High-Function Boards with a Single Unit

FLYING PROBE TESTER **FA1283**

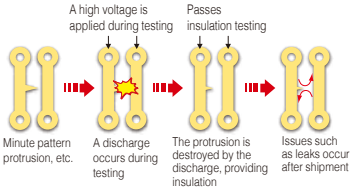
- High-precision probing □20 µm / □15 µm (when using FA1971-01)
- Max.100 points/s ultra-high speed inspection
- Reliable clamping of thin boards with tension function
- High-speed insulation testing of up to 100GR
- Minute resistance measurement of IVHs and through-holes
- Measure with high applied currents of up to 200mA, which is close to current ratings for fine patterns
- Large testing area of 400×324 mm
- Inline function(optional feature)
- LSI reliability testing(optional feature)

Model No. (Order Code) **FA1283-01** (board-carrier N/A)
FA1283-11 (with board-carrier)

● Insulation, Micro-short Testing



● Arc detection (patent pending)



■ Specifications Overview

Number of arms	4 (2 each, top and bottom)
Total probing precision	□20 µm / □15 µm (when using FA1971-01)
Number of test steps	900,000 (max.)
Measurement ranges	Resistance: 40.00 µΩ to 40.0 MΩ Capacitance: 10.00 fF to 40.00 mF Inductance: 10.00 µH to 100.0 mH Diode VZ measurement: 0.000 V to 25.00 V Insulation resistance: 200.0 Ω to 100.0 GΩ Capacitance Insulation resistance: 200.0 Ω to 10.00 MΩ High voltage resistance : 200.0 Ω to 25.00 GΩ High voltage short resistance: 400.0 mΩ to 400.0 kΩ Leak current measurement: 100.0 nA to 10.00 mA Zener diode VZ measurement: 0.000 V to 25.00 V Digital transistor measurement: 0.000 V to 25.00 V Photo couplers measurement: 0.000 V to 25.00 V Continuity test: 400 mΩ to 1.000 kΩ Open test: 4.000 Ω to 4.000 MΩ Short test: 400.0 mΩ to 40.00 kΩ DC voltage measurement: 40.00 mV to 25.00 V Discharge function, Visual test, Visual alignment measurement
Measurement time	100 points/ s (X-Y movements of 0.15 mm, 4-arm simultaneous probing, capacitance measurement)
Probing precision	400 mm (15.75 in) W × 324 mm (12.76 in) D
Fixed board dimensions	Thickness : 0.1 mm to 2.5 mm (0.10 in) Outer dimensions : 50 mm (1.97 in) W × 50 mm (1.97 in) D to 400 mm (15.75 in) W × 330 mm (12.99 in) D
Board clamping	Board 2-side chuck method (*with tension function)
Power supply	200 V AC ±10% (single-phase), 50/60 Hz, 5 kVA 220 V, 230 V, 240 V AC : factory options
Dimensions and mass	1,360 mm (53.54 in) W × 1,200 mm (47.24 in) H × 1,280 mm (50.39 in) D, 1,100 kg (38,800.7 oz)

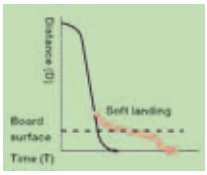
High-speed Testing at Up to 100 Points/sec. with Half the Impact Mark Depth

FLYING PROBE TESTER **FA1116**

- Super-high-speed testing at up to 100 points/sec
- 30% faster cycle times for gold plating and fine pattern testing
- By combining newly designed probes CP1072-01 and new soft-landing control, the FA1116-03 makes it possible to approach the maximum speed setting during fine pattern testing.
- High resolution of 5 aF to ensure reliable detection of minute changes in capacitance caused by defects (1 aF = 10^{-6} pF)
- Support for boards ranging from standard bare boards to flexible boards, BGAs, CSPs, MCMs, and other high-density boards
- Reliable probing of fine-pitch minute pads thanks to a minimum pad diameter of 15 µm
- Support for resistance, inductance, diode, and voltage measurement in addition to capacitance measurement. MLCC(Multi-Layer Ceramic Capacitor) Measurement mode allows JIS-compliant measured value acquisition.
- Extensive measurement functions and optional units reduce backlogs of untested boards.

Model No. (Order Code) **FA1116-03**

Reduced-impact link probes CP1072-01(option)



By combining newly designed reduced-impact probes and precision soft-landing control, the FA1116-03 makes it possible to approach the maximum speed setting during fine pattern testing.

Laser Height-adjustment Unit FA1950-06 (option)
The laser board thickness compensation unit checks the height of the testing surface at the start of automatic testing to reduce the effect of differences in board deflection and thickness on probe impact. Probe damage caused by a failure to properly clamp the board can also be prevented.

■ Specifications Overview

Number of arms	2
Number of test steps	Max. 40,000 steps/piece 300,000 steps/sheet
DC Measurement ranges	Resistance : 400 µΩ to 40 MΩ Capacitance : 4 µF to 40 mF Diode, transistor (VF) : 0 to 25 V Zener diode (VZ) : 0 to 25 V Short : 400 mΩ to 40 kΩ Open : 4 Ω to 4 MΩ Voltage : 0 to 25 V
AC Measurement ranges	Resistance : 100 Ω to 100 MΩ Capacitance : 10 fF to 10 µF Inductance : 10 µH to 100 mH
Measurement time	Max. 100 points/s (X-Y movements of 0.1 mm, 2 arm simultaneous probing, capacitance measurement)
Probe working area	610 mm (24.02 in) W × 510 mm (20.08 in) D
Fixed board dimensions	Thickness : 0.1 mm to 3.2 mm (0.13 in) Outer dimensions : 50 mm (1.97 in) W × 50 mm (1.97 in) D to 610 mm (24.02 in) W × 510 mm (20.08 in) D Upper surface - 10 mm (0.39 in) (including board thickness) Lower surface - 0.1 mm (0.00 in)
Board-carrier	N/A
Power supply	200 V AC ±10% (single-phase), 50/60 Hz, 3 kVA
Dimensions and mass	1,443 mm (56.81 in) W × 1,656 mm (65.20 in) H × 1,185 mm (46.65 in) D, 1,000 kg (35,273.4 oz)

Meeting Ever Increasing Demands for Greater Analytical Power, Faster Testing Speeds and Reduced Costs

FLYING PROBE TESTER **FA1811**

Not CE Marked

- Achieve both high precision contact and high-speed probing in a space of 10 µm.
- Double test method delivers an operation rate of 100%.
- Full-net insulation continuity test using resistance: x10 max. speed*
- High-speed test using capacitance: x2 max. speed*

* Compared to the double-sided 4-arm FLYING PROBE TESTER

Model No. (Order Code) **FA1811** (4096 channels built-in)

Testing requires either the CP1165-11 or the E4101.

Utilities

THERMAL MINI-PRINTER E4100
VACUUM UNIT FOR CAPACITANCE TEST E4101
EXPANSION IONIZER E4104
VACUUM PUMP E4106
GENERAL SCANNER BOARD E4511
TEST FIXTURE CP1165-11
SHUTTER E4107
FIXED HOLDER E4108
UNIVERSAL HOLDER E4109

Testing data creation

OFFLINE SOFTWARE E4110
FEB-LINE INSPECTION DATA CREATION SYSTEM UA1781
FAIL VISUALIZER UA1782
FAIL VISUALIZER UA1782-01

Probes

SINGLE PROBE CP1073-01
KELVIN PROBE CP1073-11
KELVIN PROBE CP1073-12

Other

MEASURING PART CALIBRATION UNIT 1330-05
CALIBRATION UNIT FOR MEASUREMENT SECTION E4501
RECORDING PAPER 1196
SHORT CIRCUIT BOARD FOR FLYING PROBE E4115
SHORT CIRCUIT BOARD FOR TEST FIXTURE E4116
CLEANING SHEET E4117
CLEANING BRUSH E4118

■ Specifications Overview

Number of arms	2 (Upper: 2)	
Supported range of board thicknesses for clamping	Follow option on BGA side	
Probing area	75 mm (2.95 in) x 75 mm (2.95 in)	
Total probing precision	10 µm (Square)	
Probing pitch	Min. 40 µm (when using CP1073-01)	
Test types and measurement ranges	Resistance measurement	400.0 µ to 40.00 MΩ, 4.000 to 4.000 MΩ (T)
	Capacitance measurement MLCC measurement	100.0 f to 10.00 µF 100.0 n to 100.0 µF
	Insulation measurement	1.000 k to 100.0 GΩ, 1.000 k to 250.0 MΩ (T)
	Capacitor insulation measurement High-voltage resistance measurement	1.000 k to 10.00 MΩ 1.000 k to 100.0 GΩ 1.000 k to 250.0 MΩ (T)
	Leak current measurement	1.000 µ to 10.00 mA
	Continuity	400 m to 1.000 kΩ
	Open measurement	4.000 to 4.000 MΩ
	Short measurement	400.0 m to 40.00 kΩ
	(T): When measuring via the TEST FIXTURE	
Judgment range	-99.9% to +999.9% or absolute value	
Power supply	200 VAC ±10% (three phase) 50/60 Hz (*200 VAC, 220 VAC specified upon shipment) Maximum power consumption: 5 kVA	
Dimensions and mass	1300 mm (51.18 in) W × 1670 mm (65.75 in) H × 1700 mm (66.93 in) D (* Excluding signal tower and other protrusions), 2000 kg (70,546.7 oz)	

■ TEST FIXTURE CP1165-11 Specifications

Board dimensions	Square 10 mm (0.39 in) to Square 80 mm (3.15 in)
Supported range of board thicknesses for clamping	0.1 mm (0.004 in) to 5.0 mm (0.20 in)
Notes	Designed for each board
Board clamping	Holder, shutter, and vacuum pump required separately
Supported pad diameter	200 µm or larger, 300 µm or larger when using Kelvin probe
Max. number of pins	8192

Detecting latent failure of high density substrate without missing

FLYING PROBE TESTER **FA1817**

New

Vertical · double-sided 4 arm machine

- Optimization of probe movement reduces inspection time by up to 20%
- Reduction of dents by combination with the latest probes
- Fault analysis by newly developed “process analyzer”
- Substrate set: Vertical direction
- Arm configuration: Table 2 - Back 2 (4 arms)
- Maximum board size: 610 mm (24.02 in) × 510 mm (20.08 in)

Model No. (Order Code) **FA1817** (Vertical double sided)

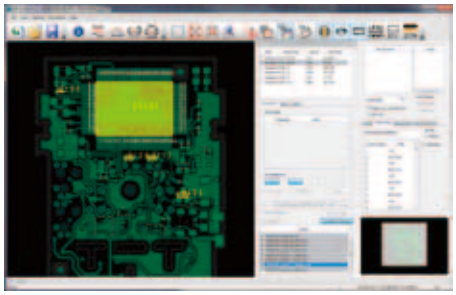
Installation area: FA1817 can inspect boards (610 × 510 mm) of the same size as conventional model 1271, but the installation area of equipment is even smaller than conventional model 1270 (inspection board size is smaller than 1271) It can contribute to space saving. In addition, the back door is prepared as an option, which can contribute to maintainability.

■ Specifications Overview

Number of arms	4 (Surface 2, back side 2)	
Mountable probes	1172 series, CP1072 series	
Inspectable substrate	Standard specification: 50 mm (1.97 in) W × 50 mm (1.97 in) H to 610 mm (24.02 in) W × 510 mm (20.08 in) H, Thickness 1.0 mm (0.04 in) to 3.2 mm (0.13 in) Fixed air type board (option): 50 mm (1.97 in) W × 70 mm (2.76 in) H to 610 mm (24.02 in) W × 510 mm (20.08 in) H, Thickness: 0.6 mm (0.02 in) to 6.0 mm (0.24 in)	
Maximum inspectable area	604 mm (23.78 in) W × 504 mm (19.84 in) H	
Total probing precision	25 µm (Square), (Note: Restrictions on inspection conditions)	
Probing pitch	Min. 50 µm (When using CP1072-01 probe, between L-R arm)	
Measurement ranges	Constant DC current conduction measurement	400.0 µΩ to 400.0 kΩ
	DC constant current resistance measurement	40.00 µΩ to 400.0 kΩ
	DC constant voltage resistance measurement	4.000 Ω to 40.00 MΩ
	Insulation resistance measurement	1.000 kΩ to 100.0 GΩ
	AC constant voltage capacitance measurement	100.0 fF to 10.00 µF
	Insulation resistance measurement	1.000 kΩ to 100.0 GΩ
	Leak current measurement	1.000 µA to 10.00 mA
	High voltage resistance measurement	1.000 kΩ to 100.0 GΩ
	Capacitor insulation measurement	1.000 kΩ to 10.00 MΩ
	Open measurement	4.000 Ω to 4.000 MΩ
	Short measurement	400.0 mΩ to 40.00 kΩ
Judgment range	-99.9% to +999.9% or absolute value	
Measurement time	Max. 0.015 sec / step (when 0.15 mm movement · 4-arm simultaneous probing, capacity measurement)	
Power supply	200 VAC, 220 VAC, 230 VAC, 240 VAC single phase (specified upon shipment), 50/60 Hz, Maximum power consumption: 3 kVA	
Dimensions and mass	1500 mm (59.06 in) W × 1950 mm (76.77 in) H × 800 mm (31.50 in) D 1000 kg (35,273.4 oz)	

Robust Support for Repair Work Using Simple Operations and Assistive Functionality

FAIL VISUALIZER **UA1782**



■ Specifications Overview

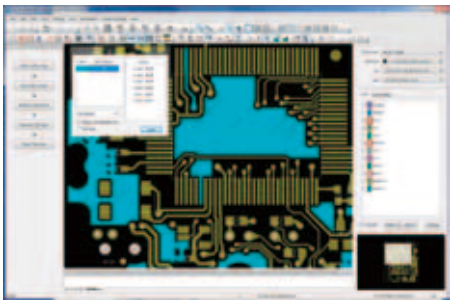
Included	Install CD, license key (USB), instruction manual *Note: User is responsible for providing a computer, monitor, and other hardware.
Database import	Load UA1780 and U-ART databases
Supported OS	Windows 7 Professional 64-bit
Net highlighting	Display user-specified nets with color highlighting. The user can select whether to display all layers or only top and bottom layers.
Fail list loading with real-time monitoring	Monitor a test result output folder for a testing system at a specified interval and automatically load new test data as it becomes available.

- Visualize test results from flying-probe testers
- Pinpoint components and patterns from test result files
- Display the probing positions of test fixtures or test heads for both ICT and bare board testers
- Search for components and nets on device embedded substrates

Model No. (Order Code) **UA1782** (supports UA1780 database input)
UA1782-01 (supports IPC-D-356 format input)
UA1782-02 (supports CAN & ADR format input)

1/2 Data Generation Time With New Platform, 3-in-1 Editing Software for Bare Board Testing

FEB-LINE INSPECTION DATA CREATION SYSTEM **UA1781**



■ Specifications Overview

Supported OS	Windows 7 Professional 64-bit
Data entry function	Gerber file, aperture file, drill file, U-ART database, DXF (optional E7001)
Test data generation function	Net information generation, part test data generation, test point generation, relay-point deletion
Test data output format	SFD, SFDX, NND, IND, CON, COT, COTX, PRTX, LAYOUT
Accessories	Install CD, license key (USB), instruction manual *Note: User is responsible for providing a computer, monitor, and other hardware.

Options: FEB-LINE TOUCH PANEL DESIGN EXTENSION SOFTWARE E7001

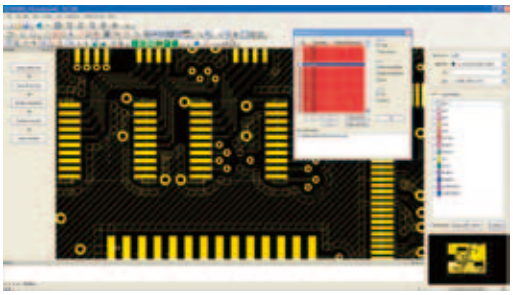
Gerber editing software that embodies the know-how for substrate testing
Built-in commands eliminate need for special know-how

- Easily generate test points even on the inner layer for cavity structures (One-point test-point generation)
- Expanded touch panel functions for printed boards (Optional E7001)
- Support for built-in component boards
- High-precision relay-point deletion functionality that reliably delete only the unnecessary relay-points

Model No. (Order Code) **UA1781** (Permanent license version)

Data Creation Software for Populated Board Testing

FIT-LINE INSPECTION DATA CREATION SYSTEM **UA1780**



■ Specifications Overview

Included	Installation CD, license key (USB), instruction manual (× 1 each) *Caution: Computer, monitor, and other hardware not included.
Gerber data input functions	Loading of Gerber files (RS-274X, RS-274D), aperture files, and drill files
Mounting data input functions	Loading of CSV files containing circuit names, layout coordinates, angles of rotation, shape names, and component names Support for operations such as rotation and mirroring, and display of data such as mounting locations
Graphic editing functions	Copying, movement, deletion, and other manipulation of figures
Component library registration functions	Registration of component list displays and component size, height, and pin numbers; registration of test pin pairs, test modes, ratings (thresholds), and upper and lower limit values; duplication of libraries
Test data generation functions	Reverse net generation, test point extraction taking into account components and patterns, automatic movement of test points underneath components, generation of open tests between adjacent pads, etc.
Test point confirmation functions	Display of test points on a graphical screen
Test data output functions	FA1240 files, 1240/1114 files
Data management functions	Saving of databases and management of component libraries

■ The UA1780 generates data from Gerber data and mounting data while referencing component library information.

- No need for camera-based teaching
- No need to visually trace patterns under components
- Easy generation of high-quality test data without boards
- Support for the new FA1240 data format

Thanks to these features, programs can be created with plenty of time to spare before the prototyping stage. Anybody can generate high-quality test programs in a short period of time by using net information that has been reverse-generated from Gerber data and component information libraries. The UA1780 delivers maximum performance when used in conjunction with HIOKI's new FA1240 series flying probe tester.

Model No. (Order Code) **UA1780** (software with a four-year license term)
UA1780-01 (software with a one-year license term)
UA1780-11 (one-year license renewal)
UA1780-14 (four-year license renewal)

Reduce Data Creation Time by a Factor of 10 and Slash Line Stoppage Time by a Factor of 15

FLYING PROBE TESTER **FA1240-60**

Photo is the FA1240-61

CE Compliant model: FA1241

CIRCUITS ASSEMBLY in U.S.A. 2014 NPI Award ICT

- Quickly complete programs that take into account component height
- Automatic calculation of arm interference (when used with the UA1780)
- Designed to improve probe replaceability, dramatically reducing system downtime caused by probe replacement.
- High-speed testing at up to 0.025 sec./step
- Detection of IC lead float and pseudo-contact states
- Support for active testing (optional feature)
- High-precision probing
- Large testing area of 510 × 460 mm (FA1240-61)
- Standard transport capability
- Automatic alignment function and simple visual test function

Model No. (Order Code) **FA1240-61** (for large boards)
FA1240-63 (for medium rack boards)
FA1241-61 (CE compliant model, for large boards)

■ Specifications Overview

	FA1240-61 FA1241-61	FA1240-63
Number of arms	4 (L, ML, MR, R)	
Number of test steps	40,000 (max.)	
Measurement ranges	Resistance: 400 μΩ to 40 MΩ Capacitance: 1 pF to 400 mF Inductance: 1 μH to 100 H Diode VZ measurement: 0 to 25 V Zener diode VZ measurement: 0 to 25 V, 25 to 80 V (optional feature) Digital transistors: 0 to 25 V Photo couplers: 0 to 25 V Short: 0.4 Ω to 400 kΩ Open: 4 Ω to 40 MΩ DC voltage measurement: 0 to 25 V	
Measurement time	Max. 0.025 sec./step	Max. 0.025 sec./step
Probing precision	Within ±100 μm for each arm (X and Y directions)	
Positioning repeatability	Within ±50 μm (probing positions)	
Inter-probe pitch	Min. 0.15 mm Min. 0.5 mm (when using 4-terminal probes)	Min. 0.152 mm Min. 0.5 mm (when using 4-terminal probes)
Testable board dimensions	510 mm (20.08 in) W × 460 mm (18.11 in) D	400 mm (15.75 in) W × 330 mm (12.99 in) D
Power supply	200 V AC (single-phase) 50/60 Hz, 6 kVA (FA1241: 230 V AC)	200 V AC (single-phase) 50/60 Hz, 5 kVA
Dimensions and mass	1406 mm (55.35 in) H × 1300 mm (51.18 in) H × 1380 mm (54.33 in) D, 1150 kg (40,564.4 oz)	1266 mm (49.84 in) H × 1369 mm (53.90 in) H × 1425 mm (56.10 in) D, 1050 kg (37,037 oz)

Options

FIT-LINE INSPECTION DATA CREATION SYSTEM

UA1780 (software with a four-year license term)
UA1780-01 (software with a one-year license term)
UA1780-11 (one year license renewal)
UA1780-14 (four year license renewal)

Helping Improve the Quality of Populated Boards

IN-CIRCUIT HiTESTER **1220**

1220-51 1220-52 1220-50 1220-55

- Extensive test functionality in a single tabletop box (1220-50)
- Detection of electrolytic capacitor and IC reverse insertion (optional feature)
- Macro testing for increasing test efficiency
- Extensive range of system configurations

Options

SCANNER BOARD 1131-01	RELAY BOARD 1131-03
1220 PC APPLICATION 1137-02 (CD-ROM)	PRESS UNIT 1142 (tabletop air type) (for 1220-50)
PRESS UNIT 1144 (for large boards)	SCANNER CABLE 1152-04 (64 pins/cable, for 1220-55)
SHIELDED SCANNER CABLE 1156-01	PIN BOARD 1160
EXPANSION RACK 1911-50 (for 1220-51/-52/-55)	EXPANSION I/O BOARD 1912-01
EXPANSION BOX 1912-50	COMPUTER UNIT 1913-01
UNINTERRUPTIBLE POWER SUPPLY UNIT 1913-02	LAN CONNECTION UNIT 1913-03
IC REVERSE INSERTION DETECTION FUNCTION 1930	ELECTROLYTIC CAPACITOR POLARITY DETECTION FUNCTION 1931

Model No. (Order Code) **1220-50** (Desktop model)
1220-51 (Off-line model)
1220-52 (Space-saving model)
1220-55 (In-line model)

■ Specifications Overview

	1220-50	1220-51	1220-52	1220-55
Test types and ranges	Round-robin short/open, Component test			
	Macro test : 10 Ω to 10 MΩ (Impedance)			
	Resistance : 400 μΩ to 40 MΩ			
	Capacitance : 10 pF to 400 mF			
	Coils : 1 μH to 100 H			
	Diodes, transistors : 0 V to 25 V			
	Zener diode : 0 V to 25 V (Option: 25 V to 120 V)			
	Digital transistors : 0 V to 25 V			
	Photo coupler test function : 0 V to 25 V			
	Capacitor reverse insertion detection (Option), IC reverse insertion detection (Option)			
Number of Max. test points	Max. 2,176 pins (3 expansion racks), Standard: 128 pins	Max. 2,176 pins (3 expansion racks), Standard: 320 pins	Max. 1,536 pins (2 expansion racks), Standard: 320 pins	Max. 2,176 pins (3 expansion racks), Standard: 320 pins
	Can be expanded in blocks of 64.			
No. of Max. test steps	10,000 steps			
Measurement time	Round-robin short/open: From approx. 0.8 ms/pin Component: From approx. 0.9 ms/step			
Measurable board dimensions	--	390 mm (15.35 in)W × 300 mm (11.81 in)D		
Power supply	100 V AC (±10%) (Specify at time of order), Power consumption: 700 to 1000 VA			
Dimensions and mass	200 mm (7.87 in) W × 325 mm (12.80 in) H × 298 mm (11.73 in) D, 10 kg (352.7 oz)	1030 mm (40.55 in) W × 1470 mm (57.87 in) H × 710 mm (27.95 in) D, 240 kg (8465.6 oz)	655 mm (25.79 in) W × 1610 mm (63.39 in) H × 705 mm (27.76 in) D, 220 kg (7760.1 oz)	--

Model No. (Order Code) Index

Note: ☆ mark : Discontinued or discontinuation scheduled models.

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0GA00021	MEASURING LEAD (RED)	51	For SM7810, DSM-LR020
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0GE00001	MEASURING LEAD (BLACK)	53	For SM-82xx, SM-23 series, DSM-8104
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2103HL	METER RELAY	110	HL type, upper/lower-limit setting
2103L	METER RELAY	110	L type, lower-limit setting
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3159-02	INSULATION/WITHSTANDING HiTESTER	61	For 220V power supplies only
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3169-21	CLAMP ON POWER HiTESTER	72	With D/A output function model
3174	AC AUTOMATIC INSULATION/WITHSTANDING HiTESTER	60	
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3237	DIGITAL HiTESTER	56	Built-in RS-232C
3237-01	DIGITAL HiTESTER	56	Built-in RS-232C & GP-IB
3238	DIGITAL HiTESTER	56	Built-in RS-232C
3238-01	DIGITAL HiTESTER	56	Built-in RS-232C & GP-IB
3239	DIGITAL HiTESTER	56	Built-in RS-232C
3239-01	DIGITAL HiTESTER	56	Built-in RS-232C & GP-IB
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3276	CLAMP ON PROBE	76	DC to 100 MHz, 30 Arms
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☆3281	DIGITAL CLAMP ON HiTESTER	103	
☆3282	DIGITAL CLAMP ON HiTESTER	103	
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3283-20	CLAMP ON LEAK HiTESTER	105	CE marked, without monitor/analog output
3284	CLAMP ON AC/DC HiTESTER	103	With monitor/analog output
3285	CLAMP ON AC/DC HiTESTER	102	Not CE marked, with monitor/analog output
3287	CLAMP ON AC/DC HiTESTER	102	
3288	CLAMP ON AC/DC HiTESTER	102	Average rectified
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☆3441	TEMPERATURE HiTESTER	91	°C only
☆3441-02	TEMPERATURE HiTESTER	91	°C/°F selectable
☆3442	TEMPERATURE HiTESTER	91	°C only, Waterproof construction
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3561-01	BATTERY HiTESTER	49	Built in GP-IB interface
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9017	HIGH VOLTAGE PROBE	96	For the 3030-10
9018-50	CLAMP ON PROBE	84	Wide band, BNC output terminal
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9033	RUBBER CONTACT TIP	92	For the FT3405/06, 3403/04
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9166	CONNECTION CORD	41	For the 9268(3511-50), and similar products
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Note: ☆ mark : Discontinued or discontinuation scheduled models.

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9631-03	TEMPERATURE SENSOR	--	For the 3630 series
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BT3554-10	BATTERY TESTER	50	Bundled Pin Type Lead L2020
BT3554-11	BATTERY TESTER	50	Bundled Pin Type Lead L2020, built-in Bluetooth(R) wireless technology
BT3562	BATTERY HiTESTER	49	
BT3562-01	BATTERY HiTESTER	49	Built in GP-IB and analog output
BT3563	BATTERY HiTESTER	49	
BT3563-01	BATTERY HiTESTER	49	Built in GP-IB and analog output
BT3564	BATTERY HiTESTER	48	
BT4560	BATTERY IMPEDANCE METER	47	
C0106	CARRYING CASE	106	For the FT6031, FT3151 and similar products
C0200	CARRYING CASE	95	For the DT4220 series
C0201	CARRYING CASE	93	For the DT4250s, DT4210s, FT3424
C0202	CARRYING CASE	93	For the DT4280s, DT4250s, DT4210s, FT3424
C0203	CARRYING CASE	104	For the CM4370s, and similar products
C0204	CARRYING CASE	96	For the 3244
C0205	CARRYING CASE	103	For the 3280-7xF and similar products
C0206	CARRYING CASE	87	For the FT4310
C0220	CARRYING CASE	82	For the CT7600/7700 series
C0221	CARRYING CASE	82	For the CT7600/7700 series
C1000	CARRYING CASE	31	For the LR8400 series
C1001	CARRYING CASE	70	For the PW3198, PQ3100
C1002	CARRYING CASE	70	For the PW3198, PQ3100
C1003	CARRYING CASE	23	For the MR8880
C1004	CARRYING CASE	23	For the MR8875
C1005	CARRYING CASE	72	For the PW3365/3360s
C1006	CARRYING CASE	44	For the RM3548
C1007	CARRYING CASE	29	For the LR8410
C1008	CARRYING CASE	72	For PW3365
C1009	CARRYING CASE	71	For the PQ3100 and similar products
C1010	CARRYING CASE	23	For the MR6000
C1011	CARRYING CASE	20	For the SP3000
CC-98A	AC MONITOR OUTPUT CABLE	90	For the FT3432
CC-98D	DC OUTPUT CABLE	90	For the FT3432
CM3286	AC CLAMP POWER METER	74	
CM3286-01	AC CLAMP POWER METER	74	Built in Bluetooth(R) wireless technology
CM3289	AC CLAMP METER	103	True RMS
CM4371	AC/DC CLAMP METER	101	
CM4372	AC/DC CLAMP METER	101	Built in Bluetooth(R) wireless technology
CM4373	AC/DC CLAMP METER	101	
CM4374	AC/DC CLAMP METER	101	Built in Bluetooth(R) wireless technology
CM7290	DISPLAY UNIT	83	For the CT7000 series
CM7291	DISPLAY UNIT	83	For the CT7000 series, with built-in Bluetooth(R) wireless technology
CT-5MRN100	CURRENT TRANSFORMER	109	Primary current 100 A, output 5 VA
CT-5MRN120	CURRENT TRANSFORMER	109	Primary current 120 A, output 5 VA
CT-5MRN150	CURRENT TRANSFORMER	109	Primary current 150 A, output 5 VA
CT6280	AC FLEXIBLE CURRENT SENSOR	103	For the CM3289, 3280-10F and similar products
CT6500	CLAMP ON SENSOR	26	For the LR8513, LR5051
CT6700	CURRENT PROBE	75	From 1mA, 50MHz bandwidth
CT6701	CURRENT PROBE	75	From 1mA, 120MHz bandwidth
CT6841	AC/DC CURRENT PROBE	79	20 A AC/DC, PL23 terminal
CT6841-05	AC/DC CURRENT PROBE	79	20 A AC/DC, ME15W terminal
CT6843	AC/DC CURRENT PROBE	79	200 A AC/DC, PL23 terminal
CT6843-05	AC/DC CURRENT PROBE	79	200 A AC/DC, ME15W terminal
CT6844	AC/DC CURRENT PROBE	79	500 A AC/DC, PL23 terminal
CT6844-05	AC/DC CURRENT PROBE	79	500 A AC/DC, ME15W terminal
CT6845	AC/DC CURRENT PROBE	79	500 A AC/DC, PL23 terminal
CT6845-05	AC/DC CURRENT PROBE	79	500 A AC/DC, ME15W terminal
CT6846	AC/DC CURRENT PROBE	79	1000 A AC/DC, PL23 terminal
CT6846-05	AC/DC CURRENT PROBE	79	1000 A AC/DC, ME15W terminal
CT6862	AC/DC CURRENT SENSOR	78	50 A AC/DC, PL23 terminal
CT6862-05	AC/DC CURRENT SENSOR	79	50 A AC/DC, ME15W terminal
CT6862-10	AC/DC CURRENT SENSOR	--	For the 3390-10 only, 50 A AC/DC
CT6863	AC/DC CURRENT SENSOR	79	200 A AC/DC, PL23 terminal
CT6863-05	AC/DC CURRENT SENSOR	79	200 A AC/DC, ME15W terminal
CT6863-10	AC/DC CURRENT SENSOR	--	For the 3390-10 only, 200 A AC/DC
☆CT6865	AC/DC CURRENT SENSOR	78	1000 A AC/DC, PL23 terminal
☆CT6865-05	AC/DC CURRENT SENSOR	78	1000 A AC/DC, ME15W terminal
CT6904	AC/DC CURRENT SENSOR	77	500 A AC/DC, ME15W terminal
CT7044	AC FLEXIBLE CURRENT SENSOR	83	6000 A, φ100 mm (3.94 in)
CT7045	AC FLEXIBLE CURRENT SENSOR	83	6000 A, φ180 mm (7.09 in)
CT7046	AC FLEXIBLE CURRENT SENSOR	83	6000 A, φ254 mm (10.00 in)
CT7116	AC LEAKAGE CURRENT SENSOR	85	For the PQ3100, 6 A, PL14 terminal
CT7126	AC CURRENT SENSOR	85	For the PQ3100, 60 A, PL14 terminal
CT7131	AC CURRENT SENSOR	85	For the PQ3100, 100 A, PL14 terminal
CT7136	AC CURRENT SENSOR	85	For the PQ3100, 600 A, PL14 terminal
CT7631	AC/DC CURRENT SENSOR	82	100 A AC/DC, φ33 mm (1.30 in)
CT7636	AC/DC CURRENT SENSOR	82	600 A AC/DC, φ33 mm (1.30 in)
CT7642	AC/DC CURRENT SENSOR	82	2000 A AC/DC, φ55 mm (2.17 in)
CT7731	AC/DC AUTO-ZERO CURRENT SENSOR	82	100 A AC/DC, φ33 mm (1.30 in)
CT7736	AC/DC AUTO-ZERO CURRENT SENSOR	82	600 A AC/DC, φ33 mm (1.30 in)
CT7742	AC/DC AUTO-ZERO CURRENT SENSOR	82	2000 A AC/DC, φ55 mm (2.17 in)
CT9555	SENSOR UNIT	80	For the CT6841-05, etc., ME15W connector
CT9556	SENSOR UNIT	80	For the CT6841-05, etc., ME15W connector
CT9557	SENSOR UNIT	80	For the CT6841-05, etc., ME15W connector
CT9667-01	AC FLEXIBLE CURRENT SENSOR	84	φ100 mm (3.94 in)
CT9667-02	AC FLEXIBLE CURRENT SENSOR	84	φ180 mm (7.09 in)
CT9667-03	AC FLEXIBLE CURRENT SENSOR	84	φ254 mm (10.00 in)
CT9900	CONVERSION CABLE	80	For the CT6841-05, PW6001 and similar products
CT9901	CONVERSION CABLE	80	For the CT6841-05 and similar products
CT9902	EXTENSION CABLE	80	For the CT6841-05 and similar products

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Note: ☆ mark : Discontinued or discontinuation scheduled models.

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CT9903	EXTENSION CABLE	80	For the CT6862/CT6863, and similar products
CT9904	CONNECTION CABLE	80	For the CT9557, PW6001/PW3390
CT9920	CONVERSION CABLE	65	For the PW3390 and similar products
DM7275-01	PRECISION DC VOLTMETER	55	
DM7275-02	PRECISION DC VOLTMETER	55	Built-in GP-IB
DM7275-03	PRECISION DC VOLTMETER	55	Built-in RS-232C
DM7276-01	PRECISION DC VOLTMETER	55	
DM7276-02	PRECISION DC VOLTMETER	55	Built-in GP-IB
DM7276-03	PRECISION DC VOLTMETER	55	Built-in RS-232C
DSM8104F	-	--	For the DSM-8104/8542
DT4221	DIGITAL MULTIMETER	95	V measurement only, for electrical work
DT4222	DIGITAL MULTIMETER	95	With C/R measurement, for general use
DT4223	DIGITAL MULTIMETER	95	With resistance measurement, for electrical work
DT4224	DIGITAL MULTIMETER	95	With C/R measurement, for general use
DT4252	DIGITAL MULTIMETER	94	10 A direct input
DT4253	DIGITAL MULTIMETER	94	With mA DC, temperature
DT4254	DIGITAL MULTIMETER	94	Voltage measurement only
DT4255	DIGITAL MULTIMETER	94	With fused measurement terminals
DT4256	DIGITAL MULTIMETER	94	Multi-functional model, with 10 A direct input
DT4281	DIGITAL MULTIMETER	93	Direct and current clamp input terminals
DT4282	DIGITAL MULTIMETER	93	10 A direct input
DT4900-01	COMMUNICATION PACKAGE (USB)	93	For the DT4280/4250 series
DT4910	THERMOCOUPLES(K)	93	For the DT4280/4253, and similar products
DT4911	TEST LEAD	95	For the DT4220 series
FR-RD	INK PEN	--	For the EPR-1FA
FT3151	ANALOG EARTH TESTER	106	
FT3405	TACHO HiTESTER	92	
FT3406	TACHO HiTESTER	92	With analog output, pulse output
FT3424	LUX METER	92	
FT3425	LUX METER	92	Built in Bluetooth(R) wireless technology
FT3432	SOUND LEVEL METER	90	
FT3470-51	MAGNETIC FIELD HiTESTER	89	100 cm^2 Sensor bundled
FT3470-52	MAGNETIC FIELD HiTESTER	89	100 cm^2 Sensor, 3 cm^2 Sensor bundled
FT3700-20	INFRARED THERMOMETER	90	Long-focus type
FT3701-20	INFRARED THERMOMETER	90	Long focus, precise-field type
FT4310	BYPASS DIODE TESTER	87	Built in Bluetooth(R) wireless technology
FT6031-03	EARTH TESTER	106	
FT6380	CLAMP ON EARTH TESTER	106	
FT6381	CLAMP ON EARTH TESTER	106	Built in Bluetooth(R) wireless technology
HMR Terminal	iPad App for Memory HiCorder	22	For the iPad (MR8740/MR8741/MR8847/MR8827)
HS-1-30	EXTERNAL SHUNT	109	30 A, class 0.5%
HS-1-50	EXTERNAL SHUNT	109	50 A, class 0.5%
HS-1-75	EXTERNAL SHUNT	109	75 A, class 0.5%
HS-1-100	EXTERNAL SHUNT	109	100 A, class 0.5%
HS-1-150	EXTERNAL SHUNT	109	150 A, class 0.5%
HS-1-200	EXTERNAL SHUNT	109	200 A, class 0.5%
HS-1-300	EXTERNAL SHUNT	109	300 A, class 1.0%
IM3523	LCR METER	40	
IM3533	LCR METER	41	
IM3533-01	LCR METER	41	Advanced function model
IM3536	LCR METER	40	
IM3570	IMPEDANCE ANALYZER	39	
IM3590	CHEMICAL IMPEDANCE ANALYZER	38	For electrochemical components
IM7580A-1	IMPEDANCE ANALYZER	37	Connection cable 1 m is bundled
IM7580A-2	IMPEDANCE ANALYZER	37	Connection cable 2 m is bundled
IM7581-01	IMPEDANCE ANALYZER	37	Connection cable 1 m is bundled
IM7581-02	IMPEDANCE ANALYZER	37	Connection cable 2 m is bundled
IM7583-01	IMPEDANCE ANALYZER	36	Connection cable 1 m is bundled
IM7583-02	IMPEDANCE ANALYZER	36	Connection cable 2 m is bundled
IM7585-01	IMPEDANCE ANALYZER	36	Connection cable 1 m is bundled
IM7585-02	IMPEDANCE ANALYZER	36	Connection cable 2 m is bundled
IM7587-01	IMPEDANCE ANALYZER	35	Connection cable 1 m is bundled
IM7587-02	IMPEDANCE ANALYZER	35	Connection cable 2 m is bundled
IM9000	EQUIVALENT CIRCUIT ANALYSIS FIRMWARE	39	Factory option firmware for the IM3570
IM9100	SMD TEST FIXTURE	43	For the IM3536, and similar products
IM9110	SMD TEST FIXTURE	43	For the IM3570, and similar products
IM9200	TEST FIXTURE STAND	43	For the IM7580 series
IM9201	SMD TEST FIXTURE	43	For the IM7580 series
IM9901	CONTACT TIPS	43	To replace the tip on the L2001
IM9902	CONTACT TIPS	43	To replace the tip on the L2001
IM9905	CALIBRATION KIT	43	For the IM7580 series
IM9906	ADAPTER(3.5mm/7mm)	43	For the IM7580 series
IR3455	HIGH VOLTAGE INSULATION TESTER	100	250 V to 5 kV/ 10 TΩ
IR4016-20	ANALOG MΩ HiTESTER	99	500 V/ 100 MΩ, Test Lead L9787 bundled
IR4017-20	ANALOG MΩ HiTESTER	99	500 V/ 1000 MΩ, Test Lead L9787 bundled
IR4018-20	ANALOG MΩ HiTESTER	99	1000 V/ 2000 MΩ, Test Lead L9787 bundled
IR4053-10	INSULATION TESTER	98	Bundled with standard Test Lead L9787
IR4056-20	INSULATION TESTER	98	Economic model
IR4056-21	INSULATION TESTER	98	Economic model, Not CE marked
IR4057-20	INSULATION TESTER	97	High-speed model
IR4058-20	INSULATION TESTER	97	High-speed model, built in Bluetooth(R) wireless technology
L0220-01	EXTENSION CABLE	82	For the CT7600/7700 series
L0220-02	EXTENSION CABLE	82	For the CT7600/7700 series
L0220-03	EXTENSION CABLE	82	For the CT7600/7700 series
L0220-04	EXTENSION CABLE	82	For the CT7600/7700 series
L0220-05	EXTENSION CABLE	82	For the CT7600/7700 series
L0220-06	EXTENSION CABLE	82	For the CT7600/7700 series
L0220-07	EXTENSION CABLE	82	For the CT7600/7700 series
L1000	VOLTAGE CORD	63	For the PW6001, PW3198, 3196
L1000-05	VOLTAGE CORD	71	For the PQ3100
L1002	USB CABLE(A-B)	55	For the DM7276 and similar products
L1010	CONNECTION CABLE	27	For the LR8512
L1011	CONVERSION CABLE	21	For the P9000 and similar products
L1011-10	CONVERSION CABLE	21	For the P9000 and similar products
L1021-01	PATCH CORD	65	For the PW3390 and similar products
L1021-02	PATCH CORD	65	For the PW3390 and similar products

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L2000	4-TERMINAL PROBE	43	For the IM3590/IM3570, 3506-10, 3505/06
L2001	PINCHER PROBE	43	For the IM3523, and similar products
L2002	CLIP TYPE PROBE	47	For the BT4560, 1.5 m (4.92 ft) length
L2003	PIN TYPE PROBE	47	For the BT4560, 1.5 m (4.92 ft) length
L2020	PIN TYPE LEAD	50	For the BT3554
L2100	PIN TYPE LEAD	48	For the BT3562, BT3563
L2101	CLIP TYPE LEAD	45	For the RM3544, RM3545 series
L2102	PIN TYPE LEAD	45	For the RM3544, RM3545 series
L2103	PIN TYPE LEAD	45	For the RM3544, RM3545 series
L2104	4-TERMINAL LEAD	45	For the RM3544, RM3545 series
L2105	LED COMPARATOR ATTACHMENT	45	For the RM3544, RM3545 series, RM3548
L2107	CLIP TYPE LEADS	44	For the RM3548, 3561/60, 3541/40 and similar products
L2110	PIN TYPE LEAD	48	For the BT3564
L2200	TEST LEAD	58	For the ST5540/ST5541, MR8990
L2220	CONNECTOR	51	For the SM7810
L2221	CONNECTOR	51	For the SM7860
L2230	PIN TYPE LEAD (RED)	52	For the SM7110 and similar products
L2231	PIN TYPE LEAD (BLACK)	52	For the SM7110 and similar products
L2232	CLIP TYPE LEAD (RED)	52	For the SM7110 and similar products
L2233	CLIP TYPE LEAD (BLACK)	52	For the SM7110 and similar products
L2234	OPEN LEAD (RED)	52	For the SM7110 and similar products
L2235	OPEN LEAD (BLACK)	52	For the SM7110 and similar products
L4930	CONNECTION CABLE SET	93	For the DT4280/DT4250 series
L4931	EXTENSION CABLE SET	93	For the L4930/L4940
L4932	TEST PIN SET	93	For the L4930/L4940/L4942
L4933	CONTACT PIN SET	93	For the L9207-10, DT4911(DT4280/4250s)
L4934	SMALL ALLIGATOR CLIP SET	93	For the L4932, L9207-10, DT4911(DT4280/4250s)
L4935	ALLIGATOR CLIP SET	93	For the L4930/L4940 (DT4280/4250s)
L4936	BUS BAR CLIP SET	93	For the L4930/L4940 (DT4280/4250s)
L4937	MAGNETIC ADAPTER SET	93	For the L4930/L4940 (DT4280/4250s)
L4938	TEST PIN SET	93	For the L4930 (DT4280/4250s)
L4939	BREAKER PIN SET	93	For the L4930 (DT4280/4250s)
L4940	CONNECTION CABLE SET	23	For the MR8905
L6000	OPTICAL CONNECTION CABLE	63	For the PW6001
L9094	OUTPUT CORD	24	For Memory HiCorder, CM7290 and similar products
L9095	OUTPUT CORD	24	For Memory HiCorder, CM7290 and similar products
L9096	OUTPUT CORD	24	For Logger, CM7290 and similar products
L9170-10	TEST LEAD	57	For the SS7012, 3237 series, 3156
L9197	CONNECTION CORD	23	For the Memory HiCorder series
L9198	CONNECTION CORD	23	For the Memory HiCorder series
L9207-10	TEST LEAD	93	For the DT4280/4250s, CT4370s, 3256/3281s, and similar products
L9207-30	TEST LEAD	96	For the 3030-10, 3127-10/3128-10, and similar products
L9208	TEST LEAD	102	For the 3288, 3287, 3280 series
L9217	CONNECTION CORD	24	For the Memory HiCorder series, and similar products
L9257	CONNECTION CORD	--	For the 3154, 8205-10, 8206-10
L9438-50	VOLTAGE CORD	63	For the PW6001, 3390, 3193-10
L9438-53	VOLTAGE CORD	73	For the PW3360s, 3169s, and similar products
L9438-55	VOLTAGE CORD	--	For the 3197
L9635-01	VOLTAGE CORD	--	For the 3286-20
L9769	CONVERSION CABLE	--	Bundled with the U8969, for the MR6000 and similar products
L9787	TEST LEAD	98	For the IR4050s/4010s, 3454/53, 3154, FT6031
L9787-91	BREAKER PIN	98	For the L9787(IR4050/4010 series)
L9788-10	TEST LEAD WITH REMOTE SWITCH (RED)	98	For the IR4050/4010 series
L9788-11	TEST LEAD SET WITH REMOTE SWITCH	98	For the IR4050/4010 series
L9788-90	TIP PIN	98	For the L9788/-10 (IR4050/4010 series)
L9788-92	BREAKER PIN	98	For the L9788-10/-11(R4050/4010 series)
L9790	CONNECTION CORD	23	For the Memory HiCorder series
L9790-01	ALLIGATOR CLIP	23	For the L9790 (for the Memory HiCorder series)
L9795-01	CONNECTION CABLE	57	For the U8793, MR6000 and similar products
L9795-02	CONNECTION CABLE	57	For the U8793, MR6000 and similar products
L9820	CONNECTION CABLE	92	For the FT3424, FT3425
L9840	AUXILIARY EARTHING ROD	106	For the FT6031, FT3151
L9841	MEASUREMENT CABLE	106	For the FT6031, FT3151
L9842-11	MEASUREMENT CABLE	106	For the FT6031, FT3151
L9842-22	MEASUREMENT CABLE	106	For the FT6031, FT3151
L9843-51	MEASUREMENT CABLE	106	For the FT6031, FT3151
L9843-52	MEASUREMENT CABLE	106	For the FT6031, FT3151
L9844	MEASUREMENT CABLE	106	For the FT6031, FT3151
L9910	CONVERSION CABLE	71	For the PQ3100
LR5001	HUMIDITY LOGGER	34	Temperature / Humidity each 1ch
LR5011	TEMPERATURE LOGGER	34	Temperature 1ch
LR5031	INSTRUMENTATION LOGGER	33	Instrumentation signal 1ch
LR5041	VOLTAGE LOGGER (50mV)	33	±50mV DC
LR5042	VOLTAGE LOGGER (5V)	33	±5V DC
LR5043	VOLTAGE LOGGER (50V)	33	±50V DC
LR5051	CLAMP LOGGER	32	2ch, clamp sensor is sold separately
LR5091	COMMUNICATION ADAPTER	32	For the LR5000 series
LR5092-20	DATA COLLECTOR	32	For the LR5000 series
LR8400-20	MEMORY HiLOGGER	31	Built-in the Voltage/temp unit LR8500 ×2, 30 ch, English
LR8400-21	MEMORY HiLOGGER	--	Built-in the Voltage/temp unit LR8500 ×2, 30 ch, Chinese
LR8401-20	MEMORY HiLOGGER	31	Built-in the Universal unit LR8501 ×2, 30 ch, English
LR8401-21	MEMORY HiLOGGER	--	Built-in the Universal unit LR8501 ×2, 30 ch, Chinese
LR8402-20	MEMORY HiLOGGER	31	Built-in the Universal unit ×1, Voltage/temp unit ×1, 30 ch, English
LR8402-21	MEMORY HiLOGGER	--	Built-in the Universal unit ×1, Voltage/temp unit ×1, 30 ch, Chinese
LR8410-20	WIRELESS LOGGING STATION	29	English model, main unit only
LR8410-30	WIRELESS LOGGING STATION	--	Chinese model, main unit only
LR8431-20	MEMORY HiLOGGER	30	10 ch, English model
LR8431-30	MEMORY HiLOGGER	--	10ch, Chinese model
LR8432-20	HEAT FLOW LOGGER	27	10 ch, English model
LR8432-30	HEAT FLOW LOGGER	--	10 ch, Chinese model
LR8500	VOLTAGE/TEMP UNIT	31	For the LR8400 series
LR8501	UNIVERSAL UNIT	31	For the LR8400 series
LR8510	WIRELESS VOLTAGE/TEMP UNIT	29	For the LR8410

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LR8511	WIRELESS UNIVERSAL UNIT	29	For the LR8410
LR8512	WIRELESS PULSE LOGGER	27	2 ch
LR8513	WIRELESS CLAMP LOGGER	26	2 ch, sensor is sold separately
LR8514	WIRELESS HUMIDITY LOGGER	26	2 ch, sensor is sold separately
LR8515	WIRELESS VOLTAGE/TEMP LOGGER	25	2 ch, sensor is sold separately
LR8520	WIRELESS FUNGAL LOGGER	25	Humidity sensor is sold separately
LR9501	HUMIDITY SENSOR	34	For the LR5001
LR9502	HUMIDITY SENSOR	34	For the LR5001
LR9503	HUMIDITY SENSOR	34	For the LR5001
LR9504	HUMIDITY SENSOR	34	For the LR5001
LR9601	TEMPERATURE SENSOR	34	For the LR5011
LR9602	TEMPERATURE SENSOR	34	For the LR5011
LR9603	TEMPERATURE SENSOR	34	For the LR5011
LR9604	TEMPERATURE SENSOR	34	For the LR5011
LR9611	TEMPERATURE SENSOR	34	For the LR5011
LR9612	TEMPERATURE SENSOR	34	For the LR5011
LR9613	TEMPERATURE SENSOR	34	For the LR5011
LR9621	TEMPERATURE SENSOR	34	For the LR5011
LR9631	TEMPERATURE SENSOR	34	For the LR5011
LR9801	CONNECTION CABLE	33	For the LR5031
LR9802	CONNECTION CABLE	33	For the LR5041 series
LR9901	WALL-MOUNTED HOLDER	34	For the LR5000 series (cannot use with the LR5051)
MR6000	MEMORY HiCORDER	17	Main unit only, input modules up to 8 units
MR6000-01	MEMORY HiCORDER	17	Built-in real-time waveform calculation and other functionality
MR8740	MEMORY HiCORDER	19	Max. 54ch, 864MW memory, main unit only
MR8740-50	MEMORY HiCORDER	19	Max. 108ch, 1GW memory, main unit only
MR8741	MEMORY HiCORDER	19	Max. 16ch, 256MW memory, main unit only
MR8790	WAVEFORM GENERATOR UNIT	57	For the MR8847A and similar products
MR8791	PULSE GENERATOR UNIT	57	For the MR8847A and similar products
MR8827	MEMORY HiCORDER	18	Max. 32ch, 512MW memory, main unit only
MR8847-51	MEMORY HiCORDER	18	Max. 16ch, 64MW memory, main unit only
MR8847-52	MEMORY HiCORDER	18	Max. 16ch, 256MW memory, main unit only
MR8847-53	MEMORY HiCORDER	18	Max. 16ch, 512MW memory, main unit only
MR8870-20	MEMORY HiCORDER	17	2ch, English model
MR8870-30	MEMORY HiCORDER	--	2ch, Chinese model
MR8875	MEMORY HiCORDER	16	Max. 16 - 60ch, 32MW memory, main unit only
MR8875-30	MEMORY HiCORDER	--	Chinese model
MR8880-20	MEMORY HiCORDER	16	4ch, printer unit option, English model
MR8880-21	MEMORY HiCORDER	--	4ch, printer unit option, Chinese model
MR8901	ANALOG UNIT	16	For the MR8875
MR8902	VOLTAGE/TEMP UNIT	16	For the MR8875
MR8903	STRAIN UNIT	16	For the MR8875
MR8904	CAN UNIT	16	For the MR8875
MR8905	ANALOG UNIT	16	For the MR8875
MR8990	DIGITAL VOLTMETER UNIT	55	For the MR6000, MR8847A, MR8827, and similar products
MR9000	PRINTER UNIT	16	For the MR8880
MR9321-01	LOGIC PROBE	23	For the Memory HiCorder, miniature terminal type
P-1201A	FELT PEN (RED)	20	For the PR8111, INR-9000, EPR-3000 series
P-1201B	FELT PEN (RED)	--	For the INR-9000, EPR-3000 series
P-1201C	FELT PEN (RED)	--	For the INR-9000, EPR-3000 series
P-1202A	FELT PEN (GREEN)	20	For the PR8111, INR-9000, EPR-3000 series
P-1202C	FELT PEN (GREEN)	--	For the INR-9000, EPR-3000 series
P-1203A	FELT PEN (BLUE)	20	For the PR8111, INR-9000, EPR-3000 series
P-1203C	FELT PEN (BLUE)	--	For the INR-9000, EPR-3000 series
P-1204A	FELT PEN (BROWN)	--	For the INR-9000, EPR-3000 series
P-1205A	FELT PEN (BLACK)	--	For the INR-9000 series
P-1206A	FELT PEN (PURPLE)	--	For the INR-9000 series
P-1207A	FELT PEN (ORANGE)	--	For the INR-9000 series
P-1208A	FELT PEN (PINK)	--	For the INR-9000 series
P9000-01	DIFFERENTIAL PROBE	21	For the Memory HiCorder series, Wave only
P9000-02	DIFFERENTIAL PROBE	21	For the Memory HiCorder series, Wave/RMS
PD3129	PHASE DETECTOR	108	
PD3129-10	PHASE DETECTOR	108	Large clips
PD3129-31	PHASE DETECTOR	--	
PD3129-32	PHASE DETECTOR	--	
PD3259	DIGITAL PHASE DETECTOR	107	
PQ3100	POWER QUALITY ANALYZER	71	Main unit, clamp sensor is sold separately
PQ3100-91	POWER QUALITY ANALYZER KIT	71	Kit includes 600 A sensor x 2 and other options
PQ3100-92	POWER QUALITY ANALYZER KIT	71	Kit includes 600 A sensor x 4 and other options
PQ3100-94	POWER QUALITY ANALYZER KIT	71	Kit includes 6000 A sensor x 4 and other options
PR-1RD	SOFT PEN (RED)	--	For the EPR-151/152/131/132/133
PR-2GN	SOFT PEN (GREEN)	--	For the EPR-151/152/131/132/133
PR8111	PEN RECORDER	20	1 pen
PR8112	PEN RECORDER	20	2 pens
PW3198	POWER QUALITY ANALYZER	70	Main unit, clamp sensor is sold separately
PW3198-90	POWER QUALITY ANALYZER	70	Kit includes software the 9624-50
PW3335	POWER METER	68	Buit-in LAN, RS-232C
PW3335-01	POWER METER	68	Buit-in LAN, GP-IB
PW3335-02	POWER METER	68	Buit-in LAN, RS-232C, D/A output
PW3335-03	POWER METER	68	Buit-in LAN, RS-232C, external sensor terminall
PW3335-04	POWER METER	68	Buit-in LAN, RS-232C, GP-IB, D/A output, external sensor terminal
PW3336	POWER METER	67	2ch
PW3336-01	POWER METER	67	2ch, built-in GP-IB
PW3336-02	POWER METER	67	2ch, built-in D/A output
PW3336-03	POWER METER	67	2ch, built-in GP-IB, D/A output
PW3337	POWER METER	67	3ch
PW3337-01	POWER METER	67	3ch, built-in GP-IB
PW3337-02	POWER METER	67	3ch, built-in D/A output
PW3337-03	POWER METER	67	3ch, built-in GP-IB, D/A output
PW3360-20	CLAMP ON POWER LOGGER	73	English model, main unit only
PW3360-21	CLAMP ON POWER LOGGER	73	English model, with harmonic analysis function
PW3360-30	CLAMP ON POWER LOGGER	--	Chinese model, main unit only
PW3360-31	CLAMP ON POWER LOGGER	--	Chinese model, with harmonic analysis function
PW3365-20	CLAMP ON POWER LOGGER	72	English model, main unit only
PW3365-30	CLAMP ON POWER LOGGER	--	Chinese modell, main unit only
PW3390-01	POWER ANALYZER	64	
PW3390-02	POWER ANALYZER	64	D/A output
PW3390-03	POWER ANALYZER	64	D/A output, motor analysis
PW6001-01	POWER ANALYZER	63	1ch
PW6001-02	POWER ANALYZER	63	2ch
PW6001-03	POWER ANALYZER	63	3ch
PW6001-04	POWER ANALYZER	63	4ch
PW6001-05	POWER ANALYZER	63	5ch
PW6001-06	POWER ANALYZER	63	6ch
PW6001-11	POWER ANALYZER	63	1ch, motor analysis, D/A output
PW6001-12	POWER ANALYZER	63	2ch, motor analysis, D/A output
PW6001-13	POWER ANALYZER	63	3ch, motor analysis, D/A output
PW6001-14	POWER ANALYZER	63	4ch, motor analysis, D/A output
PW6001-15	POWER ANALYZER	63	5ch, motor analysis, D/A output
PW6001-16	POWER ANALYZER	63	6ch, motor analysis, D/A output
PW9000	WIRING ADAPTER	70	For the PW3198, 3196
PW9001	WIRING ADAPTER	70	For the PW3198, 3196
PW9002	BATTERY SET	73	For the PW3360/PW3365
PW9003	VOLTAGE LINE POWER ADAPTER	73	For the PW3360
PW9005	GPS BOX	70	For the PW3198
PW9020	SAFETY VOLTAGE SENSOR	72	For PW3365
PW9100-03	AC/DC CURRENT BOX	64	For the PW6001/PW3390, 3 ch
PW9100-04	AC/DC CURRENT BOX	64	For the PW6001/PW3390, 4 ch
RM3542	RESISTANCE HiTESTER	46	
RM3542-01	RESISTANCE HiTESTER	46	Built in GP-IB interface
RM3542-50	RESISTANCE METER	46	
RM3542-51	RESISTANCE METER	46	Built in GP-IB interface
RM3543	RESISTANCE HiTESTER	45	
RM3543-01	RESISTANCE HiTESTER	45	Built in GP-IB interface
RM3544	RESISTANCE METER	45	No interfaces
RM3544-01	RESISTANCE METER	45	Built in EXT I/O, RS-232C, USB
RM3545	RESISTANCE METER	44	
RM3545-01	RESISTANCE METER	44	Built-in GP-IB interface
RM3545-02	RESISTANCE METER	44	Support for the multiplexer unit
RM3548	RESISTANCE METER	44	
SE-10	RECORDING PAPER	20	For the PR8111/12, EPR-3500 series, EPR-10B
SE-10Z-2	RECORDING PAPER	20	For the PR8111/12, EPR-3500 series, EPR-10B
SF-10CXZ-35	-	--	For the INR-9000
SF-10PXZ-45	-	--	For the PRR-5000
SF1001	POWER LOGGER VIEWER	73	For the PW3360/3365s, 3169s
SF4000	GENNECT CROSS	111	Application for Windows
SF4071	GENNECT CROSS	111	Mobile app for iOS
SF4072	GENNECT CROSS	111	Mobile app for Android
SG-10X	-	--	For the FBR-250 series
SG-10Z	-	--	For the FBR-250 series
SH-OZ-T1	-	--	For the PSR-2101
SM-8213	SUPER MEGOHMMETER	53	Max. 2×10^{12} Ω
SM-8215	SUPER MEGOHMMETER	53	Max. 2×10^{13} Ω
SM-8220	SUPER MEGOHMMETER	53	Max. 2×10^{16} Ω
SM7110	SUPER MEGOHM METER	52	1 ch, 1000 V
SM7120	SUPER MEGOHM METER	52	1 ch, 2000 V
SM7420	SUPER MEGOHM METER	52	4ch, Dedicated micro current measurement
SM7810	SUPER MΩ HiTESTER	51	100/110V AC power supply
SM7810-20	SUPER MΩ HiTESTER	51	220V AC power supply
SM7860-51	POWER SOURCE UNIT	51	100V AC power supply
SM7860-52	POWER SOURCE UNIT	51	100V AC power supply
SM7860-53	POWER SOURCE UNIT	51	100V AC power supply
SM7860-54	POWER SOURCE UNIT	51	100V AC power supply
SM7860-55	POWER SOURCE UNIT	51	100V AC power supply
SM7860-56	POWER SOURCE UNIT	51	100V AC power supply
SM7860-57	POWER SOURCE UNIT	51	100V AC power supply
SM7860-58	POWER SOURCE UNIT	51	100V AC power supply
SM7860-61	POWER SOURCE UNIT	51	220V AC power supply
SM7860-62	POWER SOURCE UNIT	51	220V AC power supply
SM7860-63	POWER SOURCE UNIT	51	220V AC power supply
SM7860-64	POWER SOURCE UNIT	51	220V AC power supply
SM7860-65	POWER SOURCE UNIT	51	220V AC power supply
SM7860-66	POWER SOURCE UNIT	51	220V AC power supply
SM7860-67	POWER SOURCE UNIT	51	220V AC power supply
SM7860-68	POWER SOURCE UNIT	51	220V AC power supply
SM9001	SURFACE/VOLUME RESISTANCE MEASUREMENT ELECTRODE	51	For the SM-8200 series
SM9002	VERIFICATION FIXTURE FOR SURFACE RESISTANCE MEASUREMENT	51	For the SM9001(SM-8200 series)
SME-8301	SURFACE RESISTANCE MEASUREMENT ELECTRODE	54	
SME-8302	ELECTRODE FOR SURFACE RESISTANCE	54	
SME-8310	PLATE SAMPLE ELECTRODE	54	
SME-8311	ELECTRODE FOR FLAT SAMPLE	54	
SME-8320	WEIGHT ELECTRODE	54	
SME-8330	LIQUID SAMPLE ELECTRODE	54	
SME-8350	SHIELDING BOX	54	
SME-8360	ELECTRODE FOR CHIP CAPACITOR	54	
SP3000	NON-CONTACT AC VOLTAGE PROBE	20	Sold individually
SP3000-01	NON-CONTACT AC VOLTAGE PROBE	20	SP3000, SP9001 bundled model
SP9001	AC VOLTAGE PROBE	20	Sold individually
SR-2	STANDARD RESISTOR	54	
SS7012	DC SIGNAL SOURCE	57	
SS9000	COMMUNICATION PACKAGE	57	For the SS7012
ST-80	SOUND LEVEL METER TRIPOD	90	For the FT3432, 3431
ST-80-100	TRIPOD EXTENSION ROD	90	For the FT3432, 3431
ST5520	INSULATION TESTER	60	Built-in external I/O output
ST5520-01	INSULATION TESTER	60	Built-in BCD output
ST5540	LEAK CURRENT HiTESTER	58	For medical-use and electrical devices
ST5541	LEAK CURRENT HiTESTER	58	For electrical devices
SW1001	SWITCH MAINFRAME	47	3 slots
SW1002	SWITCH MAINFRAME	47	12 slots
SW9001	MULTIPLEXER MODULE	47	For SW1001 and similar products
SW9002	MULTIPLEXER MODULE	47	For SW1001 and similar products
TM6101	LED OPTICAL METER	86	
TM6102	RGB LASER METER	86	Illuminance

Model No. (Order Code) Index

Note: ☆ mark : Discontinued or discontinuation scheduled models.

Model No.	Name	Page	Note
TM6103	RGB LASER LUMINANCE METER	86	Luminance
TM6104	OPTICAL POWER METER	86	Optical power
TS2400	WPT TEST SYSTEM	112	System product
U8330	SSD UNIT	18	For the MR8827, factory option
U8331	SSD UNIT	18	For the MR8847A, factory option
U8332	SSD UNIT	17	For the MR6000, factory option
U8333	HD UNIT	17	For the MR6000, factory option
U8350	PRINTER UNIT	18	For the MR8827, factory option
U8793	ARBITRARY WAVEFORM GENERATOR UNIT	57	For the MR8847A and similar products
U8794	VIR GENERATOR UNIT	57	For the MR8740-50
U8969	STRAIN UNIT	17	For the MR6000, MR8847A, MR8827, and similar products
U8974	HIGH VOLTAGE UNIT	17	For the MR6000, MR8847A, MR8827, and similar products
U8975	4CH ANALOG UNIT	17	For the MR6000
U8976	HIGH SPEED ANALOG UNIT	17	For the MR6000
U8991	DIGITAL VOLTMETER UNIT	19	For the MR8740-50
Z1000	BATTERY PACK	16	For the MR8880, LR8400 series
Z1002	AC ADAPTER	16	For the MR8880, MR8875, PW3198
Z1003	BATTERY PACK	16	For the MR8875, PW3198
Z1004	AC ADAPTER	92	For the FT3406
Z1005	AC ADAPTER	17	For the MR8870/8870, LR8431/8430 series
Z1006	AC ADAPTER	73	For the PW3360 series
Z1007	BATTERY PACK	29	For the LR8410 series
Z1008	AC ADAPTER	29	For the LR8410, PW3365 series, P9000 and similar products
Z1009	FIXED STAND	29	For the LR8410 series
Z1013	AC ADAPTER	20	For the SP3000
Z2000	HUMIDITY SENSOR	29	For the LR8410/LR8400 series
Z2001	TEMPERATURE SENSOR	44	For the RM3545 series and similar products
Z2002	TEMPERATURE SENSOR	44	For the RM3548
Z2003	AC ADAPTER	27	For the LR8512 series
Z2005	TEMPERATURE SENSOR	47	For the BT4560, 1 m (3.28 ft) length
Z2010	HUMIDITY SENSOR	26	For the LR8514
Z2011	HUMIDITY SENSOR	26	For the LR8514
Z2012	HEAT FLOW SENSOR	28	S size, 1.5 m (4.92 ft) length
Z2012-01	HEAT FLOW SENSOR	28	S size, 1.5 m (4.92 ft) length
Z2013	HEAT FLOW SENSOR	28	M size, 1.5 m (4.92 ft) length
Z2013-01	HEAT FLOW SENSOR	28	M size, 1.5 m (4.92 ft) length
Z2014	HEAT FLOW SENSOR	28	L size, 1.5 m (4.92 ft) length
Z2014-01	HEAT FLOW SENSOR	28	L size, 1.5 m (4.92 ft) length
Z2015	HEAT FLOW SENSOR	28	S size, 5 m (16.41 ft) length
Z2015-01	HEAT FLOW SENSOR	28	S size, 5 m (16.41 ft) length
Z2016	HEAT FLOW SENSOR	28	M size, 5 m (16.41 ft) length
Z2016-01	HEAT FLOW SENSOR	28	M size, 5 m (16.41 ft) length
Z2017	HEAT FLOW SENSOR	28	L size, 5 m (16.41 ft) length
Z2017-01	HEAT FLOW SENSOR	28	L size, 5 m (16.41 ft) length
Z2018	HEAT FLOW SENSOR	28	SS size, 1.5 m (4.92 ft) length
Z2019	HEAT FLOW SENSOR	28	SS size, 5 m (16.41 ft) length
Z3000	GP-IB INTERFACE	38	For the IM3590, IM3523/33 series
Z3001	RS-232C INTERFACE	38	For the IM3590, IM3523/33 series
Z3002	LAN INTERFACE	38	For the IM3590, IM3523/33 series
Z3003	MULTIPLEXER UNIT	44	For the RM3545-02, input scanner
Z4001	SD MEMORY CARD 2GB	70	For the PW3198, MR8875 and similar products
Z4003	SD MEMORY CARD	70	For the PQ3100, MR8875 and similar products, 8GB
Z4006	USB DRIVE	17	For the MR6000 and similar products, 16GB
Z5000	FIXED STAND	31	For the LR8400 series
Z5003	CONTACT ADAPTER	92	For the FT3405, FT3406
Z5004	MAGNETIC STRAP	34	For the LR5000 series and similar products
Z5008	THERMALLY CONDUCTIVE TAPE	28	For the Z2012s, 20 seets set
Z5015	PC SYSTEM	112	For the TS2400
Z5016	WPT TESTING PLATFORM	112	For the TS2400
Z5017	PLC RACK	112	For the TS2400
Z5018	SWITCH BOX	112	For the TS2400
Z5020	MAGNETIC STRAP	107	For the PD3259, DT4250/4280 series
Z5021	PROBE POWER UNIT	17	For the MR6000, factory option
Z5022	SHOULDER STRAP	106	For the FT3151
Z5023	EXTENSION CART	92	For the FT3424, FT3425
Z5038	0 ADJ BOARD	48	For L2110 (BT3564) and similar products

Product Warranties

HIOKI products are generally covered by a three-year warranty.

Product warranty

In the event HIOKI is responsible for the failure of a product during the warranty term beginning on the date of purchase (or beginning in the month the product was manufactured if the date of purchase is unclear), we will repair or replace the product free of charge.

(**Warranty scope:** We check products on a standalone basis to verify their specifications, performance, and functionality. Although we verify proper operation of components that are connected to HIOKI products in standard configurations, we ask that customers verify proper operation of their HIOKI products when connected to other manufacturers' products. The scope of HIOKI's warranty is limited to HIOKI products. Connected devices and issues caused by connected devices are considered outside the scope of the warranty. In the event of physical damage, any compensation that might be provided by HIOKI is limited to the purchase price of the product.)

Accuracy guarantee

For products with an accuracy guarantee, we guarantee the level of accuracy indicated in the specifications for a certain period of time following shipment from the factory. In the event of an accuracy defect during that period of time, we will adjust the product free of charge.

Calibration, adjustment, and repair service

Calibrated products

No warranty term is provided. The period of time for which a calibration is considered valid must be determined by the customer. Calibration includes a statement of values as of the date of calibration as calibration results.

Calibration interval : We suggest a product-specific accuracy guarantee term as the recommended calibration interval.

Adjusted products

If an adjusted product falls out of accuracy during the post-adjustment accuracy guarantee term, we will readjust it free of charge.

Guarantee term : The post-adjustment accuracy guarantee term is determined on a product-by-product basis. With some exceptions, we offer a post-adjustment accuracy guarantee for the duration of the recommended accuracy interval. The month of adjustment serves as the starting point when calculating the duration of the guarantee.

Guarantee conditions : The post-adjustment accuracy guarantee is intended to guarantee the accuracy of measured values. It is not a product warranty. If the product's falling out of accuracy is the result of the service life or deterioration of a part, the customer will be charged for the repair. If the product's falling out of accuracy is deemed likely to be the result of damage or the environment in which the product was operated or stored, the customer will be charged for the repair. If we conclude that a product received from a customer is likely to fall out of accuracy after shipment, we may contact the customer and decline to provide a post-adjustment accuracy guarantee. These terms apply to calibration and adjustment performed at HIOKI E.E. CORPORATION headquarters.

Repaired products

If, within six months of the original repair, HIOKI is responsible for an issue requiring an additional repair (a repair of the same issue) of a product that has been used as described in its user manual, we will repair it free of charge.

Repair term : We may improve products or switch models without notice in order to enhance the competitiveness of our products and our productivity. We will repair discontinued products for a minimum of five years from the date of their discontinuation, although we may elect to propose that the customer switch to an alternative model if it is difficult to repair a product due to social or economic conditions.
*Once five years has passed since a product's discontinuation, we will only accept inspection and calibration requests for that product if we are able to perform that work in-house.

Quality of HIOKI's calibration, adjustment, and repair service

80 years of history and fine-grained, expert service

Technicians performing calibration, adjustment, and repair work undergo in-house training to ensure they possess the specialized expertise and skills that such work demands. We carry out rigorous inspections that extend from product functionality to accessories, including to assess potential wiring breaks in probes, remaining battery life, and display performance.

Precise calibration and adjustment guidelines compiled by product designers

We determine everything from the procedures for measuring instrument functionality checks to calibration points based on the results of reviews conducted by designers who are well versed in the characteristics of products' internal circuitry and the principles that underlie their operation. In this way, we are able to provide optimal, extensive calibration and adjustment service as only the manufacturer can.

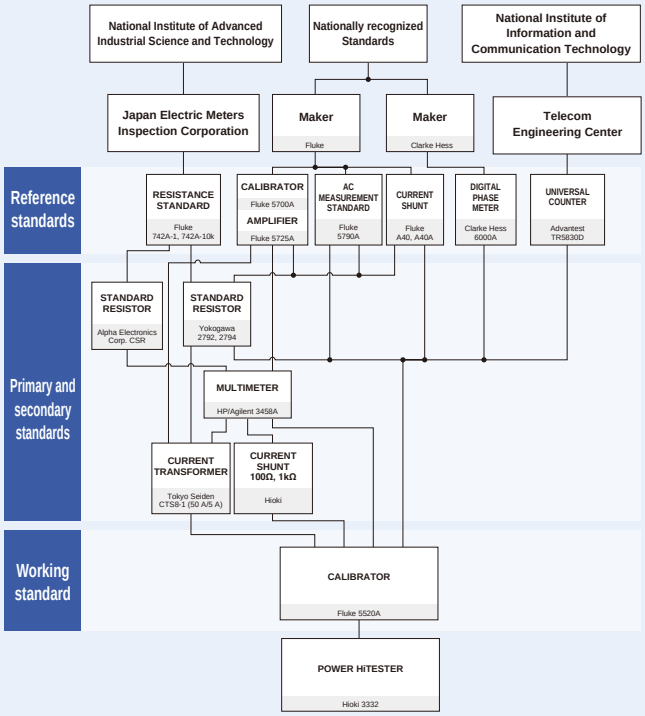
Highly reliable service that's traceable to national standards

The standard devices we use to calibrate and adjust products are all linked to national standards, ensuring that we can issue inspection reports with accurate, reliable calibrated values.

Comprehensive calibration, adjustment, and repair service with fast turnaround

If we discover a malfunction or failure during the calibration process, we'll contact you to let you know where the problem is and what's necessary to address it. If you wish, we'll then repair the product. This capability eliminates unnecessary back-and-forth so you can put your product back to work as soon as possible.

Traceability Chart



Other

Calibration, adjustment, and repair service

(1) Service content

HIOKI recommended calibration General calibration with adjustment	General calibration	17025 calibration (JCSS)	Repair
General calibration	General calibration	General calibration	Confirmation of issue
Adjustment		Adjustment	Repair
General calibration		General calibration	Adjustment
		17025 calibration (JCSS) JCSS calibration certificate	General calibration

- JCSS calibration is also available as a standalone service.
  (HIOKI recommends that customers have general calibration with adjustment performed prior to JCSS calibration of their instrument.)
- Products can be bundled with JCSS calibration at the time of purchase.
- Customers can also specify calibration points.
  We will provide a list of supported calibration points and ask that customers specify points as desired from that list.

(2) Documents we can issue and their content

Inspection report *

- Calibration results
- Judgment

General calibration certificate *

- Calibration certificate declaration
- Information about equipment used in calibration

JCSS calibration certificate

- Calibration results
- Inaccuracies
- Coverage factor
- Calibration certificate declaration
- ilac-MRA, IA Japan, and JCSS logos

Traceability certificate (special-order)

- Calibration certificate declaration
- Information about lighting standards

Traceability chart (overall) *

An overview tracing HIOKI product groups to national standards via individual standard devices

Traceability chart (model-specific) *

A detailed diagram tracing a particular product model to national standards via individual standard devices

Documents with "*"mark are also available on HIOKI's website.

(3) Applying for calibration, adjustment, or repair service

From the distributor where you purchased the product
Download the "Repair/Calibration Request Confirmation Form" from the Hioki website, then complete the required information and take the form along with your instrument to the distributor from whom you purchased the product. If you wish to receive a quotation before requesting service, please send just the "Repair/Calibration Request Confirmation Form" to the distributor. (For distributor information, please contact your nearest Hioki subsidiary.)

Repair/Calibration Request Form
Available from the HIOKI website:
> Repair and Calibration> Requesting Repair and Calibration Service

Calibration

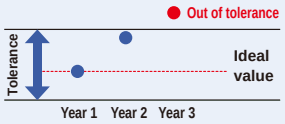
Calibration provides a way to check the condition of a measuring instrument by comparing the ideal value indicated by a standard device with the value indicated by the instrument being calibrated.

Adjustment

Adjustment corrects for the difference between the ideal value indicated by a standard device and the value indicated by the instrument being adjusted. HIOKI recommends that calibration and adjustment be performed together. Adjustment lets you use your instrument with ideal values.
*Products that have undergone adjustment are covered by a post-adjustment accuracy guarantee.

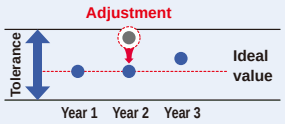
General calibration only

Although the instrument may perform to tolerance at the time of calibration, it may fall out of tolerance subsequently.



General calibration and adjustment

By adjusting the instrument at the time of calibration, it is possible to compensate for divergence from true values so that the performance of the instrument can be maintained subsequently.



HIOKI products are designed so that they will not fall out of tolerance before the calibration interval is up as long as calibration with adjustment is performed at the recommended calibration interval and the instrument is used and stored under the specified environmental conditions. If an instrument falls out of tolerance, it may be due to an issue that needs to be repaired.

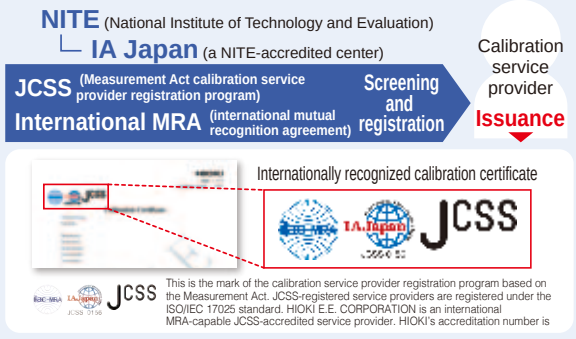
Service capability and warranty duration

You can find out whether HIOKI accepts repair and calibration requests for your instrument, associated lead times if so, and the information listed below simply by entering the product model number on HIOKI's website.

- Availability of repair and calibration service
- Recommended Calibration Interval
- Post-adjustment accuracy guarantee period
- Product warranty period
- Date production discontinued

JCSS and JCSS Calibration

Difference between general calibration and 17025 calibration (JCSS)



JCSS calibration is a type of third-party-accredited calibration based on ISO/IEC 17025. General calibration is a type of calibration determined by HIOKI based on ISO 9001. HIOKI can issue calibration certificates bearing the JCSS mark for instruments that have undergone JCSS certification, and they are valid internationally since they are international MRA-compliant.

Differences in calibration points

General calibration
Calibration is performed for all parameters that need to be checked in order to maintain the performance of the measuring instrument as determined by the product designer.

17025 calibration (JCSS)
Calibration is performed using points registered as the JCSS calibration range and selected by the customer.

Differences in information on calibration documents

General calibration
- Calibration results: Included on inspection report
- Inaccuracies: Not included
- Traceability chart: Yes

17025 calibration (JCSS)
- Calibration results: Included on calibration certificate
- Inaccuracies: Included on calibration certificate
- Traceability chart: No

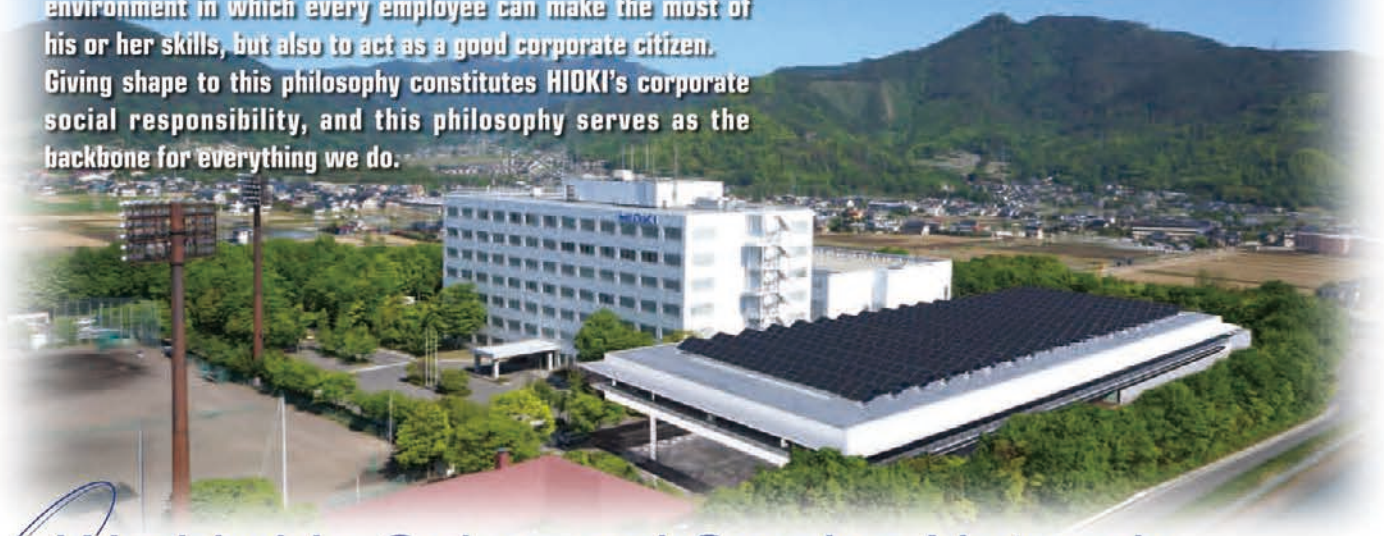
(*JCSS and other logos certify traceability.)

Other

HIOKI's Philosophy

"Respect for Humanity" and "Contribution to Society".

To develop as a company, it is essential not only to create an environment in which every employee can make the most of his or her skills, but also to act as a good corporate citizen. Giving shape to this philosophy constitutes HIOKI's corporate social responsibility, and this philosophy serves as the backbone for everything we do.



Worldwide Sales and Service Network

Sales or service subsidiary Principal overseas distributor Representative office Sales subsidiary facility

Following up on the establishment of HIOKI USA Corporation in the United States in 1998, we have continued to expand to local markets by establishing sales companies in China, Singapore, South Korea, Europe, as well as a service company in India. In addition, HIOKI operates representative offices in Taiwan and Dubai to provide a more immediate level of support for its distributors' sales activities. We also have the support of distributors in more than 30 countries, reflecting our effort to build sales structures for our products in every region of the world.

HIOKI

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