

Electrical Measuring Instruments

General Catalog



Recorders

Power

Electronic

Field

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



ISO14001
JQA-E-90091



ISO 9001
JMI-0216

About the Catalog

Searching for product pages and notes ...

Products in this catalog are grouped according to functions so you can easily find the right instrument for your application by referring to the list of product groups in the table of contents on the first page, and moving directly to the indicated section.



ISO 14001
CERTIFICATE No. JQA-E90091

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



ISO 9001
CERTIFICATE No. JQA-Q216

HIOKI's product has been manufactured in conformity with the ISO 9001 international standard on Quality Control and Quality Assurance.

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.

About the marks ...



New products in the 2011 Electrical Measuring Instruments GENERAL CATALOG.



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

LAN / **GP-IB** / **RS-232C** / **SCSI** / **FAX/modem** / **USB_{1.1}** / **USB_{2.0}**

Models are available with interfaces compatible with LAN, GP-IB, RS-232C, SCSI, FAX/modem and USB standards.

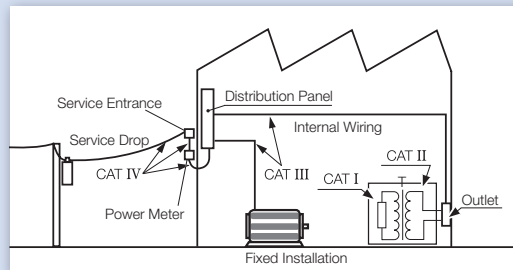
Measurement categories (Overvoltage categories)

To ensure safe operation of measurement products, IEC 61010 establishes safety standards for various electrical environments, categorized as CAT I to CAT IV, and called measurement categories. These are defined as follows.

- CAT I** : Secondary electrical circuits connected to an AC electrical outlet through a transformer or similar device.
- CAT II** : Primary electrical circuits in equipment connected to an AC electrical outlet by a power cord (portable tools, household appliances, etc.)
- CAT III** : Primary electrical circuits of heavy equipment (fixed installations) connected directly to the distribution panel, and feeders from the distribution panel to outlets.
- CAT IV** : The circuit from the service drop to the service entrance, and to the power meter and primary overcurrent protection device (distribution panel).

Higher-numbered categories correspond to electrical environments with greater momentary energy, so a measurement product designed for **CAT III** environments can endure greater momentary energy than one designed for **CAT II**. Using a measurement product in an environment designated with a higher-numbered category than that for which the product is rated could result in a severe accident, and must be carefully avoided.

Never use a **CAT I** measuring product in **CAT II, III, or IV** environments. The measurement categories comply with the Overvoltage Categories of the IEC60664 Standards.



What is the CE Mark?

The CE mark certifies that a product complies with electrical safety standards established by European

Community directives (EC directives). These EC directives require conformance of a product to EN/IEC standards for electrical safety.

- HIOKI's products bearing the CE Mark are designed to confirm to the Low Voltage and EMC directives based on the EC directives.
- The Low Voltage directive is applicable to products operating from 50 to 1000V AC and 75 to 1500V DC, and require protection from electrical hazards such as electric shock.
- The EMC directive requires suppression of emissions of harmful electromagnetic radiation, and the ability to withstand exposure to external electromagnetic radiation without malfunction.

WARNING



In some cases, power lines may carry voltage spikes of several times the normal supply voltage. For reasons of safety, ordinary testers should not be used to measure power lines carrying more than 250V. When measuring such power lines, always use a tester with built-in overcurrent protection to guard against short circuits, such as Model 3008 and CAT III marked products.

Note : An industrial power line refers to a high-capacity supply circuit to equipment in factories or offices. A high-capacity supply circuit refers generally to a line carrying 20 A or more. This does not therefore include supply lines protected by overcurrent protection (fuses) or distribution breakers.

Notes on accuracy ...

The specifications in this catalog include figures for "measurement accuracy" when referring to digital measuring instruments, and for "measurement tolerance" when referring to analog instruments.

The accuracy and tolerance figures in the product specifications are defined in terms of *full scale (f.s.) value* and *displayed reading (rdg.)* or *digit resolution (dgt.)* as described below.

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.

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.

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.



Insulated conductor

WARNING

1. To avoid short circuits and electric shock accidents when using a clamp-on sensor, use only with power lines carrying voltages within the rating limit of the sensor.

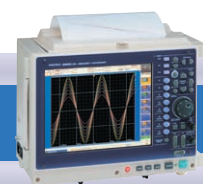
2. Products shown with this icon may only be used with insulated conductors (wires or cables that are covered with a proven insulation material.)

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Recorders, Memory Recorders

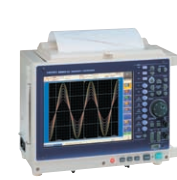
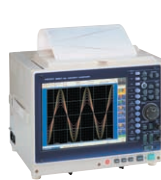






Recorders, Memory Recorders Index

Handy devices for service and maintenance recording

 <p>MR8847-01, -02, -03 CE 20MS/sec Analog 16ch + Logic 16ch to Analog 10ch + Logic 64ch 12/16 bits A/D resolution p.7</p>	 <p>MR8875 CE Max. 16ch+Logic 8ch Scanner type 60ch max. 500k-Sampling/s 16-bit A/D resolution USB, SD-card p.13</p>	 <p>MR8880-20 CE 1 MS/sec (4 ch) 1MW/ch memory 14-bits A/D resolution Battery or AC Adapter operation p.14</p>	 <p>8870-20 CE 1 MS/sec (2 ch) 2 MW/ch memory 12-bits A/D resolution handheld type p.15</p>	 <p>LR8400-20/ 8401-20/8402-20 CE Data logger (30 ch) 10 ms to 1h interval 8 MW internal memory Battery operation p.17</p>	 <p>8205-10 CE Recorder (1 ch) 100 sampling/sec. No memory p.10</p>
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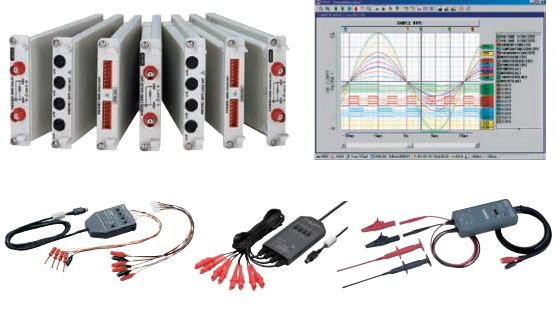

For simultaneous recording of multiple signals For power line fault monitoring

 <p>8860-50 CE 20 MS/sec. (12 bits 8 ch) 2 MS/sec. (16 bits 8 ch) 50 ms/all ch (16 bits 64 ch) 32 MW up to 1GW memory p.5</p>	 <p>8861-50 CE 20 MS/sec. (12 bits 16 ch) 2 MS/sec. (16 bits 16 ch) 50 ms/all ch (16 bits 128 ch) 64 MW up to 2GW memory p.5</p>	 <p>8826 CE 1 MS/sec. (32 ch) 4 MW (1 ch) memory- expandable up to 4 times 12-bits A/D resolution p.10</p>	 <p>8423 CE 15 ch to 600 ch isolated input Minimum 10 ms interval LAN/USB PC based data acquisition p.18</p>	 <p>8430-20 CE 10 ch isolated input 4 ch pulse input Minimum 10 ms interval PC based data acquisition USB p.18</p>	 <p>8206-10 CE Recorder for power lines 100 sampling/sec.(2 ch) AC voltage and current No memory p.10</p>
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Record and Analyze CAN-Bus Signals

Options for MEMORY HiCORDER series

PEN RECORDER

 <p>8910 CE 2 channels CAN-Bus interface (Receive only) 12 ch Analog + 24 ch Logic outputs p.5,6,7, 8,9,11,12</p>		 <p>PR8111/PR8112 CE Compact size, Pen-based Can be powered with dry-cell batteries. PR8111: 1 pen PR8112: 2 pens p.16</p>
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Recorders, Memory Recorders

MEMORY HiCODER | 8860-50 | 8861-50

HIOKI's Next Generation Recorder High Performance Isolated High-speed Recorder and Data Logger All in One Complete Instrument

- High and Low Speed Dual Sampling - High speed at 20MS/s (with 8956 input unit)
- Maximum 128 channels (8861-50) or 64 channels (8860-50) of data logging
- Large capacity memory, LAN/USB and other popular PC interfaces standard
- Intuitive operation using GUI/mouse/keyboard



Recorders, Memory Recorders

SPECIFICATIONS	
Measurement ranges using 8956 ANALOG UNIT /option	5 mV to 20 V/division, 12 ranges (20 divisions f.s.), resolution: 1/100 of range
Frequency band	DC to 10 MHz ±3 dB (using 8956 ANALOG UNIT /option)
Time axis at memory function	5µs to 5 minutes/division, 26 settings; external sampling (100 samples/division, desired setting)
Measurement functions	Memory, Recorder, Recorder & Memory (Version 2.00 or later), FFT, Real-time save function
Number of input channels	8860-50: Analog (up to 16 channels) + logic (16 channels standard) or Logger Input (up to 64 channels) 8861-50: Analog (up to 32 channels) + logic (16 channels standard) or Logger Input (up to 128 channels)
Memory capacity	8860-50: 32 M words/9715-50×1 (Total 1 GW, 9715-03 (×1)) 8861-50: 64 M words/9715-50×2 (Total 2 GW, 9715-03 (×2))
Data storage	Type II PC card slot, Hard disk drive (optional)
Interfaces	USB2.0 (3 ports), LAN, GP-IB (with GP-IB CARD 9558), Monitor output (SVGA)
Recording and display	10.4-inch TFT color LCD, 216 mm × 30 mm (A4) or 112 mm × 18 mm (A6), thermal paper roll
Other functions	Scaling, Vernier function, cursor measurement, comment insertion, other functions
Power supply	100 to 240 V AC (50/60 Hz)
Dimensions, mass (base unit only)	8860-50: 330 mmW×250 mmH×184.5 mmD, 8.0 kg 8861-50: 330 mmW×250 mmH×284.5 mmD, 10.5 kg
Accessories	Power cord (1), input cord label (1), Wave viewer software (1)

OPTIONS			
(The 8860-50 or 8861-50 cannot be used alone. Measurement requires optional input unit or similar peripheral.)			
●Options (Factory fitted)			
A4 PRINTER UNIT	8995	MEMORY BACK UP UNIT	9719-50
A6 PRINTER UNIT	8995-01	DC POWER UNIT	9684
MEMORY BOARD(32MW to 1GW)*	9715-50,-51,-52,-53	PROBE POWER UNIT	9687
HD UNIT	9718-50		
●Options			
CONNECTION CORD (500V Max.)	9197	LOGIC PROBE (response time 0.1µsec or higher)	9327
CONNECTION CORD (300V Max.)	L9198	LOGIC PROBE	9320-01
CONNECTION CORD (BNC-BNC)	L9217	LOGIC PROBE	MR9321-01
10:1 PROBE	9665	CARRYING CASE (for 8860-50)	9723
100:1 PROBE	9666	CARRYING CASE (for 8861-50)	9724
RECORDING PAPER (for A4-printer 8995 only)	9231	MEMORY HiVIEWER	9725
A4 width 216 mm × 30 mm, 6 rolls		LAN CABLE	9642
RECORDING PAPER (for A6-printer 8995-01 only)	9234	PC CARD 256MB	9727
A6 width 112 mm × 18 mm, 10 rolls		PC CARD 512MB	9728
DIFFERENTIAL PROBE	9322	PC CARD 1GB	9729
(9418-15 or 9687/9248 is necessary)		PC CARD 2GB	9830
		CLAMP ON SENSORS (refer to p.46-49)	
		Other common options (refer to p.12)	

*One MEMORY BOARD is required in Model 8860-50, and two MEMORY BOARDS of the same capacity are required in Model 8861-50

Input modules	
ANALOG UNIT (20MS/s)	8956
HIGH RESOLUTION UNIT	8957
16ch SCANNER UNIT	8958
DC/RMS UNIT	8959
ANALOG UNIT (1MS/s)	8936
VOLTAGE/TEMP UNIT	8937
FFT ANALOG UNIT	8938
STRAIN UNIT (12Bit)	8939
F/V UNIT	8940
4ch ANALOG UNIT	8946
CHARGE UNIT	8947
STRAIN UNIT (16Bit)	8960
HIGH VOLTAGE UNIT	8961

(refer to P.6,11)



INPUT Units For 8860-50, 8861-50 only

Dimensions and mass: approx.
170W × 20H × 148.5D mm, approx. 290g
Accessories: None



8956

ANALOG UNIT 8956	
Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 40 pF). Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Measurement range	5 mV to 20 V/division, 12 ranges, full scale: 20 divisions, AC voltage for possible measurement/display using the memory function: 280 V rms, low-pass filter: 5/500/5k/1M Hz
Measurement resolution	1/100 of measurement range (using 12-bit A/D conversion; installed in 8860-50/8861-50)
Highest sampling rate	20 MS/s (simultaneous sampling in 2 channels)
Accuracy	DC amplitude: ±0.4% of full scale (with filter 5 Hz) Zero position: ±0.1% of full scale (with filter 5 Hz, after zero adjustment)
Frequency characteristics	DC to 10 MHz ±3 dB, with AC coupling: 7 Hz to 10 MHz ±3 dB
Input coupling	DC, GND, AC
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
170W × 20H × 148.5D mm, approx. 310 g
Accessories: None



8957

HIGH-RESOLUTION UNIT 8957	
Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 40 pF). Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Measurement range	5 mV to 20 V/division, 12 ranges, full scale: 20 divisions, AC voltage for possible measurement/display using the memory function: 280 V rms, low-pass filter: 5/50/500/5k/50k Hz
Anti-aliasing filter	Integrated filter for suppressing aliasing distortion caused by FFT processing (automatic cutoff frequency setting/OFF)
Measurement resolution	1/1600 of measurement range (using 16-bit A/D conversion; installed in 8860-50/8861-50)
Highest sampling rate	2 MS/s (simultaneous sampling in 2 channels)
Accuracy	DC amplitude: ±0.2% of full scale (with filter 5 Hz) Zero position: ±0.1% of full scale (with filter 5 Hz, after zero adjustment)
Frequency characteristics	DC to 200 kHz ±3 dB, with AC coupling: 7 Hz to 200 kHz ±3 dB
Input coupling	DC, GND, AC
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
170W × 20H × 183D mm, approx. 385 g
Accessories: Flathead screwdriver × 1, short bar × 2



8958

16ch SCANNER UNIT 8958	
Measurement functions	Number of channels: 16, for voltage measurement/temperature measurement with thermocouple
Input connectors	Voltage input/Thermocouple input: screw-type terminal strip, recommended wire diameter *, detachable terminal block (with cover) *1 Recommended cable, single-wire: 0.14 to 1.5 mm ² , braided wire 0.14 to 1.0 mm ² (conductor wire diameter min. 0.18 mm), AWG 26 to 16 Input impedance: 1 MΩ, 850 kΩ with line fault detection ON, Max. rated voltage to earth: 33 Vrms or 70 V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Voltage measurement range	5m, 50m, 500m, 2 V/division, 4 ranges, full scale: 20 divisions, measurement range: ±100% of full scale, digital filter: 10/50/60 Hz, measurement resolution 1/1600 of measurement range (using 16-bit A/D conversion; installed in 8860-50/8861-50)
Temperature measurement range (Upper and lower limit values depend on measurement input range of sensor)	10°C/division (-100°C/ to +200°C), 50°C/division (-200°C/ to +1000°C), 100°C/division (-200°C/ to +2000°C), 3 ranges, full scale: 20 divisions, digital filter: 10/50/60 Hz, measurement resolution 1/1000 of measurement range (using 16-bit A/D conversion; installed in 8860/8861)
Thermocouple range	K: -200 to 1350°C, J: -200 to 1200°C, E: -200 to 1000°C, T: -200 to 400°C, N: -200 to 1300°C, R: 0 to 1700°C, S: 0 to 1700°C, B: 400 to 1800°C, W (WRe5-26): 0 to 2000°C, reference junction compensation: internal/ external (switchable), line fault detection ON/OFF switchable
Data refresh rate	50 ms/all channels (digital filter OFF), 300 ms/all channels (digital filter 50/60 Hz), 1.4 s/all channels (digital filter 10 Hz)
Accuracy	Voltage: ±0.2% of full scale, thermocouple (K, J, E, T, N): ±0.05% of full scale ±1°C, (R, S, B, W): ±0.05% of full scale ±2°C (400°C or more), ±0.05% of full scale ±3.5°C (less than 400°C), reference junction compensation accuracy: ±1°C (added to measurement accuracy with internal reference junction compensation)
Max. allowable input	40 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
170W × 20H × 148.5D mm, approx. 290 g
Accessories: None



8959

DC/RMS UNIT 8959	
Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF). Max. rated voltage to earth: 370 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Measurement range	5 mV to 20 V/division, 12 ranges, full scale: 20 divisions, AC voltage for possible measurement/display using the memory function: 280V rms, low-pass filter: 5/500/5k/100k Hz
Measurement resolution	1/80 of measurement range (using 12-bit A/D conversion; installed in 8860-50/8861-50)
Highest sampling rate	1 MS/s (simultaneous sampling in 2 channels)
Accuracy	DC amplitude: ±0.4% of full scale (with filter 5 Hz), zero position: ±0.1% of full scale (with filter 5 Hz, after zero adjustment)
RMS measurement	RMS amplitude accuracy: ±1% of full scale (DC, 20 Hz to 1 kHz), ±3% of full scale (1 kHz to 100 kHz), response time: SLOW 5 s (rise time from 0 to 90% of full scale), MID 800 ms (rise time from 0 to 90% of full scale), FAST 100 ms (rise time from 0 to 90% of full scale), crest factor: 2
Frequency characteristics	DC to 400 kHz ±3 dB, with AC coupling: 7 Hz to 400 kHz ±3 dB
Input coupling	DC, GND, AC
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
170W × 20H × 148.5D mm, approx. 290 g
Accessories: Conversion cable × 2, cable length 50cm



8960

STRAIN UNIT 8960	
Measurement functions	Number of channels: 2, for distortion measurement (electronic auto-balancing, balance adjustment range within ±10000 μe)
Input connectors	Via conversion cable, TAJIMI PRC03-12A10-7M10.5, Max. rated voltage to earth: 33 Vrms or 70 V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Suitable transducer	Strain gauge converter, bridge impedance: 120 Ω to 1 kΩ (bridge voltage 2 V), 350 Ω to 1 kΩ (bridge voltage 5 V, 10 V), bridge voltage 2, 5, 10 ±0.05 V
Measurement range	20 μe to 1000 μe/division, 6 ranges, full scale: 20 divisions, low-pass filter: 5/10/100/1k Hz
Anti-aliasing filter	Integrated filter for suppressing aliasing distortion caused by FFT processing (automatic cutoff frequency setting/OFF)
Measurement resolution	1/1600 of measurement range (using 16-bit A/D conversion; installed in 8860-50/8861-50)
Highest sampling rate	200 kS/s (2-channel simultaneous sampling)
Accuracy After auto-balancing	DC amplitude: ±(0.4% of full scale +2 μe), zero position: ±(0.1% of full scale +2 μe) (at 5 Hz filter ON)
Frequency characteristics	DC to 20 kHz +1/-3 dB
Max. allowable input	10 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
170W × 19.8H × 148.5D mm, approx. 310 g
Accessories: CONNECTION CORD 9242 × 2 (1.7 m), GRABBER CLIP 9243 × 2



8961

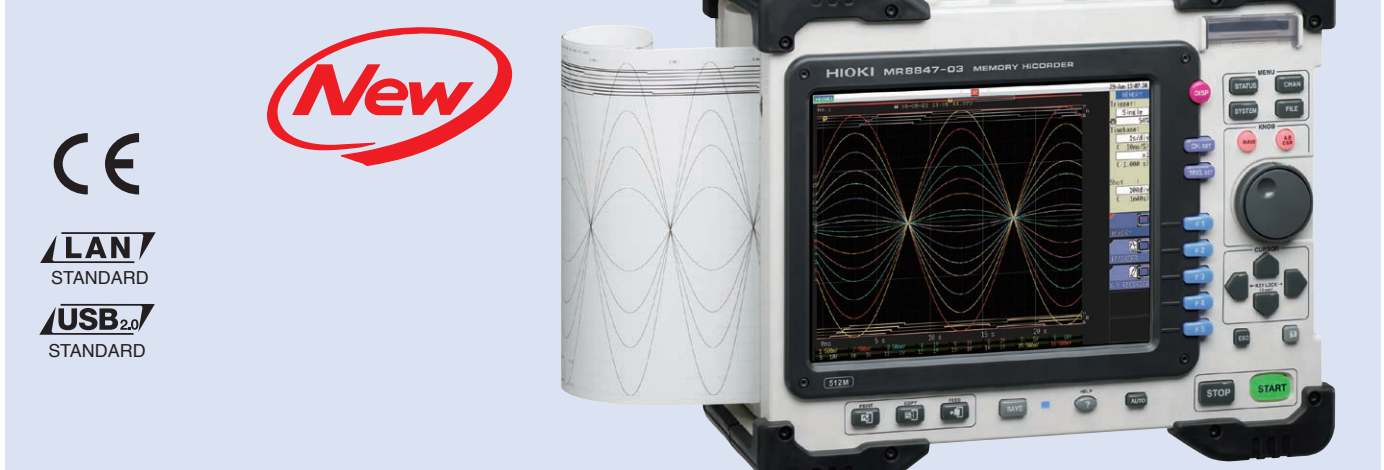
HIGH VOLTAGE UNIT 8961	
Measurement functions	Number of channels: 2, for voltage measurement, DC/RMS selectable (10MΩhm 5pF)
Measurement range	1 V to 50 V/div, 6 ranges, full scale: 20 div, Max. 700 V rms, low-pass filter: 5/50/500/5 kHz
Highest sampling rate	2 MS/s (simultaneous sampling in 2 channels)
Accuracy	DC amplitude: ±0.25% of full scale (with filter 5 Hz)
RMS measurement	RMS amplitude accuracy: ±1% of full scale (DC, 40 Hz to 1 kHz, sine waveform), crest factor: 2
Frequency characteristics	DC to 100 kHz ±3dB, Install only up to four units in one 8860-50/8861-50
Max. allowable input	1000 V DC (the maximum voltage that can be applied across input pins without damage)

MEMORY HiCORDER | MR8847-01, -02, -03

New & Improved with Increased Memory Capacity and Wave Comparison at High Speed Sampling

- Choose from 3 memory capacities: 64MW (MR8847-01), 256MW (MR8847-02) or 512MW (MR8847-03)
- Make full use of the high speed sampling capabilities with the wave comparison function
- Analog 16ch + Logic 16ch to Analog 10ch + Logic 64ch
- Fast built-in printer with single-touch operation
- Ruggedly designed to protect against dusty environments
- LAN and USB interfaces

Recorders, Memory Recorders



SPECIFICATIONS	
Measurement ranges (20div full scale)	5mV/div to 20V/div (12 ranges), Resolution: 1/100 of range Max. input voltage 400V DC
Frequency band	DC to 5MHz (±3dB)
Time axis range	5 μs to 5 min/div, 26 ranges (1 division = 100samples)
Measurement functions	Memory, Recorder, X-Y Recorder, FFT (Ver.2.00 or the later)
Other functions	Waveform judgment (at Memory, X-Y recorder, or FFT function)
Number of channels	Analog 16ch + Logic 16ch to Analog 10ch + Logic 64ch
Memory capacity	MR8847-01: Total 64M-Words, 32MW/ch (2ch) to 4MW/ch (16ch) MR8847-02: Total 256M-Words, 128MW/ch (2ch) to 16MW/ch (16ch) MR8847-03: Total 512M-Words, 256MW/ch (2ch) to 32MW/ch (16ch)
Data storage	CF Card Slot (Max2GB), Hard disk drive (option 80GB), USB memory
Display	10.4 inch TFT color LCD (SVGA, 800 × 600 dots)
Recording Paper	216 mm × 30 m
Interface	USB 2.0, LAN: 100BASE-TX
Power supply	100 to 240 V AC (50/60 Hz)
Dimensions, mass	351W × 261H × 140D mm, 6.7kg
Accessories	Printer paper (1), Power cord (1), Protective cover (1), Roll paper attachment (2), PC card protector (1), Application Disk (Wave Viewer Wv, Communication Commands table) (1), USB cable (1)

OPTIONS

ANALOG UNIT	8966	10:1 PROBE	9665
TEMP UNIT	8967	100:1 PROBE	9666
HIGH RESOLUTION UNIT	8968	LOGIC PROBE	9320-01
STRAIN UNIT	8969	LOGIC PROBE	MR9321-01
FREQ UNIT	8970	LOGIC PROBE	9327
CURRENT UNIT	8971	DIFFERENTIAL PROBE	9322
DC/RMS UNIT	8972	(9418-15 is necessary)	
LOGIC UNIT	8973	PC CARD 256MB	9727
HD UNIT	9664 (Factory fitted)	PC CARD 512MB	9728
DC POWER UNIT	9784 (Factory fitted)	PC CARD 1GB	9729
CONNECTION CORD	9197	PC CARD 2GB	9830
CONNECTION CORD	L9198	RECORDING PAPER	9231
CONNECTION CORD	L9217	WAVE PROCESSOR	9335
CONNECTION CORD (Thin Type)	*9790	CARRYING CASE	9783
ALLIGATOR CLIP (Use with 9790)	L9790-01		
GRABBER CLIP (Use with 9790)	9790-02		
CONTACT PIN (Use with 9790)	9790-03		

* Attachment clips sold separately



INPUT Units For MR8847 Series

Dimensions and mass: approx.
106W × 19.8H × 207.5D mm, approx. 250g
Accessories: None



8966

ANALOG UNIT 8966	
Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF) Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Measurement range	5 mV to 20 V/div, 12 ranges, full scale: 20 div AC voltage for possible measurement/display using the memory function: 280 V rms, Low-pass filter: 5/50/500 Hz, 5 k/50 k/500 kHz
Measurement resolution	1/100 of measurement range (using 12-bit A/D conversion; installed in 8847)
Highest sampling rate	20 MS/s (simultaneous sampling in 2 channels)
Measurement accuracy	±0.5 % of full scale (with filter 5 Hz, zero position accuracy included)
Frequency characteristics	DC to 5 MHz -3 dB, with AC coupling: 7 Hz to 5 MHz -3dB
Input coupling	AC/DC/GND
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
106W × 19.8H × 204.5D mm, approx. 2400 g
Accessories: Ferrite clamp × 2



8967

TEMPERATURE UNIT 8967

Measurement functions	Number of channels: 2, for temperature measurement with thermocouple (voltage measurement impossible)
Input connectors	Thermocouple input: plug-in connector, Recommended wire diameter: single-wire, 0.14 to 1.5 mm ² , braided wire 0.14 to 1.0 mm ² (conductor wire diameter min. 0.18 mm), AWG 26 to 16 Input impedance: min. 5 MΩ (with line fault detection ON/OFF), Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Temperature measurement range	10 °C/div (-100 °C to 200 °C), 50 °C/div (-200 °C to 1000 °C), 100 °C/div (-200 °C to 2000 °C), 3 ranges, full scale: 20 div, Measurement resolution: 1/1000 of measurement range (using 16-bit A/D conversion; installed in 8847) <small>Note: Upper and lower limit values depend on the thermocouple</small>
Thermocouple range (JIS C 1602-1995) (ASTM E-988-96)	K: -200 to 1350 °C, J: -200 to 1100 °C, E: -200 to 800 °C, T: -200 to 400 °C, N: -200 to 1300 °C, R: 0 to 1700 °C, S: 0 to 1700 °C, B: 400 to 1800 °C, W (WRε5-26): 0 to 2000 °C, Reference junction compensation: internal/ external (switchable), Line fault detection ON/OFF possible
Data refresh rate	3 stages, Fast: 1.2 ms (digital filter OFF), Normal: 100 ms (digital filter 50/60 Hz), Slow: 500 ms (digital filter 10Hz)
Measurement accuracy	Thermocouple K, J, E, T, N: ±0.1 % of full scale ±1 °C (±0.1 % of full scale ±2 °C at -200 °C to 0 °C), Thermocouple R, S, W: ±0.1 % of full scale ±3.5 °C (at 0 °C to 400 °C or less), ±0.1 % of full scale ±3 °C (at 400 °C or more), Thermocouple B: ±0.1 % of full scale ±3 °C (at 400 °C or more), Reference junction compensation accuracy: ±1.5 °C (added to measurement accuracy with internal reference junction compensation)

INPUT Units For MR8847-01, -02, -03

Dimensions and mass: approx.
106W × 19.8H × 207.5D mm, approx. 250 g
Accessories: None



8968

HIGH-RESOLUTION UNIT 8968

Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF), Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Measurement range	5 mV to 20 V/div, 12 ranges, full scale: 20 div, AC voltage for possible measurement/display using the memory function: 280 V rms, Low-pass filter: 5/50/500 Hz, 5k/50k Hz
Measurement resolution	1/1600 of measurement range (using 16-bit A/D conversion)
Highest sampling rate	1 MS/s (simultaneous sampling in 2 channels)
Measurement accuracy	±0.3 % of full scale (with filter 5 Hz, zero position accuracy included)
Frequency characteristics	DC to 100 kHz -3 dB, with AC coupling: 7 Hz to 5 MHz -3dB
Input coupling	AC/DC/GND
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
106W × 19.8H × 196.5D mm, approx. 220 g
Accessories: CONVERSION CABLE 9769 × 2



8969

STRAIN UNIT 8969

Measurement functions	Number of channels: 2, for distortion measurement (electronic auto-balancing, balance adjustment range within ±10000 με)
Input connectors	Weidmuller SL 3.5/7/90G (via conversion cable 9769, TAJIMI PRC03-12A10-7M10.5) Max. rated voltage to earth: 33 Vrms or 70 V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Suitable transducer	Strain gauge converter, Bridge impedance: 120 Ω to 1 kΩ, Bridge voltage: 2 V ±0.05 V, Gauge rate: 2.0
Measurement range	20 με to 1000 με/div, 6 ranges, full scale: 20 division, Low-pass filter: 5/10/100 Hz, 1 kHz
Measurement resolution	1/1250 of measurement range (using 16-bit A/D conversion)
Highest sampling rate	200 kS/s (2-channel simultaneous sampling)
Measurement accuracy	±(0.5 % of full scale +4 με) (at 5 Hz filter ON, After auto-balancing)
Frequency characteristics	DC to 20 kHz +1/-3dB

Dimensions and mass: approx.
106W × 19.8H × 196.5D mm, approx. 250 g
Accessories: None



8970

FREQ UNIT 8970

Measurement functions	Number of channels: 2, for voltage input based frequency measurement, rotation, power frequency, integration, pulse duty ratio, pulse width
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF), Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Frequency mode	Range: Between DC to 100kHz (minimum pulse width 2μs), 1Hz/div to 5kHz/div (full scale= 20 div), 8 settings Accuracy: ±0.1% f.s. (exclude 5kHz/div), ±0.7% f.s. (at 5kHz/div)
Rotation mode	Range: Between 0 to 2 million rotations/minute (minimum pulse width 2μs), 100 (r/min)/div to 100k (r/min)/div (full scale= 20 div), 7 settings Accuracy: ±0.1% f.s. (excluding 100k (r/min)/div), ±0.7% f.s. (at 100k (r/min)/div)
Power frequency mode	Range: 50Hz (40 - 60Hz), 60Hz (50 - 70Hz), 400Hz (390 - 410Hz) (full scale= 20 div), 3 settings, Accuracy: ±0.03Hz (exclude 400Hz range), ±0.1Hz (400Hz range)
Integration mode	Range: 2k counts/div to 1M counts/div, 6 settings, Accuracy: ±range/2000
Duty ratio mode	Range: Between 10Hz to 100kHz (minimum pulse width 2μs), 5%/div (full scale=20 div), Accuracy: ±1% (10Hz to 10kHz), ±4% (10kHz to 100kHz)
Pulse width mode	Range: Between 2μs to 2sec, 500μs/div to 100ms/dv (full scale=20 div) Accuracy: ±0.1% f.s.
Measurement resolution	1/2000 of range (Integration mode), 1/500 of range (exclude integration, power frequency mode), 1/100 of range (power frequency mode)
Input voltage range and threshold level	±10V to ±400V, 6 settings, selectable threshold level at each range
Other functions	Slope, Level, Hold, Smoothing, Low-pass filter, Switchable DC/AC input coupling, Frequency dividing, Integration over-range keep/return

Dimensions and mass: approx.
106W × 19.8H × 196.5D mm, approx. 250 g
Accessories: CONVERSION CABLE 9318 × 2
(To connect the current sensor to the 8971)



8971

CURRENT UNIT 8971

Measurement functions	Number of channels: 2, Current measurement with optional current sensor, Maximum 4 units connectable to the B847
Input connectors	Sensor connector (input impedance 1 MΩ, exclusive connector for current sensor via conversion cable the 9318, common ground with recorder)
Compatible current sensors	CT6863, CT6862, 9709, 9279, 9278, 9277, 9272-10 (To connect the 8971 via conversion cable the 9318)
Measurement range	Using 9272-10 (20A), 9277: 100mA to 5A/div (f.s.=20div, 6 settings) Using CT6862: 200mA to 10A/div (f.s.=20div, 6 settings) Using 9272-10 (200A), 9278, CT6863: 1A to 50A/div (f.s.=20div, 6 settings) Using 9279, 9709: 2A to 100A/div (f.s.=20div, 6 settings)
Accuracy	Using 9278, 9279: ±0.85% f.s. Using other sensor: ±0.65% f.s. RMS amplitude accuracy: ±1% f.s. (DC, 30Hz to 1kHz), ±3% f.s. (1kHz to 10kHz) RMS response time: 100ms (rise time from 0 to 90% of full scale), Crest factor: 2 Frequency characteristics: DC to 100kHz, ±3dB (with AC coupling: 7Hz to 100kHz)
Measurement resolution	1/100 of range
Highest sampling rate	1 MS/s (simultaneous sampling across 2 channels)
Other functions	Input coupling: AC/DC/GND, Low-pass filter: 5, 50, 500, 5k, 50kHz, or OFF

Dimensions and mass: approx.
106W × 19.8H × 207.5D mm, approx. 250 g
Accessories: None



8972

DC/RMS UNIT 8972

Measurement functions	Number of channels: 2, for voltage measurement, DC/RMS selectable
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF), Max. rated voltage to earth: 300 V AC, DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Measurement range	5 mV to 20 V/div, 12 ranges, full scale: 20 div, AC voltage for possible measurement/display using the memory function: 280 V rms, Low-pass filter: 5/50/500 Hz, 5 k/100 kHz
Measurement resolution	1/100 of measurement range (using 12-bit A/D conversion)
Highest sampling rate	1 MS/s (simultaneous sampling in 2 channels)
Measurement accuracy	±0.5 % of full scale (with filter 5 Hz, zero position accuracy included)
RMS measurement	RMS amplitude accuracy: ±1 % of full scale (DC, 30 Hz to 1 kHz), ±3 % of full scale (1 kHz to 100 kHz), Response time: SLOW 5 s (rise time from 0 to 90% of full scale), MID 800 ms (rise time from 0 to 90% of full scale), FAST 100 ms (rise time from 0 to 90% of full scale), Crest factor: 2
Frequency characteristics	DC to 400 kHz -3 dB, with AC coupling: 7 Hz to 400 kHz -3dB
Input coupling	AC/DC/GND
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx.
106W × 19.8H × 204.5D mm, approx. 310 g
Accessories: None2



8973

LOGIC UNIT 8973

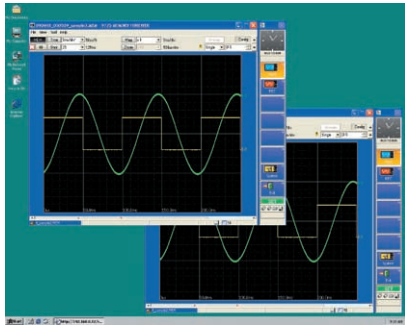
Measurement functions	Number of channels: 16 channels (4 ch/1 probe connector × 4 connectors)
Input connectors	Mini DIN connector (for HIOKI logic probes only), Compatible logic probes: 9320-01, 9327, MR9321-01

MEMORY HiVIEWER (for 8860-50,8861-50)

9725

Perform 8860-50 and 8861-50 functions on your PC

- Application software enables you to perform the same data analysis on a Windows computer as on the 8860-50 and 8861-50 MEMORY HiCORDERs.
- No confusion, because the screens appearing on the computer are identical to those of the 8860 Series.
- Functions identical to those of the MEMORY HiCORDER, such as waveform processing calculation, run on the computer.



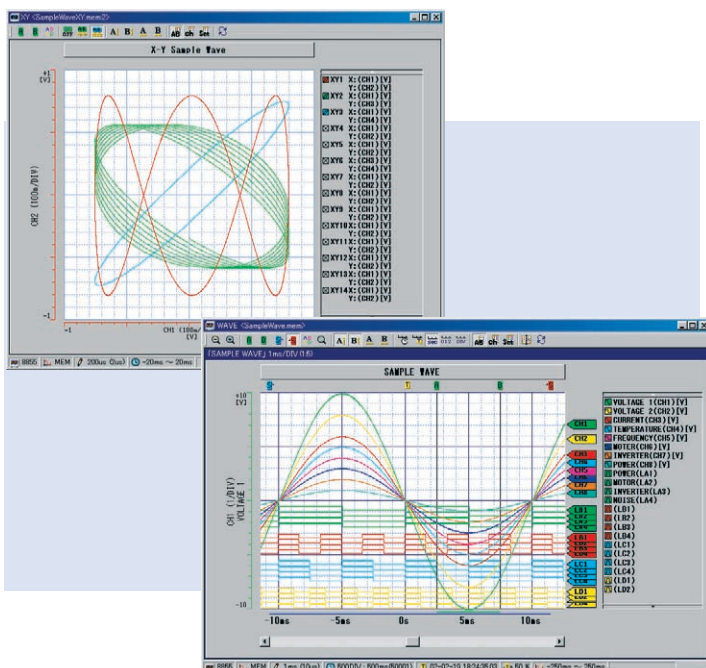
SPECIFICATIONS	
Compatible devices	MEMORY HiCORDER 8860-50/8861-50
Supplied Media	One CD-ROM disc
Operating environment	computer running under Windows 2000/XP/Vista (32-bit), or Windows 7 (32-bit/64bit)
File loading	Readable data formats : Only for 8860 Series data (.MEM, .REC, .FFT, .SEQ, .IDX, .SET) Maximum file size : 2 GW
File saving	Saved contents: measurement data (binary and ASCII), (partial saving of the area between cursors A and B), setting conditions, screen image (BMP, PNG), and calculation results
Display	<ul style="list-style-type: none"> ■ Waveform display: 1-, 2-, 3-, 4-, 6-, and 8-split screen, horizontal, vertical, consecutive scroll, and zoom in/out along the time axis, move the zero position, zoom in/out, setting of variables independently for each channel ■ X-Y-axis composite display (for the MEM function only): 1-, 2-, and 4-split display, dot/line interpolation, composite area can be specified ■ Numerical display: digital values of waveform data can be displayed ■ Display sheet: 16 sheets ■ Display channel count (per sheet): 32 analog channels, 16 logic channels, 16 calculated waveforms, 8 X-Y-axis composite waveforms ■ Cursor function: vertical cursor, horizontal cursor, trace cursor, two cursors (cursor A and cursor B), time and voltage display ■ Clipboard copy: images on the waveform screen can be transferred to the clipboard
Print	<ul style="list-style-type: none"> ■ Supported printer: printer compatible with the OS ■ Print format: waveform image (1-, 2-, 3-, 4-, 6-, 8-, and 16-split), numerical print, report format, list print, calculation results, screen image ■ Print area: the entire area, area between cursors A and B ■ Print preview

WAVE PROCESSOR (for MEMORY HiCORDER)

9335

Display, Convert, Calculate and Print Waveforms with a PC

- Display, print, convert, and calculate on large volumes of waveform data (recorded in the MEMORY HiCORDER Series)
- Display waveform screens, X-Y graphs, and numerical results
- Comprehensive Search function
- Rich printing and hard copy functions to assist in creating reports
- Save in CSV format and export to spreadsheet application (EXCEL)

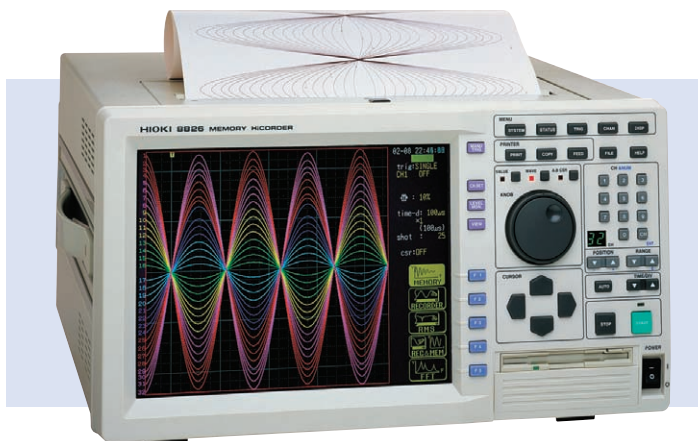


SPECIFICATIONS	
Compatible devices	Model MR8880-20 (9335 ver1.22 or later) Model 8861-50/8860-50 (9335 ver1.13 or later, not compatible with dual time-axis data, compatible only to MEM, REC, and REC & MEM data recorded using single-axis sampling only), Model 8861/8860 (9335 ver1.10 or later, not compatible with dual time-axis data, compatible only to MEM, REC, and REC & MEM data recorded using single-axis sampling only), Model 8870-20, 8855, 8847, 8842, 8841, 8840, 8835-01, 8835, 8826, 8825, 8808-01, 8807-01, 8808-51, 8807-51 (excluding harmonic analysis function), 8731-10, 8730-10, 8720, 8715-01, 8714-01
Supplied Media	One CD-ROM disc
Operating environment	Personal computer equipped with Pentium (133 MHz) or better CPU and at least 32 MB of memory, Running under Windows 2000/XP/Vista (32-bit), or Windows 7 (32-bit/64-bit) (Recommended system: Pentium (200 MHz) or better with at least 64 MB of memory)
Display functions	<ul style="list-style-type: none"> ■ Waveform Display: Displays image of loaded waveform data on screen ■ X-Y display: Memory function format (.MEM file) only ■ Digital Value Display: Displays waveform data as digital values, and allows images and digital values to be displayed simultaneously ■ Cursor function: Allows you to display the time and potential differences between cursors A and B, the time and electrical potential between each cursor, and the absolute and relative times ■ Scroll function: available ■ Maximum number of channels: 32 analog channels, 32 logic channels ■ Gauge display: Time gauge, voltage axis gauge ■ Graphical input: Possible
File loading	<ul style="list-style-type: none"> ■ Loading data format: Memory (.MEM, except for data stored in real time); recorder (.REC), effective value recorder (RMS) ■ Maximum loadable file size: Maximum size that can be stored by hardware. The maximum size that can be handled may be smaller in some PC environments.)
Data conversion functions	<ul style="list-style-type: none"> ■ Target data: All data, data between cursors ■ Data interval: Simple interval (number of samples can be specified) ■ Data conversion: Converts analog waveform data into numeric values, converts logic data into binary ■ Data conversion format: CSV format, tab delimited, space delimited (selectable when data is saved) ■ Conversion channel: Can be selected when data is saved ■ Batch conversion: Multiple files can be specified for batch conversion
Printing functions	<ul style="list-style-type: none"> ■ Printing format: Can print no partitions, 2 to 16 partitions, 2 to 16 columns, X-Y 1 to 4 partitions, gauges, channel comments ■ Print preview: Possible ■ Waveform screen hard copy: Possible ■ Compatible printers: Any printer supported by the OS (color or black and white)
Parameter calculation functions	<ul style="list-style-type: none"> ■ Target data: All data, data between cursors ■ Calculation items: Average value, effective value, peak value, maximum value, time of maximum value, minimum value, time of minimum value, rise time, fall time, standard deviation, area, cycle, frequency, pulse width, duty ratio, ON time, OFF time, number of times turned ON
Other	<ul style="list-style-type: none"> ■ Search functions: Event mark, date and time (absolute time, time relative to trigger), maximum, minimum, absolute maximum, absolute minimum, level up/down, window in/out ■ Clipboard copy: Waveform screen, cursor value, digital value, file information ■ Startup of other applications: Other applications can be launched by specifying run file

MEMORY HiCORDER | 8826

32-channel recorder with all isolated inputs

- Simultaneous sampling, display and recording of all 32 analog and 32 logic channels
- Large capacity memory of max. 16M-word Memory expandable four times (option)
- High resolution of 12-bit, 1 M-sampling /second
- B4-size (paper width 264 mm) wide printer
- High-visibility waveforms displayed on a 10.4-inch color TFT liquid crystal display



SPECIFICATIONS

Measurement ranges	5 mV to 20 V/division, 12 ranges (normal f.s.; 20 division, wide f.s.; 24 division), resolution: 1/80 of range
Frequency band	DC to 400kHz, ±3dB
Time axis at memory function	100µs to 5 minutes/division, 20 ranges (1division =100samples)
Functions	Memory recorder, Recorder (included X-Y), RMS recorder, Recorder and Memory, FFT
Number of input channels	32 analog channels plus 32 logic channels
Memory capacity	(analog 12 bits) × 4M words/channel (using 4ch) * Expandable up to 4 times capacity, using MEMORY BOARD 9599
Data storage	FDD × 1, PC card × 1, PC CARD 9727-9729, 9830
Recording and display	264 mm×30 m, roll type thermal paper, Recording speed: 25 mm/s, 10.4-inch color TFT LCD
Power supply	100 to 240 V AC, 50/60 Hz
Dimensions, mass	401W×235H×382D mm, 11 kg (excluding input units)
Accessories	Power cord (1), Recording paper (1 roll), Dust cover (1), PC card protector (1), Wave viewer software (1)

Input Units: refer to P.11

Options: refer to P.12



MICRO HiCORDER | 8205-10 | 8206-10

Easy data recording as convenient as a simple tester, yet with broad functionality

- Record voltage and current variations simply with full line-up of optional clamp on sensors of up to 1000A
- Input levels can be monitored on the LCD like an analog display
- Built-in thermal printer for printing data such as time and amplitude axis



8205-10: SPECIFICATIONS

Measurement ranges	DC/AC Voltage: 0.1 V to 500 V f.s. 12 ranges AC Current: 10 A to 100 A AC 4 ranges (with 9650) 10 A to 500 A AC 6 ranges (with 9651) 10 A to 1000 A AC 7 ranges (with 9668)
Sampling period	10ms
Frequency characteristic	AC/DC voltage range: +0.5 dB to -3 dB from 20 Hz to 30 kHz. AC current range: Frequency characteristic is determined by the clamp sensor.
Paper feed speed	20cm/minute to 2cm/hour, 5 ranges
Number of channels	1 channel AC or DC voltage, or 1 channel AC current
Accuracy	Voltage: ±2 % f.s. (ACV/45 Hz to 66 Hz), Current: ±3.53 % f.s. (used with 9651 / option, AC 500 A range)
Power supply	100 to 240V AC (50/60 Hz) or 9.5 to 14V DC, 2 way
Dimensions, mass	250W×122H×93.5D mm, 1.2 kg
Accessories	Power cord (1), Recording paper (1 roll), CONNECTION CORD L9257 (1), CARRYING CASE 9344(1)

8206-10: SPECIFICATIONS

Measurement ranges	AC Voltage: 100/200/500 V f.s. 3 ranges AC Current: 10 A to 100 A AC 4 ranges (with 9650) 10 A to 500 A AC 6 ranges (with 9651) 10 A to 1000 A AC 7 ranges (with 9668)
Sampling period	10ms
Frequency characteristic	AC/DC voltage range: +0.5 dB to -3 dB from 30 Hz to 30 kHz. AC current range: Frequency characteristic is determined by the clamp sensor.
Paper feed speed	60 cm/hour to 2 cm/hour, 5 ranges
Number of channels	1 channel AC voltage and 1 channel AC current
Accuracy	Voltage: ±2 % f.s. (45 Hz to 66 Hz), Current: ±3.53 % f.s. (used with 9651 / option, AC 500 A range)
Power supply	100 to 240V AC (50/60 Hz) or 9.5 to 14V DC, 2 way
Dimensions, mass	250W×122H×93.5D mm, 1.2 kg
Accessories	Power cord(1), Recording paper (1 roll), CONNECTION CORD L9257 (1), CARRYING CASE 9344(1)

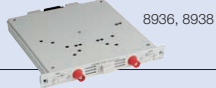
OPTIONS

- CLAMP ON SENSOR 9650 (for 8205-10, 8206-10, 100A f.s., 40Hz~1kHz, 3m length)
- CLAMP ON SENSOR 9651 (for 8205-10, 8206-10, 500A f.s., 40Hz~1kHz, 3m length)
- CLAMP ON SENSOR 9668 (for 8205-10, 8206-10, 1000A f.s., 40Hz~1kHz, 3m length)
- RECORDING PAPER (15m, 10rolls/1 set) 9235
- RECORDING PAPER (Climate-resistant, 15m, 10rolls/1set) 9236-01
- CONNECTION CORD (for 8205-10 only) 9326

INPUT Units For 8826, 8860 Series

Dimensions and mass:

Approx. 170W × 20H × 148D mm, approx. 290g



8936, 8938

ANALOG UNIT 8936

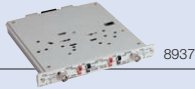
Input	Number of channels: 2, Connector: Insulated BNC * Input isolated from output, inter-channel isolation
Measurement range	5 mV to 20 V/division, 12 ranges, the measurement resolution is 1/80 of range AC voltage for possible measurement/display using the memory function: 280 V rms * When attached to recorder where full-scale (f.s.) = 20 divisions 10 mV to 50 V/division, 12 ranges, the measurement resolution is 1/160 of range AC voltage for possible measurement/display using the memory function: 280 V rms * When attached to recorder where full-scale (f.s.) = 10 divisions Low-pass filter: 5/500/5 k/100 kHz
Max. sampling rate	1 MS/s (simultaneous sampling of two channels)
Accuracy	DC amplitude: ±0.4 % f.s. Zero-position: ±0.1 % f.s.
Zero-position	-50 % to 150 %, 1 % step * With zero-adjustment function
Frequency characteristics	DC to 400 kHz ±3 dB with AC coupling: 7 Hz to 400 kHz ±3 dB
Max. allowable input	400 V DC (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	370 V AC, DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional

FFT ANALOG UNIT 8938

Anti-aliasing filter	Cutoff frequency 20/40/80/200/400/800/2 k/4 k/8 k/20 k/40 kHz auto-select (linked to frequency range)
Other functions	Same as the ANALOG UNIT 8936
Accessories	None * The input cord is optional

Dimensions and mass:

Approx. 170W × 20H × 148D mm, approx. 300g



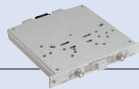
8937

VOLTAGE/TEMPERATURE UNIT 8937

Input	Number of channels: 2 each for voltage and temperature * Input isolated from output, inter-channel isolation Voltage input: isolated BNC thermocouple input: plug-in terminal
Voltage measurement range	500 μV to 2 V/division; 12 settings, the measurement resolution is 1/80 of range * When attached to recorder where full-scale (f.s.) = 20 divisions 1 mV to 5 V/division; 12 settings, the measurement resolution is 1/160 of range * When attached to recorder where full-scale (f.s.) = 10 divisions Low-pass filter: 5/500/5 k/100 kHz
Temperature measurement range	10 °C to 100 °C/division; 4 settings, the measurement resolution is 1/80 of range * When attached to recorder where full-scale (f.s.) = 20 divisions 20 °C to 200 °C/division; 4 settings, the measurement resolution is 1/160 of range * When attached to recorder where full-scale (f.s.) = 10 divisions Low-pass filter: 5/500 Hz
Thermocouple range	K: -200 to 1350 °C, E: -200 to 800 °C, J: -200 to 1100 °C, T: -200 to 400 °C, N: -200 to 1300 °C, R: 0 to 1700 °C, S: 0 to 1700 °C, B: 300 to 1800 °C Reference junction compensation: internal/external (switchable)
Max. sampling rate	Voltage input: 1 MS/s, Temperature measurement: 4 k/s (2-channel simultaneous sampling)
Accuracy	Voltage input: DC amplitude ±0.4% of f.s. Zero-position ±0.15% of f.s. Temperature measurement (K, E, J, T, N): ±0.1% of f.s. ±1 °C, ±0.1% of f.s. ±2 °C (±200 °C), (R, S): ±0.1% of f.s. ±3 °C, (B): ±0.1% of f.s. ±4 °C (400 to 1800 °C) Reference junction compensation accuracy: ±0.1 % f.s. ±1.5 °C (internal compensation)
Zero position	Voltage input: -50 % to 150 %, 1 % steps * With zero-adjust function Temperature measurement: -100 % to 100 %, 1 % steps
Frequency characteristics	Voltage input: DC to 400 kHz +1/-3 dB Temperature measurement: DC to 1 kHz +1/-3 dB
Max. allowable input	30 V rms or 60 V DC (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional

Dimensions and mass:

Approx. 170W × 20H × 148D mm, approx. 250g



8939

STRAIN UNIT 8939

Input	Number of channels: 2, Connector: Adapter cable connector * Input isolated from output, inter-channel isolation
Converter connector	Via adapter cable, TAJIMI PRC03-32A10-7F10.5
Suitable converter	Strain gage converter, bridge impedance: 120-ohm to 1 k-ohm, gage factor 2.00, bridge voltage 2 ±0.05 V
Measurement range	20 μe to 1000 μe/division, 6 settings, the measurement resolution is 1/80 of range * When attached to recorder where full-scale (f.s.) = 20 divisions 50 μe to 2000 μe/division, 6 settings, the measurement resolution is 1/160 of range * When attached to recorder where full-scale (f.s.) = 10 divisions Low-pass filter: 10/30/300 Hz/3 kHz, OFF
Max. sampling rate	1 MS/s (simultaneous sampling for 2 channels)
Accuracy (after auto-balancing)	DC amplitude: ±(0.5 % f.s. + 2μe) Zero-position: ±0.5 % f.s.
Balancing	Electronic auto-balancing, max. adjustment range ±10000μe
Zero position	-50 % to 150 %; in 1% steps * With auto-balancing
Frequency characteristics	DC to 20 kHz +1/-3 dB
Max. allowable input	10 V (DC + AC peak) (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	Conversion cable (2), PRC03-12A10-7M 10.5 (2)

Dimensions and mass:

Approx. 170W × 20H × 148D mm, approx. 300g



8940

F/V UNIT 8940

Input	Number of channels: 2 Voltage input: BNC terminal Input isolated from output, inter-channel isolation
Sensor connector terminal	Number of channels: 2 (for current measurement) Models that allow unit insertion up to a total of 6 channels: 8826, serial no. 1999-0338386 or later
Compatible current sensors	9272-10, 9277, 9278, 11 ranges, 5 (r/min) to 500 (r/min)/division, 5 ranges, 0.05 Hz to 5 kHz/division, 11 ranges, 5 (r/min) to 500 (r/min)/division, 5 ranges, * When attached to recorder where full-scale (f.s.) = 20 divisions 0.1 Hz to 10 kHz/division, 11 ranges, 10 (r/min) to 1 k (r/min)/division, 5 ranges, * When attached to recorder where full-scale (f.s.) = 10 divisions P50 Hz (40 to 60 Hz), P60 Hz (50 to 70 Hz)* 9322 DIFFERENTIAL PROBE or 9303 PT is necessary for measuring power-line frequency
Frequency range	5 counts to 500 k counts/division, 11 ranges, * When attached to recorder where full-scale (f.s.) = 20 divisions 10 counts to 1 M counts/division, 11 ranges, * When attached to recorder where full-scale (f.s.) = 10 divisions
Integration range	100% f.s., 1 range, Measurement range: 10 Hz to 100 kHz
Pulse duty ratio measurement range	5 mA to 100 A/division, 10 ranges, linked to use with type of the clamp-on sensor * When attached to recorder where full-scale (f.s.) = 20 divisions 10 mA to 200 A/division, 10 ranges, linked to use with type of the clamp-on sensor * When attached to recorder where full-scale (f.s.) = 10 divisions
Current range	0.5 mV to 2 V/division, 12 ranges, * When attached to recorder where full-scale (f.s.) = 20 divisions 1 mV to 5 V/division, 12 ranges, * When attached to recorder where full-scale (f.s.) = 10 divisions Max. allowable input: 30 V rms or 60 V DC low-pass filter: 5/500/5 k/100 kHz or OFF
Voltage range	1/80 of range, *When attached to recorder where full-scale(f.s.) = 20 divisions. (1/80 or 1/64 of range during use of clamp sensor 9279) 1/160 fo range, *When attached to recorder where full-scale(f.s.) = 10 divisions. (1/160 or 1/128 of range during use of clamp sensor 9279)
Measurement resolution	1 μs (voltage, current, integration), 1.125 μs (frequency, pulse duty ratio)
Max. sampling period	Voltage input pull-up: ON (10 k-ohm)/OFF Input coupling: DC, GND, AC (voltage, current), DC (others)
Other functions	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Max. rated voltage to earth	None * The input cord and conversion cable are optional
Accessories	

CONVERSION CABLE 9318 (to connect the clamp-on sensor to the 8940)

CONVERSION CABLE 9319 (to connect the 3273-50 to the 8940)

Dimensions and mass:

Approx. 170W × 20H × 148D mm, approx. 310g



8946

4 ch ANALOG UNIT 8946

Input	Number of channels: 4, Terminal: Metallic BNC * Input isolated from output, inter-channel isolation
Measurement ranges	10 mV to 2 V/division, 8 ranges, the measurement resolution is 1/80 of range * When attached to recorder where full-scale (f.s.) = 20 divisions 20 mV to 5 V/division, 8 ranges, the measurement resolution is 1/160 of range * When attached to recorder where full-scale (f.s.) = 10 divisions Low-pass filter: 5/500/5 k/50 kHz
Maximum sampling rate	1 MS/s (simultaneous sampling of four channels)
Accuracy	DC amplitude: ±0.5 % f.s. Zero-position: ±0.15 % f.s.
Zero-position	-50 % to 150 %, 1 % step * With zero-adjustment function
Frequency characteristics	DC to 100 kHz ±3 dB
Max. allowable input	30 V rms or 60 V DC (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional

Dimensions and mass:

Approx. 170W × 20H × 148D mm, approx. 310g



8947

CHARGE UNIT 8947

Input	Number of channels: 2, Measurement objects can be selected individually for each channel. Full isolation between inputs, and between inputs and recorder. Common GND for voltage input and charge input channels. Voltage and pre-amplifier internal inputs: BNC terminals Charge input: miniature connector (#10-32 UNF)
Suitable converter	Charge input: piezoelectric charge output acceleration pickup sensors Internal pre-amplifier input: acceleration pickup sensors with built-in pre-amplifier
Measurement range	50 m (m/s ²)/DIV to 10 k (m/s ²)/DIV, 12 ranges x 6 types, Measurement resolution is 1/80 to 1/32 of range (change according to measurement sensitivity), Measurement sensitivity: 0.1 pC to 10 pC/ (m/s ²), Pre-amplifier internal input measurement sensitivity: 0.1 mV to 10 mV/ (m/s ²) * When attached to recorder where full-scale (f.s.) = 20 divisions 100 m (m/s ²)/DIV to 20 k (m/s ²)/DIV, 12 ranges x 6 types, 1/160 to 1/64 of range, Measurement sensitivity: 0.1 pC to 10 pC/ (m/s ²), Pre-amplifier internal input measurement sensitivity: 0.1 mV to 10 mV/ (m/s ²) * When attached to recorder where full-scale (f.s.) = 10 divisions Amplitude accuracy: ±2 % f.s., Frequency characteristics: 1 to 50 kHz +1/-3 dB, Low-pass filter: 500 / 5kHz, Pre-amplifier driving power supply: 2mA ±20%, +15V ±5%, Highest input charge: ±500pC (high sensitivity side 6 ranges), ±50000 pC (low sensitivity side 6 ranges)
Measurement ranges	500 μV to 2 V/division, 12 ranges, Measurement resolution is 1/80 to 1/32 of range (change according to measurement sensitivity) * When attached to recorder where full-scale (f.s.) = 20 divisions 1 mV to 5 V/division, 12 ranges, 1/160 to 1/64 of range * When attached to recorder where full-scale (f.s.) = 10 divisions DC amplitude accuracy: ±0.4 % f.s. Frequency characteristics: DC to 400 kHz +1/-3 dB Low-pass filter: 5/500/5 k/100 kHz Input coupling: DC, AC, GND Max. allowable input: 30 V rms or 60 V DC
Common functions	Anti-aliasing filter: can be turned ON or OFF, cut off frequency is the time axis, connected and set automatically by the frequency axis range
Max. sampling rate	1 MS/s (simultaneous sampling of 2 channels)
Max. rated voltage to earth	30V rms or 60V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * Input cord optional

MEMORY HiCORDER

Common options for 8800 series

*Designated products are not CE-Mark compliant

Note: Product names appearing herein are trademarks or registered trademarks of the various companies.

Logic Signal Measurement



LOGIC PROBE MR9321(MR9321-01)
4-channel isolated, on/off detection of AC/DC voltage

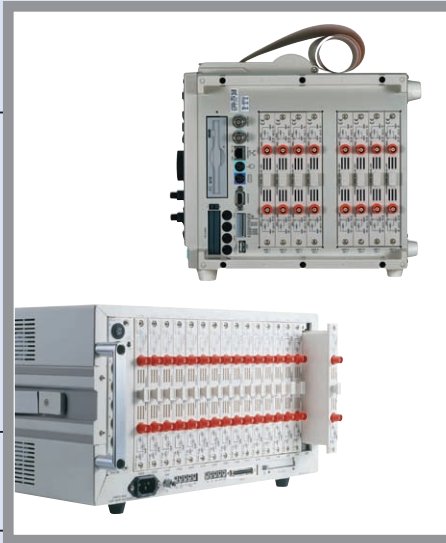
LOGIC PROBE 9320(9320-01)
4-channel, on/off detection of voltage/contact signal, For 1MS/s MEMORY HiCORDERs



LOGIC PROBE 9327
4-channel, on/off detection of voltage/contact signal, For 20MS/s MEMORY HiCORDERs



CONVERSION CABLE 9323
Convert 9320/9321 terminals into 9320-01/9321-01



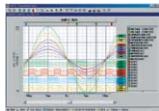
Storage Media



PC CARD 256 MB	9727
PC CARD 512 MB	9728
PC CARD 1GB	9729
PC CARD 2GB	9830 *

* for 8730-10, 8731-10, 8826, 8835-01, 8847, MR8847 Series, 8855, 8860-50, 8861-50, 8870-20, MR8880-20

PC Communication



WAVE PROCESSOR 9335

Refer to Page 9



LAN COMMUNICATOR 9333

Remote Control via LAN MEMORY HiCORDERs and PC Communications

Application program collects data over Ethernet and analyzes the data in a Windows environment.

8855, 8826 (version 2.30 or later), 8835-01 (version 1.10 or later), 8841, 8842 (version 2.30 or later), 8720 (version 2.00 or later), 8714, 8715

CAN-Bus Signals

CAN ADAPTER 8910

2 channels
Converts CAN signals into Analog/Logic signals for recording. (Receive only)
12 Analog + 6 Logic outputs
Used for all Memory HiCorder recording



Input Modules



Various input modules (for 8860 series, 8826)

Install by inserting into the instrument

Can be replaced by user

ANALOG UNIT	8936
VOLTAGE/TEMPERATURE UNIT	8937
FFT ANALOG UNIT	8938
STRAIN UNIT	8939
F/V UNIT	8940
4ch ANALOG UNIT	8946
CHARGE UNIT	8947

High-voltage input



DIFFERENTIAL PROBE 9322
for up to 2kVDC, 1kVAC



POWER CORD 9324
for logic terminal



AC ADAPTER 9418-15
for 9322



POWER CORD 9325
for 8940 sensor terminal

POWER CORD 9248
for 9687(8860-50/8861-50)



CONNECTION CORD 9197
for high voltage (up to 500V)



CONNECTION CORD L9198
for low voltage (up to 300V) (9332 only)



GRABBER CLIP 9243
Red/black set attaches to the 9197
196mm (7.72in) length



10:1 PROBE 9665
Max. Input Voltage 1 kV rms. (to 1 MHz)



CONNECTION CORD L9790
for low voltage (up to 300V)
Thin type



100:1 PROBE 9666
Max. Input Voltage 5 kV peakV (to 1 MHz)

ALLIGATOR CLIP L9790-01
GRABBER CLIP 9790-02
CONTACT PIN 9790-03

Current Measurement, other options



CLAMP ON PROBE 9018-50
Input from 10 to 500 A
40 Hz to 3 kHz for 0.2 V AC output, BNC terminal



CLAMP ON PROBE 9132-50
Input from 20 to 1000 A
40 Hz to 1 kHz for 0.2 V AC output, BNC terminal



CONVERSION ADAPTER 9199
Banana-to-BNC, use to connect to BNC terminal on Input Module



***CT-101A LINE SPLITTER**
For 100V/15A, convenient for measuring 100 VAC line current with clamp-on probe



CONNECTION CORD L9217
Insulation BNC-to-insulation BNC, use to connect to insulation-BNC terminal on Input Module



CONNECTION CORD *9165
Metal BNC-to-metal BNC, use to connect to metal-BNC terminal on Input Module



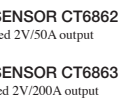
AC/DC CURRENT SENSOR 9709
DC to 100 kHz, 500A rated 2V/500A output
Ø 36 mm core jaw dia.



AC/DC CURRENT SENSOR CT6862
DC to 500 kHz, 50A rated 2V/50A output
Ø 24 mm core jaw dia.



AC/DC CURRENT SENSOR CT6863
DC to 1 MHz, 200A rated 2V/200A output
Ø 24 mm core jaw dia.



AC/DC CURRENT SENSOR CT6865
DC to 200 kHz, 1000A rated 2V/1000A output
Ø 36 mm core jaw dia.

CLAMP ON SENSOR 9272-10
Enables observation of distorted AC current waveforms. Input selectable 20/200 A, 5 to 10 kHz for 2 VAC out
Note: Can only be used in combination with the SENSOR UNIT 9555 or F/V UNIT 8940.



CONVERSION CABLE 9318
Connects 9277 to 9279 clamp-on sensors to F/V UNIT 8940.

UNIVERSAL CLAMP ON CT 9277
Observe waveforms from DC to distorted AC. Input up to 20 A, DC to 100 kHz for 2 VAC out

UNIVERSAL CLAMP ON CT 9278
Observe waveforms from DC to distorted AC. Input up to 200 A, DC to 100 kHz for 2 VAC out

UNIVERSAL CLAMP ON CT *9279
Observe waveforms from DC to distorted AC. Input up to 500 A, DC to 20 kHz for 2 VAC out
Note: Can only be used in combination with the SENSOR UNIT 9555-10 or F/V UNIT 8940.

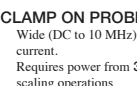
SENSOR UNIT 9555-10
Used together with 9272-10, 9277 to 9279 clamp-on sensors. Power supply unit.



PT *9303
Insulation transformer, 400 V or 200 V AC input, 10 V AC output, for AC power line measurement.



POWER SUPPLY 3269/3272
3274 3273-50
Connects 3273, 3273-50 to 8940 F/V UNIT.



CLAMP ON PROBE 3273-50/3276
Wide (DC to 50 MHz/100 MHz) range, mA-level to 50 A peak current. Requires power from 3272 or 3269 or F/V UNIT 8940.



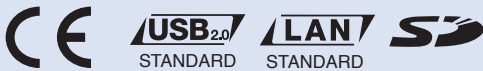
CLAMP ON PROBE 3274/3275
Wide (DC to 10 MHz) range, mA-level to 500 A rms current. Requires power from 3272 or 3269 only and requires scaling operations

MEMORY HiCORDER | MR8875

Smart Design - Smart Engineering

- Tough Against Vibrations and Extreme Temperatures, Strengthened body ideal for in-vehicle testing and road tests
- Small enough to hold with one hand
- Multi-Channel Mixed Recording, Switch out plug-in modules
- AC, External DC, and Built-in Batteries
- Real-Time Saving to SD Card
- Isolated Input, Safe isolated measurement at up to 100 V AC/DC

New



SPECIFICATIONS

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, resolution : 1/1250 of range (when using the MR8901)
Max. rated voltage	Between terminals: 150V DC Between terminal to earth: 100V AC, DC (when using the MR8901)
Frequency characteristics	DC to 100 kHz (-3dB, when using the MR8901)
Time axis	200 μ s to 5 min/div, 21 ranges, sampling period: 1/100 of range, External sampling possible
Max. sampling rate	[When using MR8901] 500 kS/second (2 μ s period, all channels simultaneously) [When using MR8902] 10 msec (all input channels are scanned at high speed during every recording interval) [When using MR8903] 200 kS/second (5 μ s period, all channels simultaneously) External sampling: 200 kS/second (5 μ s period)
Measurement functions	High-speed function (high speed recording)
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 \times 1, USB 2.0 memory \times 1
Display	8.4-inch SVGA-TFT color LCD (800 \times 600 dots)
Communication interfaces	LAN: 100BASE-TX (DHCP, DNS supported, FTP server/client, WEB server, send E-mail, command control) USB: USB2.0 compliant, series mini-B receptacle \times 1 (setting / measure with communication command, or file transfer SD card to PC)
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 times: 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, mass	298 mm (11.73 in) W \times 224 mm (8.82 in) H \times 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 \times 4 units and the BATTERY PACK Z1003)
Supplied accessories	Instruction Manual \times 1, Measurement Guide \times 1, AC ADAPTER Z1002 \times 1, Protection sheet \times 1, USB cable \times 1, Shoulder Strap \times 1, Application Disk (WaveViewer Wv, communication commands table, CAN Editor) \times 1



OPTIONS

(The MR8875 cannot be used alone. Measurement requires optional INPUT CORD or similar peripheral.)

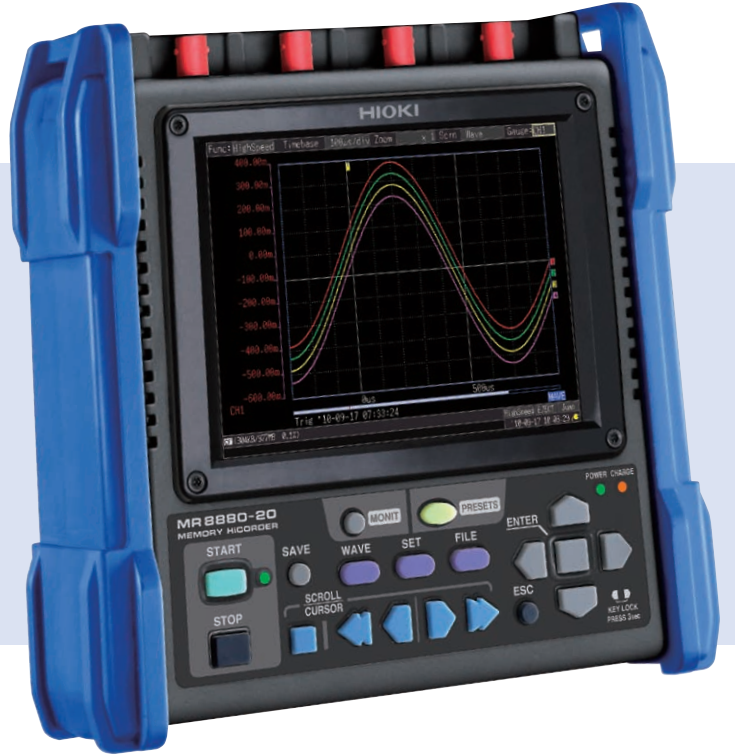
ANALOG UNIT	MR8901	WAVE PROCESSOR	9335
VOLTAGE/TEMP UNIT	MR8902	SD MEMORY CARD 2GB	Z4001
STRAIN UNIT	MR8903	AC ADAPTER	Z1002
CAN UNIT	MR8904	BATTERY PACK	Z1003
LOGIC PROBE	9320-01	CAN CABLE	9713-01
LOGIC PROBE	MR9321-01	LAN CABLE	9642
CONVERSION CABLE	9323	CARRYING CASE	C1004
CONNECTION CORD (Thin Type)	L9790	CLAMP ON SENSORS (refer to p.48)	
ALLIGATOR CLIP (Use with L9790)	L9790-01		
GRABBER CLIP (Use with L9790)	9790-02		
CONTACT PIN (Use with L9790)	9790-03		
CONNECTION CORD	L9198		
DIFFERENTIAL PROBE	9322		
POWER CORD	9328		
PT	9303		

*Note: Main unit MR8875 cannot operate alone. You must install one or more optional input modules and purchase the cords appropriate for your application separately.

MEMORY HiCORDER | MR8880-20

Easily capture high voltage to low level signals with an intuitive operating interface

- CATIII 600V Isolation across all 4 channels lets you directly measure 480V lines safely
- Durable structure, wide -10 to 50°C operating temperature range, and tough against shock and vibrations
- Easy set-up using built-in PRESETS



Recorders, Memory Recorders

SPECIFICATIONS	
Measurement ranges (10 division full scale)	10mV to 100V/div (13 ranges), full scale: 10div High-speed measurement and display of up to 600V AC Low-pass filter: 5/50/500/5k/50kHz
Frequency bandwidth	DC to 100 kHz, ±3 dB
Time axis	High-speed function: 100us to 100ms/div, 10 ranges (1 division =100 samples) Real-time function: 10ms to 1 day/div, 22 ranges (Recording interval:100us to 1 min, 19 range)
Functions	High-speed function (high speed recording) Real-time function (actual time recording)
Number of channels	4 analog +8 logic
Memory capacity	14bit × 1 M words/ch
Data storage	CF card slot ×1 (PC CARD 9727-9279, 9830, Max.2GB) USB memory ×1
Interface	USB2.0, Printer (PRINTER UNIT MR9000 can be connected)
Recording and display	112 mm×18 m, roll type thermal paper, Recording speed: 10 mm/s, 5.7-inch VGA-TFT color LCD (640×480 dots)
Power supply	(1)AC ADAPTER Z1002 (100 to 240 V AC, 50/60Hz) (2)BATTERY PACK Z1000 (Continuous use 3 hours) (3)LR6 (AA)×8 (Continuous use 40 min, LR6 batteries cannot be used with PRINTER UNIT MR9000) (4)10 to 28V DC (special order cable)
Dimensions, mass (including Z1000)	205W×199H×67D mm, 1.66kg (printer detached) 303W×199H×67D mm, 2.16kg (printer attached)
Accessories	AC adapter Z1002(1), Alkaline battery box(1), Protector Z5001(1), Strap(1), USB cable(1), Application Disk (Wave Viewer Wv, Communication Commands table) (1)

OPTIONS

(The MR8880-20 cannot be used alone. Measurement requires optional INPUT CORD or similar peripheral.)

PRINTER UNIT (print size 100 mm width)	MR9000
RECORDING PAPER (18m, 10 rolls /1 set)	9234
CONNECTION CORD (600V AC/DC)	9197
CONNECTION CORD (300V AC/DC)	L9198
CONNECTION CORD (300V AC/DC)	L9217
CONNECTION CORD (Thin Type, attachment clips sold separately)	L9790
ALLIGATOR CLIP (Use with 9790)	L9790-01
GRABBER CLIP (Use with 9790)	9790-02
CONTACT PIN (Use with 9790)	9790-03
LOGIC PROBE (refer to p.12)	9320-01
LOGIC PROBE (refer to p.12)	MR9321-01
WAVE PROCESSOR	9335
CARRYING CASE	C1003
BATTERY PACK (7.2V, 4500 mAh, recharging with the Z1002)	Z1000
PC CARD 256MB	9727
PC CARD 512MB	9728
PC CARD 1GB	9729
PC CARD 2GB	9830
CLAMP ON SENSORS (refer to p.46-49)	
Other common options (refer to p.12)	



MR8880-20 + MR9000



**Note: An input cord is not supplied with the MR8880-20. Requires the 9197 or L9198 or L9790*

MEMORY HiCORDER | 8870-20

Anytime and Anywhere! Easy-to-Use Memory Recorder that Fits in the Palm of Your Hand

- Compact but powerful 2-channel recorder with 1MS/s sampling
- Highly intuitive user interface
- Brilliant wide screen QVGA-TFT display



Recorders, Memory Recorders

SPECIFICATIONS	
Measurement ranges (10div full scale)	10mV/div to 50V/div (12 ranges), Resolution: 1/100 of range Max. input voltage 400V DC
Frequency band	DC to 50kHz (-3dB)
Time axis range	100µs/div to 5min.div (20 ranges), Resolution: 100 points/div Zoom: ×2 to ×10 (3 steps), Compression: ×1/2 to ×1/1000 (9 steps)
Measurement function	Memory recorder
Number of channels	Analog 2ch + Logic 4ch (isolated between analog channels)
Memory capacity	2MW/ch, 12-bit
External memory	CF card slot (1), TYPE I, 2 GB max.
Display	4.3" WQVGA-TFT color LCD (480 x 272 dots)
Interface	USB 2.0
Functions	Numeric calculations, Cursor measurement, Scaling, Screen copy, Gauge display, Waveform/setting backup, Auto save, Numeric display (instantaneous or RMS)
Power Consumption	(1) 100 to 240 V AC, 50/60 Hz using AC Adapter Model Z1005 (2) Battery Pack Model 9780 (when used with the AC Adapter, the AC Adapter has priority) (3) 12 V battery (10 to 16 V DC ±10%, Please contact HIOKI for connection cord)
Dimensions, mass	176W × 101H × 41D mm, 600g (including 9780)
Accessories	AC adapter Z1005 (1), Strap (1), USB cable (1), Wave processor for 8870-20 (1), PROTECTION SHEET 9809 × 1 LCD Protection Sheet (1)

OPTIONS

CONNECTION CORD	9197	PC CARD 256MB	9727
CONNECTION CORD	L9198	PC CARD 512MB	9728
CONNECTION CORD (Thin type)	L9790	PC CARD 1GB	9729
ALLIGATOR CLIP	L9790-01	PC CARD 2GB	9830
GRABBER CLIP	9790-02	CARRYING CASE	9782
CONTACT PIN	9790-03	SOFT CASE	9812
LOGIC PROBE	9320-01	BATTERY PACK	9780
LOGIC PROBE	MR9321-01	CLAMP ON SENSORS (refer to p.46-49)	
CONVERSION CABLE	9323		
DIFFERENTIAL PROBE	9322		

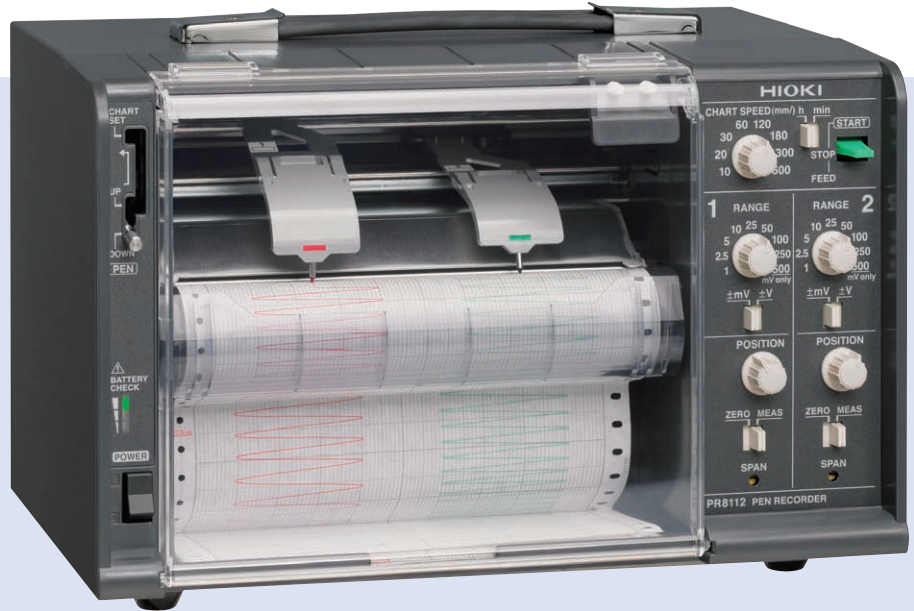
(9418-15 is necessary)



PEN RECORDER | PR8111 | PR8112

Portable, easy-to use pen recorder built for the field

- Compact and lightweight
- Support for three power sources: Can be powered with dry-cell batteries
- Easy enough for anyone to use with simple operating knobs
- Outdoor ready - ships with a drip-proof cover to protect against the elements
- Pen-based method records data reliably



Recorders, Memory Recorders



SPECIFICATIONS	
Input unit	
Operating method	Self-balancing, Disposable felt pen recording
Input	DC Voltage (Isolated input channels, isolated input and frame)
Measurement ranges	±1, 2.5, 5, 10, 25, 50, 100, 250, 500 mV, ±1, 2.5, 5, 10, 25, 50, 100, 250 V 17ranges
Recording accuracy	±0.5 % of effective recording width (excluding contraction and expansion of recording paper)
Max. allowable input	250 V DC (at V range), 30 V DC (at mV range)
Max. rated voltage to earth	300 V DC, AC
Battery check	3-stage LED display (green, orange, red) (when operating on dry-cell battery power) Accuracy is guaranteed even when red indicator is lit.
Operating temperature and humidity	0 °C to 40 °C, 40 % to 80 % rh (non-condensating)
Power supply	(1) AC ADAPTER 9418-15: 100 to 240 V AC (50/60 Hz) (2) D Size alkaline battery × 6 (When used with the AC adapter, the adapter takes precedence.) [Continuous use] (based on in-house testing conditions) PR8111: Approx 50h, PR8112: Approx 25h (3) DC power supply: 10 to 27V DC (cable available by special order)
Max. rated power	4VA (AC ADAPTER, DC POWER) or 3VA (dry-cell batteries)
Dimensions	292 mm (11.5 in) W×177 mm (6.97 in) H×182 mm (7.17 in) D
Mass	PR8111: 3.9 kg (137.6oz) , PR8112: 4.4 kg (155.2oz) (instrument only) PR8111: 4.8 kg (169.3oz) , PR8112: 5.3 kg (186.9oz) (with dry-cell batteries, recording paper, and pen(s))
Storage temperature and humidity	-20 °C to 55 °C, 10 % to 80 % rh (non-condensating)
Applicable standards	Safety: EN61010-1 EMC: EN61326-1 CLASS A, EN61000-3-2, EN61000-3-3
Supplied accessories	PR8111: FELT PEN P-1201A (Red) ×1, RECORDING PAPER SE-10Z-2 (fanfold) ×1, AC ADAPTER 9418-15 ×1 PR8112: FELT PEN P-1201A (Red) ×1, FELT PEN P-1202A (Green) ×1, RECORDING PAPER SE-10Z-2 (fanfold) ×1, AC ADAPTER 9418-15 ×1

Recording unit	
No. of pens	PR8111: 1 pen, PR8112: 2 pens
Recording method	Disposable felt pens
Recording width	150 mm
Pen interval	5 mm±1 mm
Pen speed	500 mm/s or greater (using AC adapter)
Paper feed speed	10, 20, 30, 60, 120, 180, 300, 600 mm/m 10, 20, 30, 60, 120, 180, 300, 600 mm/h 16 ranges Accuracy: ±0.25%
Zero point movement range	300 mm/min, slow-up method
Chart feed	Gang lift
Orientation	Vertical
Recording paper	Fanfold plain paper SE-10Z-2 (length: 15 m) Roll plain paper SE-10 (length: 20 m)

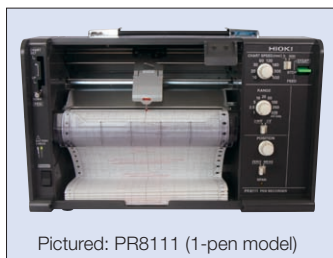
OPTIONS

RECORDING PAPER (fanfold, 170 mm (recording width:150 mm) × 15 m, 10sets)	SE-10Z-2
RECORDING PAPER (roll, 170 mm (recording width:150 mm) × 20 m, 10sets)	SE-10
FELT PEN	P-1201A (Red)
	P-1202A (Green)
	P-1203A (Blue)

Easily portable



With the drip-proof cover on



MEMORY HILOGGER | LR8400-20 | 8401-20 | 8402-20

Protect Your Important Data Logged Over an Entire Year

- Pick and choose from 3 types of terminal blocks
- 30 channels of analog input as standard
- Expand to 60 channels but still maintain a small footprint
- Record data for up to 1 year
- Protect data even during sudden power interruptions

New



CE

USB_{2.0}
STANDARD

LAN
STANDARD

SPECIFICATIONS		LR8400-20	LR8401-20	LR8402-20
Number of Input Channels	Analog inputs	30 channels isolated by Photo-MOS relays (2xM3 screw-type terminals per channel)	30 channels isolated by Photo-MOS relays (4xpush button terminals per channel)	30 channels isolated by Photo-MOS relays (2xM3 screw-type terminals for 15 ch, and 4xpush button terminals for 15 ch)
	Pulse inputs	8 ch (each input channel and the main instrument chassis share common ground)		
Measurement Types	Voltage	10mV to 100V, 1-5V f.s., 10 ranges (5 μ V resolution)		
	Thermocouple	-200°C to 2000°C (Upper and lower temperature limits depend on the measurement range of the sensor used) 3 range (K, E, J, T, N, W, R, S, B), (0.01°C resolution)		
	Platinum measurement resistance	None	-200°C to 800°C, 3 range (Pt 100, JPt 100), (0.01°C resolution)	
	Humidity	100% rh f.s., 5.0 to 95.0% rh (using HUMIDITY SENSOR Z2000) (0.1% rh resolution)		
	Resistance	None	10 to 200 Ω f.s., 4 ranges (0.5 m Ω resolution)	
	Pulse Totalization	0 to 1,000 M pulse, Resolution: 1 pulse (No-voltage contact points (always open connection), open collector, or voltage input)		
	Rotation Rate	0 to 5,000/n (r/s)f.s., Resolution: 1/n (r/s), (using same input signal for pulse integration) Note: n = pulses per rotation (1 to 1,000)		
	Digital Input	Record 1/0 per recording interval		
Maximum Input Voltage		\pm 100V DC 250V DC between analog input channels 300V AC/DC to ground	\pm 100V DC 300V DC between analog input channels, 300V AC/DC to ground (Platinum resistance thermometer input and resistance input are not isolated; also, maximum input voltage at the 2xM3 screw-type terminals is 250V DC between channels.)	
Recording interval		10 ms to 1 hour, Note: All input channels are scanned at high speed during each recording interval. (Certain limits exist for the intervals between 10ms and 50ms.)		
Digital Filter		OFF / 50 Hz / 60 Hz (To filter out harmonic components, for analog input the cut off frequency is automatically set based on the recording interval.)		
Memory capacity		Internal: 8 MW, External: Compact Flash Card, USB memory		
Interfaces		USB 2.0 Series Mini B, LAN (supports 100Base-TX)		
Display Type		5.7-inch TFT Color LCD (640 x 480 dots)		
Functions		Real-time save to CF card or USB memory stick, numerical/waveform calculation, FTP server/Client Function, e-mail sending, HTTP Server Function, etc.		
Power supply		(1) Using the AC ADAPTER 9418-15, 100 to 240 VAC, 50/60 Hz (2) BATTERY PACK Z1000 or 10 to 28V DC		
Dimensions, mass		272W x 182.5H x 66.5D mm 1.8kg (LR8400, LR8402), 1.7 kg (LR8401)		
Accessories		AC ADAPTER 9418-15 (1), USB cable (1), CD-R (data collection software "LOGGER UTILITY") (1)		

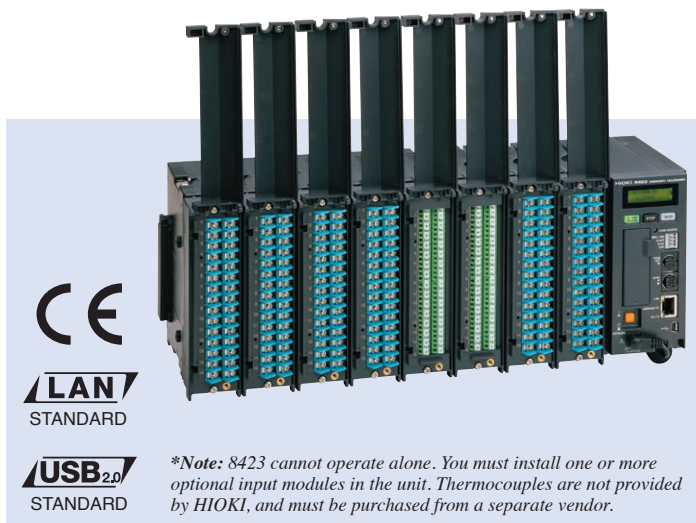
OPTIONS

ANALOG/TEMPERATURE UNIT (2-terminal M3 screw terminal block, 15ch, Voltage/Thermocouple/Humidity)	LR8500
UNIVERSAL UNIT (4-terminal push button terminal block, 15ch, Voltage/Thermocouple/Humidity/Platinum temperature-measurement, Resistance)	LR8501
BATTERY PACK (NiMH, recharging with the LR8400)	Z1000
CARRYING CASE (also stores options)	C1000
FIXED STAND (for wall-mounting, standing on benchtop, etc.)	Z5000
HUMIDITY SENSOR (Cord length: 3m)	Z2000
PC CARD 256M	9727
PC CARD 512M	9728
PC CARD 1GB	9729
PC CARD 2GB	9830

MEMORY HILOGGER | 8423

Fast 10ms Sampling Up to 600 Channels Data Logging

- 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



LAN
STANDARD

USB_{2.0}
STANDARD

**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.*

SPECIFICATIONS

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	[Voltage] $\pm 150\text{mV}$ to $\pm 100\text{V}$, 1-5V f.s. 6 ranges, Max. resolution $5\mu\text{V}$ [Temperature (thermocouples)] -200°C to 2000°C (depend on the sensor)
Measurement parameters Model 8949	[Voltage] $\pm 150\text{mV}$ to $\pm 60\text{V}$, 1-5V f.s. 6 range, Max. resolution $5\mu\text{V}$ [Temperature (thermocouples)] -200°C to 2000°C (depend on the sensor) [Temperature (Resistance temperature sensor)] -200°C to 800°C , 3 range (Pt 100, JPt 100) [Humidity] 100% rh f.s., 5.0 to 95.0% rh (use with the 9701)
Measurement parameters Model 8996	[Totalized pulses] 0 to 1000M pulse, 1 range (No-voltage 'a' contact, open collector or voltage input) [Rotation count] 0 to 5000/n (r/s) f.s. 1 range (No-voltage 'a' contact, open collector or voltage input) [Digital input] ON/OFF digital signal [Max. allowable input] DC 50V [Max. rated voltage between channels] 33V AC, 70V DC [Max. rated voltage to earth] 600 V DC, AC
Recording intervals	10ms to 1hr, 19 range (5s to 1hr when combined with humidity measurement), Dual sampling : Recording intervals can be specified for every input module (high-speed and low-speed)
Functions	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 /20 VA (when connected with 8 units), 12V Battery (voltage may range from -20% to $+30\%$, Please contact HIOKI for connection cord).
Dimensions & Mass	67 W x 133 H x 125D mm , 600 g (main unit 8423 only)
Accessories	AC adapter 9418-15 (1), USB cable (1) CD-R (data collection software "LOGGER UTILITY")(1)

OPTIONS

VOLTAGE/TEMP UNIT	8948	CONNECTION CABLE	9683
UNIVERSAL UNIT	8949	PC CARD 256M	9727
HUMIDITY SENSOR	9701	PC CARD 512M	9728
DIGITAL/PULSE UNIT	8996	PC CARD 1G	9729
ALARM UNIT	8997	LAN CABLE	9642

Recorders, Memory Recorders

MEMORY HILOGGER | 8430-20

Small and light enough for the palm of your hand! Personal Data Logger with 10 Isolated Channels

- Ten electrically isolated analog input channels
- Measure voltage, temperature, plus 4 pulse-counting inputs
- 10ms rapid scanning of all channels
- CompactFlash card makes direct recording a snap
- Widescreen, bright LCD gives excellent viewability



USB_{2.0}
STANDARD

Note: The 8430-20 is not bundled with the Battery Pack 9780. Use only PC cards sold by HIOKI. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.

SPECIFICATIONS

No of Channels	Analog 10 channels isolated scanning method input. (M3 mm dia. screw terminal block) Pulse input 4 channels (All pulse inputs share common ground with the main unit)
Measurement parameters	[Voltage] $\pm 100\text{mV}$ to $\pm 60\text{V}$, 1-5V f.s. 6 ranges, Max. resolution $5\mu\text{V}$ [Temperature (thermocouples)] -200°C to 2000°C (depend on the sensor) 1 range (K, J, E, T, N, R, S, B), Max. resolution 0.1°C [Temperature (Pt 100 sensor)] Not available [Humidity] Not available [Totalized pulses] 0 to 1000M pulse, 1 range (No-voltage 'a' contact, open collector or voltage input), Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s) f.s. 1 range (No-voltage 'a' contact, open collector or voltage input), Resolution 1/n (r/s) Note: n = pulses per rotation (1 to 1000)
Max. allowable input	DC 60V (Analog input), DC -5V to 10V (Pulse input)
Max. rated voltage to earth	DC 60V, AC 30Vrms (Upper limit voltage that does not cause damage when applied between input channel and chassis, and between each input channels)
Recording intervals	10ms to 1hour, 19selections (All input channels are scanned at high speed during every recording interval)
Selectable Filters	50Hz, 60Hz, or OFF (digital filtering of high frequencies on analog channels)
Data Recording Capacity	Internal storage: 3.5MWords (7MB of two-byte data points, or four-byte pulse measurements) External storage: Up to 2GB (HIOKI CF cards only)
External Interface	One USB 2.0 series mini B receptacle Functions: Control from a PC (Ver 1.00 or later), Transfers internal data on the CF card to a PC (Ver 1.10 or later)
Display	4.3-inch WQVGA-TFT color LCD (480 x 272 dots)
Function	Save data to the CF Card in real time, Numerical Calculation, External trigger input, Trigger output, Alarm output, Scaling
Power Sources	(1) 100 to 240V AC, 50/60Hz using AC Adapter Model Z1005 (2) Battery Pack Model 9780, Continuous operating time: Approx. 2.5 hours (3) 12V battery (10 to 16V DC $\pm 10\%$, please contact HIOKI for connection cord)
Dimensions and mass	Approx. 176 mm (6.93 in) W x 101 mm (3.98 in) H x 41 mm (1.61 in) D, 550 g (19.4 oz) (HiLOGGER only)
Supplied Accessories	Instruction Manual x 1, Measurement Guide x 1, Application Disk (Logger Utility program) x 1, USB cable x 1, AC Adapter Z1005 x 1, Shoulder Strap x 1, Protection Sheet 9809 x 1

OPTIONS

CONNECTION CABLE	9641	PC CARD 256M	9727
BATTERY PACK	9780	PC CARD 512M	9728
SOFT CASE	9812	PC CARD 1G	9729
CARRYING CASE	9782	PC CARD 2G	9830

Power Measuring Instruments



Power Measuring Instruments Index

For high level performance



3390/3390-10



For comprehensive device assessment (3390)
High-accuracy model (3390-10)
DC, or Single-phase to 3-phase 4-wire
4 ch-Current sensor input
DC, 0.5 to 150 kHz bandwidth
 $\pm 0.1\%$ basic accuracy

.....p.24

Advanced power evaluation and analysis



3193



DC, or Single-phase to 3-phase
4-wire Wide-band up to 1 MHz
6 ch-Direct/ Clamp input

.....p.23



3194



Analysis station for Motor
Evaluation Power, Harmonics,
Rotation Speed, Torque,
Converter efficiency



PW3198

Power Quality Analyzer
DC, or Single-phase to 3-phase
4-wire
Clamp input

.....p.21

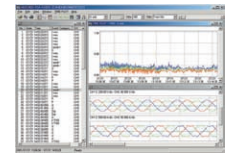


3197



Fully portable Power Quality
Analyzer
Single-phase to 3-phase 4-wire
Clamp Input

.....p.22



9624-50

PQA- HiVIEW PRO
Software application for
PW3198, and 3197

.....p.23

For use on production lines



3331



3-phase 3-wire (2 power meter
method)
(no independent setting for each line)
V, A, W, VA, var, integ., PF
Phase angle, Hz Direct input only

.....p.25



3332



Single-phase 2-wire V, A, W, VA,
var, integ., PF, Phase angle, Hz
Direct input only

.....p.25



3333/3333-01



Single-phase 2-wire
High Accuracy
($\pm 0.1\%$ rdg, $\pm 0.1\%$ f.s.)
Maximum Cost Performance
Direct input only

.....p.25



3334/3334-01



Wide Input Range
DC, Single-phase 2-wire
Bandwidth DC, 45 to 5kHz
Basic accuracy $\pm 0.2\%$ Direct
input only

.....p.25

For managing power lines

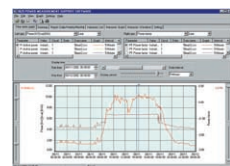


3169-20/-21



Single-phase to 3-phase 4-wire
V, A, W, VA, var, integ., PF, Hz
Clamp input only

.....p.20



9625

POWER MEASUREMENT
SUPPORT SOFTWARE
for 3169-20/21

.....p.20



3286-20



Clamp-On Power Meter V, A, W,
VA, var, PF, Hz, Harmonics (V, A)

.....p.55

CLAMP ON POWER HiTESTER | 3169-20 | 3169-21

Offering a new approach to energy-related measurement such as energy conservation, ISO14001 testing, equipment diagnosis, and harmonics measurement.



RS-232C
STANDARD

True RMS

- From 1-phase 2-wire to 3-phase 4-wire systems
- 0.5 A to 5000 A range, PC card data storage
- Power recording for individual waveforms
- Simultaneous recording of demand values and harmonics
- D/A output with 3169-21



Power Measuring Instruments

9661×2, 9669×2 (option)

SPECIFICATIONS

Measurement lines	Single-phase 2-wire, single-phase 3-wire, 3-phase 3-wire, and three-phase 4-wire systems (50/60 Hz)
Measurement item	Voltage, Current, Active power, Reactive power, Apparent power, Power factor, Integrated value, Frequency, Harmonics
Measurement range	Voltage: 150 V to 600 V, 3 ranges Current (When using 9660): 5 A to 100 A, 4 ranges Current (When using 9661): 5 A to 500 A, 5 ranges Current (When using 9669): 100 A to 1 kA, 3 ranges Current (When using 9667): 500 A / 5 kA, 2 ranges Current (When using 9694): 0.5 A to 5 A, 3 ranges Power: 75 W to 9 MW, 108 combination patterns
Basic accuracy	±0.2% rdg. ±0.1% f.s. + Clamp accuracy (for active power)
Clamp sensor accuracy	9660 (rated for 100 A): ±0.3% rdg. ±0.02% f.s. 9661 (rated for 500 A): ±0.3% rdg. ±0.01% f.s. 9669 (rated for 1000 A): ±1.0% rdg. ±0.01% f.s. 9667 (rated for 5000 A): ±2.0% rdg. ±1.5 mV 9694 (rated for 5 A): ±0.3% rdg. ±0.02% f.s.
Frequency characteristic	Fundamental waveforms up to the 50th order ±3% f.s. + measurement accuracy
Other functions	PC card, RS-232C, D/A output (3169-21 only, 4 channels), External I/O
Power supply voltage rating	100 to 240 V AC, 50/60 Hz
Dimensions, mass	210W×160H×60D mm ±5 mm, 1.2 kg ±100 g (3169-20, 3169-21)
Accessories	Voltage cord set L9438-53 (1), Power cord (1), Input cord label (1), Operating manuals (2), CD-R (1), Connection cable 9441 (1) (for the 3169-21 only)

OPTIONS

● Current measurement

(The 3169-20/-21 cannot be used alone. Measurement requires one or more optional clamp-on sensors.)

CLAMP ON SENSOR rated current 100 A AC	9660
CLAMP ON SENSOR rated current 500 A AC	9661
CLAMP ON SENSOR rated current 1000 A AC	9669
FLEXIBLE CLAMP ON SENSOR rated current 5000 A AC	9667
CLAMP ON SENSOR rated current 5 A AC	9694
CLAMP ON ADAPTER rated current 1500 A AC, output 150 A (10:1 ratio)	9290-10
AC ADAPTER (for the 9667, for America, Japan)	9445-02
AC ADAPTER (for the 9667, for Europe)	9445-03

● Voltage measurement

VOLTAGE CORD (Supplied as standard with 3169-20/-21) L9438-53

- *1 MAGNETIC ADAPTER (for the 9438-53, generally compatible with M6 pan screws, Red) 9804-01
- *1 MAGNETIC ADAPTER (for the 9438-53, generally compatible with M6 pan screws, Black) 9804-02

*1 Red and black adapters sold separately. Purchase the quantity and color appropriate for your application. (Example: 3P3W-3 adapters, 3P4W-4 adapters)

● PC communication

POWER MEASUREMENT SUPPORT SOFTWARE	9625
RS-232C CABLE for connection to PC	9612
PC CARD 256M	9727
PC CARD 512M	9728

● Other options

CARRYING CASE	9720-01
CONNECTION CABLE for external I/O, 2 m length	9440
CONNECTION CABLE (standard with the 3169-21), for D/A output, 2 m length	9441

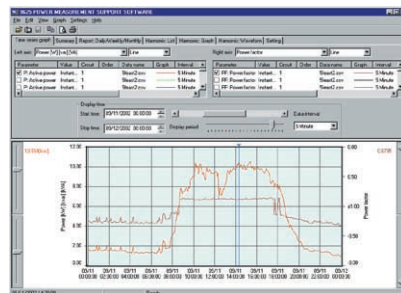
● Printer

PRINTER	9442
AC ADAPTER for the 9442 PRINTER, for 200~240 V power lines	9443-02
RS-232C CABLE for connection to the 9442, 1.5 m length	9721
RECORDING PAPER 112 mm width×25 m, roll type, 10 rolls per set	1196



PRINTER 9442

Print method : Thermal serial dot printing
Paper width : 112 mm
Print speed : 52.5cps
Power supply : AC adapter 9443-02, or supplied nickel-metal hydride battery (approx. 3000 lines of printing when fully charged and used with the 9443-02)
Dimensions, mass : Approx.160W×66.5H×17D mm, approx.580g



POWER MEASUREMENT SUPPORT SOFTWARE 9625

When purchasing the Printer 9442, make sure you also purchase the RS-232C cable 9721 and AC adapter 9443-02 so that you can connect it to the 3169-20/21.

POWER QUALITY ANALYZER PW3198

Record and Analyze Power Supply Problems Simultaneously with a Single Unit
The New World Standard for Power Quality Analysis

- 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
- Optional GPS BOX for synchronizing multiple devices
- LAN, USB and SD card interfaces



Power Measuring Instruments

True RMS

USB 2.0
STANDARD

LAN
STANDARD

RS-232C
STANDARD



9661×4 (option)



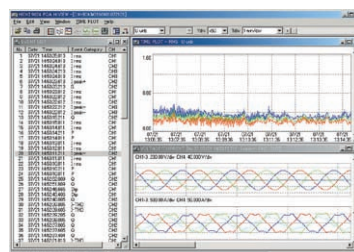
SPECIFICATIONS

Measurement lines	Single-phase 2-wires, Single-phase 3-wires, 3-phase 3-wires, 3-phase 4-wires plus one extra input channel (must be synchronized to reference channel during AC/DC measurement)
Voltage Range	Voltage measurement: 600.00 V rms Transient measurement 6.0000 kV peak
Current Range	500.00 mA to 5.0000 kA AC (depends on current sensor 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	<ol style="list-style-type: none"> 1. Transient over voltage : 2MHz sampling. 2. Frequency cycle : Calculated as one cycle, 40 to 70Hz 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 70Hz 9. 10-sec frequency: Calculated as the whole-cycle time during the specified 10s period, 40 to 70Hz 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): 2kHz to 80kHz 13. Harmonic/ Harmonic phase angle (voltage/ current), Harmonic power: 0th to 50th orders 14. Harmonic voltage-current phase angle: 1th to 50th orders 15. Total harmonic distortion factor (voltage/ current) 16. Inter harmonic (voltage/ current): 0.5Hz to 49.5Hz 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])
Interface	SD/SDHC card, RS-232C, LAN (HTTP server function), USB2.0
Power supply	AC ADAPTER Z1002 (12V DC, Rated power supply 100V AC to 24 V AC, 50/60Hz) BATTERY PACK Z1003 (Ni-MH 7.2V DC 4500mAh)
Dimensions and Mass	300W × 211H × 68D mm, 2.6 kg
Accessories	SD MEMORY CARD (2GB) Z4001 (1), Voltage cord L1000 (1), AC adapter Z1002 (1), Battery pack Z1003 (1), strap (1), USB cable (1)

OPTIONS

(Optional current sensor is necessary to measure current or power parameters.)

- **Current measurement**
 - CLAMP ON SENSOR rated current 5A AC 9694
 - CLAMP ON SENSOR rated current 100A AC 9660
 - CLAMP ON SENSOR rated current 500A AC 9661
 - CLAMP ON SENSOR rated current 1000A AC 9669
 - CLAMP ON SENSOR rated current 50A AC 9695-02
 - CLAMP ON SENSOR rated current 100A AC 9695-03
 - CONNECTION CORD (For connection 9695-02, 9695-03) 9219
 - FLEXIBLE CLAMP ON SENSOR rated current 5000A AC 9667
 - CLAMP ON ADAPTER rated current 1500A AC, output 150A (10:1 ratio) 9290-10
 - AC ADAPTER (for the 9667, for America, Japan) 9445-02
 - AC ADAPTER (for the 9667, for Europe) 9445-03
 - CLAMP ON LEAK SENSOR rated current 10A AC 9657-10
 - CLAMP ON LEAK SENSOR rated current 10A AC 9675
- **Voltage measurement**
 - VOLTAGE CORD (included) L1000
 - WIRING ADAPTER (3P3W) PW9000
 - WIRING ADAPTER (3P4W) PW9001
 - MAGNETIC ADAPTER (red) 9804-01
 - MAGNETIC ADAPTER (black) 9804-02
 - GRABBER CLIP (For use with L1000) 9243
- **PC communication**
 - PQA HiVIEW PRO (PC application software for advanced data processing) 9624-50
 - SD CARD 2GB (included) Z4001
- **Other options**
 - AC ADAPTER (included) Z1002
 - BATTERY PACK (included) Z1003
 - CARRYING CASE (soft) C1001
 - CARRYING CASE (hard) C1002
 - GPS BOX PW9005



PQA-HiVIEW 9624-50

Use Model 9624-50 PQA-HiVIEW PRO (version 2.00 or later) with a PC to analyze the data collected by the PW3198.

POWER QUALITY ANALYZER | 3197

The Most Comprehensive Portable PQA on The Market

Catch Power Quality Problems on the Fly...

- Monitor for:
 - Inrush Current
 - Voltage Swells
 - Voltage Dips
 - Transient Overvoltage
 - Interruptions
- Measure and Record:
 - Power and Power Factor
 - Active/Reactive Energy
 - Demand
 - Load Changes (with graph display!)
 - Voltage and Current



9661×3 (option)

SPECIFICATIONS	
Measureable Circuits	1P2W/1P3W/3P3W2M/3P3W3M/3P4W/3P4W2.5E
Measurement Line Frequency	Auto-detect (50Hz/60Hz)
Voltage Range	600.0V
Current Range	500.0 mA to 5.000 kA AC (depends on current sensor in use)
Power ranges	300.0 W to 9.00 MW (depends on combination of current range and line type)
Measurement Functions	1. RMS Voltage and Current (200 ms calculation) 2. Voltage (1/2) RMS: one cycle calculation refreshed every half cycle. 3. Current (1/2) RMS: half-cycle calculation. 4. Frequency 5. Active Power/ Reactive Power/ Apparent Power/ Power Factor/ Displacement Power Factor/ Active or Reactive Energy Consumption 6. Demand (Active or Reactive power) 7. Up to 50th Harmonic Analysis (Time series measurement or recording is not capable) 8. Peak Voltage and Current 9. Total harmonic voltage distortion ratio 10. Voltage Unbalance Factor 11. K Factor (Time series recording is not capable) 12. Total harmonic current distortion ratio (Time series recording is not capable)
Event Detection	1. Voltage Swells (Rise), Voltage Dips (Drop), Interruptions: RMS value detected using voltage (1/2) measured every half cycle 2. Inrush Current: RMS value detected using current (1/2) every half cycle 3. Transient Overvoltage: 50 Vrms or more detection, 10 to 100 kHz 4. Timer: Detect events at preset intervals 5. Manual: Detect events when keys are pressed
Number of Recordable Events	50 event waveforms, 20 event voltage fluctuation graphs, 1 inrush current graph, 1000 event counts
Interface	USB 2.0 (Communication to the PC)
PC Interface	USB Ver.2.0 (for data transfer only)
Power supply	AC ADAPTER 9418-15 (100 - 240V, 50/60Hz), BATTERY PACK 9459, Continuous use 6 hours (LCD Back-light auto-OFF 5min.), 23VA max.
Dimensions and Mass	128W × 246H × 63D mm, 1.2 kg with battery pack
Accessories	Voltage cords L9438-55 ×1 (Black×4, 3m (9.84ft) cord length), BATTERY PACK 9459 (1), AC ADAPTER 9418-15 (1), USB Cable (1), Basic PC Software (1), Carrying Case (1), Strap (1)



Power Measuring Instruments

OPTIONS

(Optional current sensor is necessary to measure current or power parameters.)

CLAMP ON SENSOR 100A AC	9660	* CLAMP ON LEAK SENSOR 10A AC	9657-10
CLAMP ON SENSOR 500A AC	9661	* CLAMP ON LEAK SENSOR 10A AC	9675
FLEXIBLE CLAMP ON SENSOR 5000A AC	9667	VOLTAGE CORDS (bundled with standard 3197)	L9438-55
CLAMP ON SENSOR 1000A AC	9669	BATTERY PACK (bundled with standard 3197)	9459
CLAMP ON SENSOR 5A AC	9694	PQA HiVIEW PRO (PC application software)	9624-50
CLAMP ON SENSOR 50A AC	9695-02	AC ADAPTER (for the 9667, for America, Japan)	9445-02
CLAMP ON SENSOR 100A AC	9695-03	AC ADAPTER (for the 9667, for Europe)	9445-03
CONNECTION CORD (for the 9695-02/9695-03)	9219		

* for leakage current measurement only-cannot be used to measure power

PQA-HiVIEW PRO | 9624-50

Advanced PC Analysis of Model PW3198 and 3197 Data

Viewer function

Use this function to display screens similar to those used for the PW3198/3197.

Select from the **TIME PLOT screen** (voltage fluctuation, RMS fluctuation, harmonic fluctuation, inter-harmonic fluctuation), **event list screen**, **event data screen** (waveforms, vectors, DMM, harmonics, event details), **ΔV10 screen**(Japanese standard), or **settings screen**. In the TIME PLOT screen, and use the two cursors (A and B) to calculate waveforms within a specified interval.

Demand/integral power consumption function

Calculate demand and integral power consumption from TIME PLOT data for effective power.

Binary CSV format conversion function

Convert binary data into CSV format for event waveforms within the specified range in the TIME PLOT screen or event waveforms selected in the event waveform screen. Files saved in CSV format can be used with spreadsheet software on your PC.

Print function

Use this function in each screen to output reports to a printer connected to your PC.

ITIC curve display function

Make ITIC (CBEMA) curve analyses (limit curve) based on the power quality control standards of the U.S.A.

EN50160 display functions

(applicable standard is EN50160)

Effectively evaluate and analyze the quality of power according to EU standards.

Downloading from LAN

Data (BINARY/TEXT/BMP) recorded on a SD card or the internal memory of the PW3198 can be downloaded via LAN or USB to a personal computer.

Report generation function

Choose from 3 types of report generation settings to take care of all the troublesome reporting operations, and either send the data to a printer or save as a Rich Text file. (Automatic: Output basic items. Individual setting: Select any item for output. Detailed setting: Specify a time-series graph in details for output.)

Positive phase, negative phase, and zero phase function

Recalculate event data captured by 3P4W circuits, and display each component of the voltage/current of the positive phase, negative phase, and zero phase.

Measurement data is saved in binary format



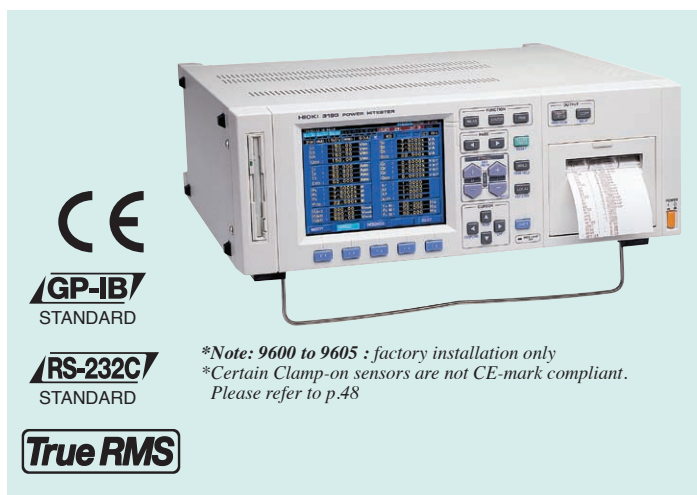
Data stored on a SD card can be transferred using remote operations via a LAN or USB

Data processing is quick and easy using the PQA-HiVIEW 9624-50 software

- Use it to create reports
- Use data converted to CSV format

POWER HiTESTER | 3193

Wide spectrum power meter for comprehensive device assessment



*Note: 9600 to 9605 : factory installation only
*Certain Clamp-on sensors are not CE-mark compliant.
Please refer to p.48

SPECIFICATIONS

Measurement lines	Single-phase/2-wires to 3-phase/4-wires (Through the use of various input units)
Measurement items	(When using 9600, 9601, 9602, optional) Voltage, current, voltage/current peak, effective/reactive/apparent power, power factor, phase, frequency, current/power integration, load rate, efficiency (When using 9603, optional) Voltage, torque, RPM, frequency, motor output (When using 9605, optional) Harmonic, waveform, voltage fluctuation / flicker measurement function
Measurement ranges	Voltage: 6.0000V to 1.0000kV (depends on use of the input unit) Current: 200.00mA to 500.00A (depends on use of the input unit) Power: Depends on combination of voltage and current ranges
Integration range	0 to ±9999999 TAh/ TWh, (integration time up to 10000 hours)
Basic accuracy used with 9600 to 9602 Input unit	±0.1% rdg. ±0.1% f.s. (voltage, current, power, at 45 to 66Hz) Note: When used together with the 9270 to 9272, and 9277 to 9279, resulting accuracy is the sum of that indicated above and the accuracy of these clamp sensors.
Frequency band	using with 9600: DC, 0.5Hz to 1MHz using with 9601: 5Hz to 100kHz using with 9602: DC, 0.5 Hz to 200 kHz (depends on the clamp accuracy)
Signal output	Analog level: Voltage, current, active power, 5V DC f.s. Waveform monitor: Voltage, current, 1V rms f.s. D/A output: Outputs 8 arbitrarily selected items, DC±5V f.s.
Other functions	6.4 inch TFT color LCD, RMS/MEAN rectification, FDD, GP-IB/RS-232C interface, scaling, averaging
Power supply	100/120/200/230 V AC (switched automatically), 50/60 Hz
Dimensions and Mass	430W × 150H × 370D mm, 15 kg (with all options)
Accessories	Power cord (1), Connector for EXT I/O (1)

OPTIONS

(The 3193 cannot be used alone. Measurement requires one or more input units.)

AC/DC DIRECT INPUT UNIT	9600	GP-IB CONNECTOR CABLE (2 m)	9151-02
AC DIRECT INPUT UNIT	9601	RECORDING PAPER (74 mm × 10 m, 10 rolls/ set)	9232
AC/DC CLAMP INPUT UNIT	*9602	CLAMP ON SENSOR	9277, 9278, *9279
EXTERNAL SIGNAL INPUT UNIT	9603	CLAMP ON ADAPTER	9290-10
PRINTER UNIT	9604	AC/DC CURRENT SENSOR	9709/CT6862
HARMONIC / FLICKER MEASUREMENTS UNIT	9605		CT6863/CT6865

*Note: Not CE marked

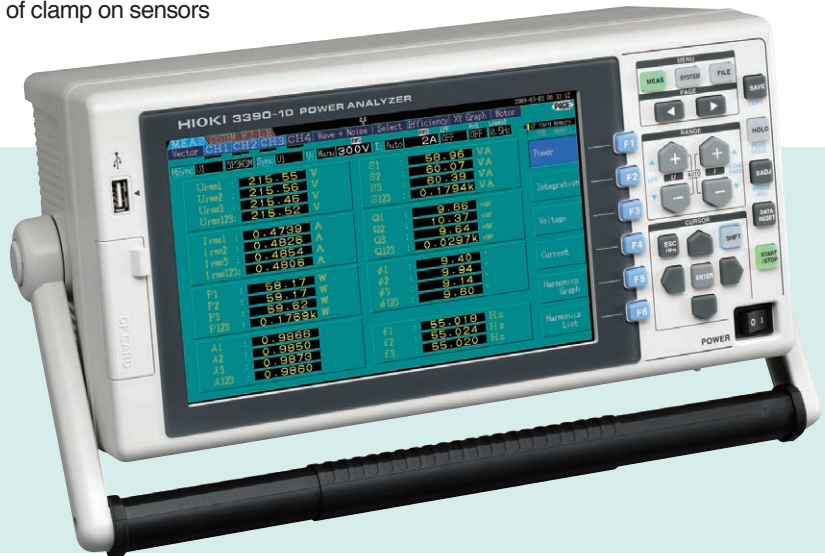
POWER ANALYZER | 3390 | 3390-10

Maximizing the Efficiency of Energy Conversion

- Super precise $\pm 0.1\%$ accuracy model to meet the demanding needs of today (3390-10)
- Switch from one range to another and still maintain the same $\pm 0.1\%$ accuracy on all ranges (3390-10)
- Advanced motor analysis functions (measures the electric angle and supports vector control)
- High-speed harmonic analysis function (50 ms data refresh rate)
- Noise analysis function for inverters (using FFT analysis technology)
- Inverter power measurement with the convenience of clamp on sensors

Notes: Data sheets for specific combinations of Model 3390-10 and current sensors available upon request.

Optional current sensor and voltage cord are necessary to measure current or power parameters.



Max. circuit voltage
300-1000V rms insulated wire



Power Measuring Instruments

SPECIFICATIONS

	3390	3390-10
Measurement lines	Single-phase two-wire (1P2W), single-phase three-wire (1P3W), three-phase three-wire (3P3W2M, 3P3W3M), three-phase four-wire (3P4W)	
Measurement parameters	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)	
Measurement ranges	Voltage: 15.000V / 30.000V / 60.000V / 150.00V / 300.00V / 600.00V / 1500.0V Current: () indicates the sensor rating used *400.00mA / *800.00mA / 2.0000A / 4.0000A / 8.0000A / 20.000A (20 A rating) 4.0000A / 8.0000A / 20.000A / 40.000A / 80.000A / 200.00A (200 A rating) 1.0000A / 2.0000A / 5.0000A / 10.000A / 20.000A / 50.000A (50 A rating) 10.000A / 20.000A / 50.000A / 100.00A / 200.00A / 500.00A (500 A rating) * Only Universal Clamp-On CT 9277 is applicable Power: Depends on the combination of voltage and current (6.0000 W to 2.2500 MW) Synchronization Frequency: 0.5 Hz to 5 kHz	
Basic accuracy	Voltage: $\pm 0.05\%$ rdg. $\pm 0.05\%$ f.s. Current: $\pm 0.05\%$ rdg. $\pm 0.05\%$ f.s. (+ accuracy of the current sensor) Power: $\pm 0.05\%$ rdg. $\pm 0.05\%$ f.s. (+ accuracy of the current sensor)	Voltage: $\pm 0.05\%$ rdg. $\pm 0.05\%$ f.s. Current: $\pm 0.05\%$ rdg. $\pm 0.05\%$ f.s. (Defined at combined accuracy with dedicated sensors) Active power: $\pm 0.05\%$ rdg. $\pm 0.05\%$ f.s. (Defined at combined accuracy with dedicated sensors) Note: Accuracy for the high accuracy Models 3390-10 and Current Sensors are not defined individually. Please use these products in combination to obtain $\pm 0.1\%$ accuracy.
Synchronization frequency range	0.5 Hz to 5 kHz	
Frequency band	DC, 0.5Hz to 150kHz	
Harmonic analysis	Input: 4ch, Synchronization frequency range: 0.5 Hz to 5 kHz, Analysis order: 100th order max.	
Noise analysis	Input: 1ch, Maximum analysis frequency: 100kHz	
Data update rate	50 ms	
Interval times	OFF/50 ms/100 ms/200 ms/500 ms/1 s/5 s/10 s/15 s/30 s/1 min/5 min/10 min/15 min/30 min/60 min	
Interfaces	LAN, USB, RS-232C, USB memory, CF card, Synchronization control (standard)	
Power supply	100 to 240 V AC (expected transient overvoltage of 2500 V), 50/60 Hz, 140VA	
Dimensions and mass	340 W x 170 H x 157 D mm (excluding protrusions), 4.8 kg (including the 9793)	
Accessories	Operation Manual (1), Measurement Guide (1), power cord (1), ground adapter (1, only in Japan), USB cable (1), connector for D-sub (1, only for the 9792 and 9793), color label (2)	Instruction Manual for Model 3390 x1, Instruction Manual for Model 3390-10 x1, Measurement Guide x1, Power cord x1, USB cable x1, D-sub connector x1 (when 9792 or 9793 is installed), Color label x2



OPTIONS

CLAMP ON SENSOR (200A AC)	9272-10	LAN CABLE	9642
UNIVERSAL CLAMP ON CT (20A AC/DC)	9277	CONNECTION CORD (For input of the 9791 and 9793 with a length of 1.5 m)	L9217
UNIVERSAL CLAMP ON CT (200A AC/DC)	9278	CONNECTION CABLE (For synchronized measurement with a length of 1.5 m)	9683
UNIVERSAL CLAMP ON CT (500A AC/DC)	*9279	CARRYING CASE (Hard case dedicated to the 3390)	9794
AC/DC CURRENT SENSOR (500A AC/DC)	9709	Rack mount brackets	
AC/DC CURRENT SENSOR (50 A AC/DC)	CT6862		
AC/DC CURRENT SENSOR (200A AC/DC)	CT6863	(High Accuracy Models, For 3390-10)	
AC/DC CURRENT SENSOR (1000A AC/DC)	CT6865	AC/DC CURRENT SENSOR (500A AC/DC)	9709-10
Voltage Cord (Red x1 and black x1, 1000 V specifications)	L9438-50	AC/DC CURRENT SENSOR (50A AC/DC)	CT6862-10
Grabber Clip (Red x1 and black x1)	9243	AC/DC CURRENT SENSOR (200A AC/DC)	CT6863-10
PC Card 256M (Capacity: 256 MB)	9727		
PC Card 512M (Capacity: 512 MB)	9728	Factory options (please specify at the time of order)	
PC Card 1G (Capacity: 1 GB)	9729	MOTOR TESTING OPTION	9791
PC Card 2G (Capacity: 2 GB)	9830	D/A OUTPUT OPTION	9792
		MOTOR TESTING & D/A OUTPUT OPTION	9793

*Note: Not CE marked

POWER HiTESTER 3332

Measure very low effective power, for stand-by mode of home use equipment

- Highly-sensitive measurements ideal for testing the effective power of equipment in stand-by mode: Current 1.0000 mA full-scale, 0.1 μ A resolution
- Wide measurement range, up to 50.000 A direct input



SPECIFICATIONS	
Measurement lines	Single-phase/two-wire
Measurement items	Voltage, Current, Current peak, Active power, Apparent power, Reactive power, Power factor, Phase angle, Frequency, Power integration, Current integration
Measurement ranges	Voltage: 15.000V to 600.00V, auto or 6 ranges Current: 1.0000mA to 50.000A, auto or 15 ranges Power: 15.000mW to 30.000kW, auto or 90 ranges Frequency: 1Hz to 100kHz, auto or 2 ranges
Integration range	0 to \pm 999999MAh/ MWh, (integration time up to 10000 hours)
Wave peak measurement	Current (displays maximum absolute value), Effective input range: multiply six current range, or Max.90 A peak
Basic accuracy	\pm 0.1% rdg. \pm 0.1% f.s. (active power, at 45 to 66Hz)
Frequency band	1Hz to 100kHz (1Hz to 100kHz at 10A or less, 10Hz to 10kHz at 20A to 30A, 50/60Hz at 30A to 50A)
Signal output	Analog level: Voltage, current, active power, 5V DC f.s. Waveform monitor: Voltage, current, 1V rms f.s.
Other functions	Comparator function for 2 items (Decision for Hi/In/Lo and results output), Backup, Scaling, Average function
Sampling rate	5 times /second
Power consumption	100 to 240 V AC, 50/60 Hz
Dimensions and mass	210W \times 100H \times 261D mm, 2.7kg
Accessories	Power cord (1), Connector for EXT I/O (1)

OPTIONS

GP-IB CONNECTOR CABLE (2 m)	9151-02
PRINTER	9442
AC ADAPTER (for the 9442)	9443-02 (for 200~240V power lines)
CONNECTION CABLE (for the 9442)	9444
RECORDING PAPER	1196 (25 m, 10 rolls /1 set, for the 9442)
RS-232C CABLE	9637 (9-pin to 9-pin, crossed cable/1.8m)
RS-232C CABLE	9638 (9-pin to 25-pin, crossed cable/1.8m)

POWER HiTESTER 3333 3333-01

Your Solution to Meeting Energy Saving Requirements

- Guaranteed for 3 years
- High Accuracy (\pm 0.1% rdg. \pm 0.1% f.s.)
- Maximum Cost Performance



SPECIFICATIONS	
Measurement lines	Single-phase/two-wire
Measurement items	Voltage, Current, Active power, Apparent power, Power factor
Measurement ranges	Voltage: 200.0 V (300.0 Vmax), Current: 50.00 mA to 20.000 A (30.00 Amax), 6 ranges Power: 10.000 W to 4.000 kW, 6 ranges
Basic accuracy	\pm 0.1 % rdg. \pm 0.1 % f.s. (active power, at 45 to 66 Hz)
Frequency band	45 Hz to 5 kHz
Other functions	Scaling function (VT/CT), Displays a simple average function, RS-232C interface (Model 3333-01 also includes GP-IB interface)
Sampling rate	5 times/second
Power supply	100 to 240 V AC, 50/60 Hz, 20 VA
Dimensions, mass	160W \times 100H \times 227D mm, 1.9 kg
Accessories	Power cord (1)

OPTIONS

PRINTER	9442	RS-232C CABLE (9-pin to 9-pin, crossed cable/1.8m)	9637
CONNECTION CABLE (for 9442)	9444	RS-232C CABLE (9-pin to 25-pin, crossed cable/1.8m)	9638
RECORDING PAPER	1196	GP-IB CONNECTOR CABLE (2m)	9151-02
AC ADAPTER (for 9442, EU)	9443-02		

(for 200~240V power lines)

POWER HiTESTER 3334 3334-01

Solves All of your Energy Consumption Testing Needs

- Compliant with the SPECpower® Benchmark
*SPECpower is a registered trademark of Standard Performance Evaluation Corporation
- DC measurement mode, AC, and AC+DC measurement possible
- Integration function for current and power
- High basic accuracy \pm 0.2%
- Extended Period of Guaranteed Accuracy of 3 Years



SPECIFICATIONS	
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 15.000/30.00/150.00/300.0V [Current] AC/DC 100.00/300.0 mA, 1.0000/3.000/10.000/30.00A [Power] 1.5000 W ~ 9.000 kW (combination of voltage and current ranges)
Integration measurement	[Current] No. of displayed digits: 6 digits (from 0.00000mAh, Polarity-independent integration and Sum value)
Integration time up to 10,000 hours	[Active power] No. of displayed digits: 6 digits (from 0.00000MWh, Polarity-independent integration and Sum value)
Basic accuracy	\pm 0.1% rdg. \pm 0.2% f.s. (DC), \pm 0.2% rdg. (45Hz to 66Hz) Note: Provided accuracy of 1 Year, typical value
Display refresh rate	5 times per second
Frequency band	DC, 45Hz to 5kHz
Waveform output	Parameter output representation: Instantaneous voltage, current and active power (3 simultaneous channels), Output voltage: 1V f.s.
Analog output (D/A output)	Simultaneously output voltage, current, active power and one additional parameter from the following: apparent power, power factor, current integration, active power integration over 4 channels. Output voltage: \pm 2V 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
Power consumption	100V to 240V AC, 50/60Hz, 20VA
Dimensions and mass	210W \times 100H \times 245D mm, 2.5kg
Accessories	Power cord (1)

OPTIONS

RS-232C CABLE (9-pin to 9-pin, crossed cable/1.8m)	9637
RS-232C CABLE (9-pin to 25-pin, crossed cable/1.8m)	9638
GP-IB CONNECTOR CABLE (2m)	9151-02

Electronic Measuring Instruments









Electronic Measuring Instruments Index

For low resistance measurement Battery Testers

 <p>RM3543, RM3543-01 RM3542, RM3542-01 Testing source: DC High speed resistance testing ideal for automated lines Minimum integration time: 0.1ms p.30</p>	 <p>3541 Testing source: DC Wide 0.1uΩ (20mΩ range) to 110MΩ range High speed and high precision p.30</p>	 <p>3540, -01, -02, -03 Testing source DC 100 ms response 16 times/sec. sampling Comparator (buzzer only) p.31</p>	 <p>3554/3555 3554: For medium to high- capacity lead-acid storage 3555: For compact storage Check battery deterioration p.32</p>	 <p>BT3563/BT3562 BT3562: 6/60V BT3563: 6/60/300V Testing source AC 1kHz EXT I/O, RS-232C, GP-IB p.31</p>	 <p>3561, 3561-01 The perfect battery tester for the production line Testing source AC 1kHz EXT I/O, RS-232C, GP-IB p.32</p>
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Inductance, Capacitance, or Impedance Meters


 <p>IM3570 15 measurement items Testing source frequency 4 Hz to 5 MHz Comparator output, USB2.0, GP-IB, RS-232C, LAN included p.27</p>	 <p>3535 14 measurement items Testing source frequency 100kHz to 120MHz Comparator output GP-IB and RS-232C p.27</p>	 <p>3522-50/3532-50 14 measurement items Testing source frequency 3522-50: DC, 1mHz to 100kHz 3532-50: 42Hz to 5MHz Comparator output, GP-IB or RS-232C option p.28</p>	 <p>3511-50 7 measurement items Testing source frequency 120Hz, 1kHz Comparator output, RS-232C included, GP-IB option p.28</p>	 <p>3504-40, -50, -60 C, D Testing Testing source frequency 120Hz, 1kHz. Comparator output, RS-232C included, GP-IB (except 3504.40) p.29</p>	 <p>3505/3506 C, D Testing 3505: 1kHz, 100kHz, 1MHz 3506: 1kHz, 1MHz Comparator output, RS-232C included, GP-IB p.29</p>
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DMMs



3237/3238/3239
High speed DMM
199999 count display
..... p.33

Ultra-insulation meter Power unit




SM7810-20
Inspect the insulation
resistance of MLCC
Fast 6.8ms sampling over
8 channels simultaneously
Contact check function
Not CE marked
..... p.34




SM7860 series
Dedicated power source for the
SM7810 series
Ideal for measuring leak
current of MLCC
Large 50mA/ch current output
Not CE marked
..... p.34

Digital ultra- insulation/micro ammeter



**DSM-8104 (1ch)
DSM-8542 (4ch)**
PSU-8541(power source unit)
Measurement voltage : DC
0.1 - 1,000 V
Measurement range :
1 × 10⁻⁷ - 3 × 10¹⁶ Ω
Not CE marked
..... p.35

Super megohm meter



**SM-8213/8215
/8216/8220**
Measurement voltage :
5 - 1,000 V DC
Meas. range : 0.05 - 2 ×
10¹⁶ MΩ (SM-8220)
Not CE marked
..... p.35

Signal Generators & Calibrators



SS7012, 7016
DC signal source
Voltage, Current,
Measurement function,
Thermoelectric power (SS7012)
Model 7016 is not CE marked
..... p.37



Safety Standards Measuring Instruments

Leakage current of Medical Appliances




ST5540/ST5541
Both medical- and general-use
electrical devices (ST5540)
Support for rated currents of
up to 20 A
..... p.38

Protective ground Test Equipment



3157-01
Testing source AC
Protective ground tester
indispensable for standard
certification
..... p.38

Insulation Testers



3154
Testing voltage 25 /50 /100
/250 /500 /1000 V
Comparator output
Timer function
..... p.39

Withstand Voltage, Insulation resistance Testers



3174/3174-01
Full remote operation
Built-in contact check function
100VA capacity for AC
withstanding voltage testing
..... p.39



3159-02/3153
Insulation and
withstanding voltage tester
..... p.40

IMPEDANCE ANALYZER | IM3570

Single Device Solution for High Speed Testing and Frequency Sweeping

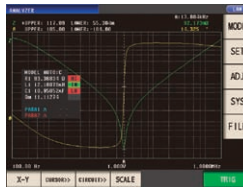
- LCR measurement, DCR measurement, sweep measurement, continuous measurement and high-speed testing achieved with one instrument
- High-speed testing, achieving maximum speeds of 1.5ms (1 kHz) and 0.5ms (100kHz) in LCR mode
- High-accuracy measurements, basic accuracy of Z parameter: ± 0.08%
- Perform frequency sweeps, level sweeps, and time interval measurements in analyzer mode



CE **USB_{2.0} / GP-IB / RS-232C / LAN**

SPECIFICATIONS	
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 (tan δ), Q
Measurement 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 999.999°), D : ±(0.000000 to 9.999999) Q : ±(0.00 to 99999.99), Δ % : ±(0.00000% to 999.9999%)
Basic accuracy	Z : ±0.08%rdg, θ : ±0.05°
Measurement frequency	4 Hz to 5 MHz (10 mHz to 100 Hz steps)
Measurement signal level	V mode/CV mode (normal mode): 50 mV to 5 Vrms, 1 mVrms steps (up to 1 MHz), 10 mV to 1 Vrms, 1 mVrms steps (over 1.0001 MHz) CC mode (normal mode): 10 μ A to 50 mArms, 10 μ Arms steps (up to 1 MHz) 10 μ A to 10 mArms, 10 μ Arms steps (over 1.0001 MHz)
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)
Measurement speed	FAST/MED/SLOW/SLOW2
Functions	DC bias measurement, Comparator, Panel loading/saving, Memory function
Interface	EXT I/O, RS-232C, GP-IB, USB communication, USB memory, LAN
Power supply	100 to 240 V AC, 50/60 Hz
Dimensions, mass	330W × 119H × 323D mm, 6.5kg
Accessories	Power cord (1), Fuse (1)

OPTIONS	
(The IM3570 cannot be used alone. Measurement requires optional test fixture or probe.)	
FOUR-TERMINAL PROBE (DC to 5 MHz)	L2000
TEST FIXTURE (direct connection type, DC to 5 MHz)	9262
SMD TEST FIXTURE (direct connection type, DC to 5 MHz)	9263
SMD TEST FIXTURE (DC to 120 MHz)	9677
SMD TEST FIXTURE (DC to 120 MHz)	9699
GP-IB CONNECTION CABLE (2 m)	9151-02
EQUIVALENT CIRCUIT ANALYSIS FIRMWARE	IM9000



IM9000 
For the IM3570 (Factory-installed option). Customers who have purchased the Impedance Analyzer IM3570 can add the Equivalent Circuit Analysis Firmware IM9000 function. Please contact your local HIOKI representative.

LCR HiTESTER | 3535

High-speed LCR meter with up to 120MHz sampling

- Wide range from 100kHz to 120MHz
- High speed LCR testing (6ms/sample)
- Removable head amplifier
- "Load compensation function" for comparing standard component and providing compensation



CE **GP-IB / RS-232C**
STANDARD STANDARD

SPECIFICATIONS	
Measurement parameters	Z , Y , Q, Rp, Rs(ESR), G, X, B, q, Ls, Lp, Cs, Cp, D(tand)
Measurement Range:	1k Ω range, 10k Ω range, 100k Ω range
Reference Value	Z . R 100 Ω to 2k Ω , 1k Ω to 20k Ω , 10k Ω to 300k Ω C 0.66pF to 15.9 μ F, 0.066pF to 1.59nF, 4.4fF to 159pF L 0.133nH to 3.18mH, 1.33 μ H to 31.8mH, 13.3 μ H to 477mH θ -180.00° to 180.00°
Measurement Frequency	Range 100kHz to 120MHz Resolution setting 4digits (when using front panel to make setting) 100.0kHz to 1.000MHz 100Hz steps 1.000MHz to 10.000MHz 1kHz steps 10.00MHz to 100.0MHz 10kHz steps 100.0MHz to 120.0MHz 100kHz steps When using GP-IB or RS-232C interfaces, resolution is 1Hz.
Measurement Levels	Accuracy ±0.005% max. against set value Open Terminal Voltage (V) and Constant Voltage (CV) 5mV to 1V, max. 20mA (up to 10.000MHz) Modes 5mV to 500mV, max. 10mA (from 10.01MHz) Resolution 1mV steps Accuracy ±(5%+5mV)×(2+log f) (f in terms of MHz) Constant Current (CC) 200 μ A to 20mA, max. 1V (up to 10.00MHz) Mode 200 μ A to 10mA, max. 0.5V (from 10.01 MHz) Resolution 10 μ A steps Accuracy ±(10%+50 μ A)×(2+log f) (f in terms of MHz)
Basic accuracy	Z : ±0.5% rdg., phase angle: ± 0.3°
Output impedance	50 Ω ±10 Ω (at 100kHz)
Power supply	100V to 240V AC, 50/60Hz Approx. 50VA
Dimensions, mass	Approx. 360W × 130H × 360D mm ; 8.3kg

OPTIONS	
(Model 3535 cannot be used alone. Measurement requires optional head amp unit and test fixture or Probe.)	
HEAD AMP UNIT	9700-10
SMD TEST FIXTURE	9677
SMD TEST FIXTURE	9699
CONNECTION CABLE	9678
GP-IB CONNECTION CABLE (2m)	9151-02
PRINTER	9442
AC ADAPTER (for the 9442, for 200~240 V power lines)	9443-02
CONNECTION CABLE (for the 3535/9442)	9444
RECORDING PAPER (25m, 10 rolls/1 set, for the 9442)	1196
RS-232C CABLE (9pin-9pin/1.8m)	9637
RS-232C CABLE (9pin-25pin/1.8m)	9638

LCR HiTESTER | 3522-50 | 3532-50

Impedance meter with a wide test frequency range

- High speed measurement of 5 ms LCR meter
- Higher frequency range
3522-50: DC or 1 MHz to 100 kHz / 3532-50: 42 Hz to 5 MHz
- Fourteen parameters measured
(High resolution and high accuracy)
- Interactive touch panel operation
- Wide setting range for measurement voltage and current



SPECIFICATIONS

Measurement parameters	Z , Y , θ , Rp(DCR), Rs(ESR, DCR), G, X, B, Cp, Cs, Lp, Ls, D (tan δ), and Q [Rs(DCR): 3522-50 only]
Measurement method	3522-50 Source: constant current 10 μ A to 100 mA(AC/DC), or constant voltage 10 mV to 5 V (AC/DC) open terminal voltage 3532-50 Source: constant current 10 μ A to 100 mA (42 Hz to 1 MHz), 50 μ A to 20 mA (1 MHz to 5 MHz), or constant voltage 10 mV to 5 V (42 Hz to 1 MHz), 50 mV to 1 V (1 MHz to 5 MHz) open terminal voltage
Source frequency	3522-50: DC, or 1MHz to 100kHz 3532-50: 42 Hz to 5 MHz
Measurement ranges	Z , R , X: 10.00 m Ω to 200.00 M Ω (depending on condition) θ : -180.00 to +180.00°, C: 0.3200 pF to 1.0000 F (3522-50), 0.3200 pF to 370.00 mF (3532-50), L: 16.000 nH to 750.00 kH, D: 0.00001 to 9.99999, Q: 0.01 to 999.99, Y , G, B: 5.0000 nS to 99.999 S
Basic accuracy	3522-50: Z : ± 0.08 % rdg., θ : $\pm 0.05^\circ$ 3532-50: Z : ± 0.08 % rdg., θ : $\pm 0.05^\circ$
Measurement times typical values for displaying Z	3522-50: Fast: 5 msec. to Slow2: 828 msec. 3532-50: Fast: 5 msec. to Slow2: 140 msec.
Display	99999 full digits, LCD with backlight display
Comparator functions	Setting: Upper and lower limit, percentage, or absolute value Output: 3 levels (Hi, In, Lo), Open-collector, Isolated
External printer	9442 (use with the 9443-02/9446/9593-01)
Power supply	100 to 240 V AC, 50/60 Hz
Dimensions, mass	3522-50: 313W x 125H x 290D mm, 4.5 kg 3532-50: 352W x 124H x 323D mm, 6.5kg
Accessories	Power cord (1), Fuse (1)

OPTIONS

(The 3532-50/3532-50 cannot be used alone. Measurement requires optional test fixture or probe.)

FOUR-TERMINAL PROBE (DC to 100 kHz)	9140
PINCHER PROBE (DC to 5 MHz)	9143
TEST FIXTURE (cable connection type, DC to 5 MHz)	9261
TEST FIXTURE (direct connection type, DC to 5 MHz)	9262
Note: Measurement ranges are limited when using the 9140, 9143	
SMD TEST FIXTURE (direct connection type, DC to 5 MHz)	9263
DC BIAS VOLTAGE UNIT (± 40 V DC max.)	9268
DC BIAS VOLTAGE UNIT (± 4 V DC max. for HDMI)	9268-01
DC BIAS CURRENT UNIT (± 2 A DC max.)	9269
CONNECTION CORD (for 9268/9269; BNC to BNC, 1.5 m)	9165
CONNECTION CORD (for 9268/9269; BNC to clip, 1.5 m)	9166
GP-IB CONNECTION CABLE (2 m)	9151-02
GP-IB INTERFACE	9518-01
RS-232C INTERFACE	9593-01
PRINTER	9442
AC ADAPTER (for the 9442, for 200~240 V power lines)	9443-02
CONNECTION CABLE (for the 3532-50 /9442)	9444
RECORDING PAPER (25 m, 10 rolls/1 set, for the 9442)	1196

LCR HiTESTER | 3511-50

Compact & powerful dedicated LCR measurement in 5m second timeframes

- High speed measurement : 5ms (1 kHz) or 13ms (120 Hz)
- High precision accuracy : ± 0.08 %
- Built-in comparator



SPECIFICATIONS

Measurement parameters	Z , θ , C, L, D, Q, R
Measurement method	Source : open terminal voltage 50mV, 500mV, 1Vrms (AC) sense: voltage, AC
Source frequency	120 Hz or 1 kHz
Measurement range	Z , R : 10 m Ω to 200.00 M Ω (depending on condition) θ : -90.00 to +90.00°, C : 0.940 pF to 999.99 mF, L : 1.600 μ H to 200.00 kH, D : 0.0001 to 1.9900, Q : 0.85 to 999.99
Basic accuracy	Z : ± 0.08 % rdg., θ : $\pm 0.05^\circ$
Measurement time	Fast : 5 msec. to Slow : 300 msec. (at 1 kHz) Fast : 13 msec. to Slow : 400 msec. (at 120 Hz)
Display	99999 full digits, LED
Comparator functions	Setting : Upper and lower limit, absolute value, Output : 3 levels (Hi, In, Lo), Open-collector, Isolated
External printer	9442 (use with the 9443-02 /9444)
Power supply	100 to 240 V AC, 50/60Hz
Dimensions and mass	210W x 100H x 168D mm, 2.5 kg
Accessories	Power cord(1), Fuse(1)

OPTIONS

FOUR-TERMINAL PROBE (DC to 100 kHz)	9140
PINCHER PROBE (DC to 5 MHz)	9143
TEST FIXTURE (cable connection type, DC to 5 MHz)	9261
TEST FIXTURE (direct connection type, DC to 5 MHz)	9262
SMD TEST FIXTURE (direct connection type, DC to 5 MHz)	9263
DC BIAS VOLTAGE UNIT (± 40 V DC max.)	9268
DC BIAS CURRENT UNIT (± 2 A DC max.)	9269
CONNECTION CORD (for 9268/9269; BNC to BNC, 1.5 m)	9165
CONNECTION CORD (for 9268/9269; BNC to clip, 1.5 m)	9166
GP-IB CONNECTION CABLE (2 m)	9151-02
GP-IB INTERFACE	9518-01
PRINTER	9442
AC ADAPTER (for the 9442, for 200~240 V power lines)	9443-02
CONNECTION CABLE (for the 3511-50/9442)	9444
RECORDING PAPER (25 m, 10 rolls/1 set, for the 9442)	1196

(The 3511-50 cannot be used alone. Measurement requires optional test fixture or probe.)

C HiTESTER | 3504-40, 3504-50, 3504-60

High-speed, Large-capacitance MLCC Inspection with Constant Voltage

- 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



SPECIFICATIONS

Measurement items	Cs, Cp, D (loss coefficient)
Measurement frequency	3504-40, -50, -60: 120Hz, 1 kHz Accuracy: $\pm 0.01\%$ or less
Signal level	1V or 500 mV, 100 mV (3504-60 only)
Measurement range	C : 0.940 pF to 20.0000 mF (5-digit display), Accuracy : $\pm 0.09\%$ D : 0.00001 to 1.99999, Accuracy : ± 0.0016
Measurement time	Nominal 2 ms (1kHz, FAST)
Measurement speed	FAST, NORMAL, SLOW
Other function	Comparator, Audible buzzer, Printer (option), Bin (except the 3504-40) Contact check (3504-60 only)
Interface	RS-232C and EXT I/O (standard) GP-IB (except the 3504-40)
Power supply	Selectable 100, 120, 220 or 240V AC $\pm 10\%$, 50/60Hz, 110VA max.
Dimensions and mass	Approx. 260 W x 100 H x 220 D mm, 3.8 kg
Supplied accessories	Power cord (1), spare fuse (1)

OPTIONS

SMD TEST FIXTURE (For measuring SMDs with electrodes on the side, DC to 120 MHz)	9677
SMD TEST FIXTURE (For measuring SMDs with electrodes on the bottom, DC to 120 MHz)	9699
SMD TEST FIXTURE (direct connection type, DC to 5 MHz)	9263
TEST FIXTURE (cable connection type, DC to 5 MHz)	9261
TEST FIXTURE (direct connection type, DC to 5 MHz)	9262
FOUR-TERMINAL PROBE (DC to 100 kHz)	9140
PINCHER PROBE (DC to 5 MHz)	9143
GP-IB CONNECTION CABLE (2 m)	9151-02
PRINTER	9442
AC ADAPTER (for the 9442, for 200-240 V power lines)	9443-02
CONNECTION CABLE (for the 3511-50/9442)	9444
RECORDING PAPER (25 m, 10 rolls/1 set, for the 9442)	1196

C HiTESTER | 3505 | 3506

Source frequency 1 MHz, High-precision and ultra high speed measuring from small-value capacitance possible

- Enhanced repeatability measurement accuracy, so fittest for production line
- A self-calibration function minimizes variations in measurement values due to changes in ambient temperature.
- The cable-length-compensation function minimizes measurement errors when the measurement cable is extended
- Contact errors while measuring can be detected by the Chatter Detection function
- High-speed measurements in as little as 2 ms, measuring frequency of 1kHz, 1 MHz
- BIN function, for easy component screening
- Comparator function and Trigger-synchronized output function, for production line use



SPECIFICATIONS

Measurement items	Cs, Cp, D (loss coefficient), Q
Measurement frequency	3505: 1 kHz, 100 kHz, 1 MHz, 3506: 1 kHz, 1 MHz Accuracy: $\pm 0.01\%$ or less
Signal level	1V or 500 mV
Measurement range	C : 0.001 fF to 15.000 μ F (5-digit display), Accuracy : $\pm 0.14\%$ D : 0.00000 to 1.99999, Accuracy : ± 0.0013 Q : 0.1 to 19999.9
Measurement time	Nominal 2 ms (1kHz, FAST)
Measurement speed	FAST, NORMAL, SLOW
Other function	Comparator, Audible buzzer, Printer (option), Bin
Interface	RS-232C and EXT I/O (standard) GP-IB
Power supply	Selectable 100, 120, 220 or 240V AC $\pm 10\%$, 50/60Hz 40VA max.
Dimensions and mass	Approx. 260 W x 100 H x 298 D mm, 4.8 kg
Supplied accessories	Power cord (1), spare fuse (1)

OPTIONS

SMD TEST FIXTURE (For measuring SMDs with electrodes on the side, DC to 120 MHz)	9677
SMD TEST FIXTURE (For measuring SMDs with electrodes on the bottom, DC to 120 MHz)	9699
SMD TEST FIXTURE (direct connection type, DC to 5 MHz)	9263
TEST FIXTURE (cable connection type, DC to 5 MHz)	9261
TEST FIXTURE (direct connection type, DC to 5 MHz)	9262
FOUR-TERMINAL PROBE (DC to 100 kHz)	9140
PINCHER PROBE (DC to 5 MHz)	9143
GP-IB CONNECTION CABLE (2 m)	9151-02
PRINTER	9442
AC ADAPTER (for the 9442, for 200-240 V power lines)	9443-02
CONNECTION CABLE (for the 3511-50/9442)	9444
RECORDING PAPER (25 m, 10 rolls/1 set, for the 9442)	1196

RESISTANCE HiTESTER

RM3543 | RM3543-01

Resistance Meter for Ultra-low and Low Shunt Resistance

- ±0.16% accuracy & 0.01 μΩ resolution performance in automated systems
- Provide advanced contact-check, comparator, and data export functions



SPECIFICATIONS

Resistance range	10 mΩ (Max. 12.00000 mΩ, 0.01 μΩ resolution) to 1000 Ω range (Max. 1200.000 Ω, 1 mΩ resolution), 7 steps
Accuracy	±0.060 % rdg±0.001 % (at 10 mΩ range, with SLOW mode, average 16 times settings)
Sampling rate	FAST, MEDIUM, SLOW, 3 settings
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..
Interface	RS-232C, Printer, 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 to 240 V AC ±10%, 50/60 Hz
Dimensions, mass	Approx. 260W × 88H × 300D mm (without projections), Approx. 3.0 kg
Accessories	Power Cord, EXT I/O Male Connector

OPTIONS

FOUR-TERMINAL PROBE	9140	GP-IB CONNECTION CABLE (2 m)	9151-02
FOUR-TERMINAL PROBE	9500	RS-232C CABLE (9pin-9pin/cross/1.8m)	9637
TEST FIXTURE (direct connection type)	9262	RS-232C CABLE (9pin-25pin/cross/1.8m)	9638
SMD TEST FIXTURE (direct connection type)	9263		

RESISTANCE HiTESTER

RM3542 | RM3542-01

High-Speed Resistance Meters Optimized for Automated Systems

- Finest resolution of 0.1 micro-ohm
- Store 30000 data into internal memory
- Integrate with automated taping machines



SPECIFICATIONS

Measurement	[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
Accuracy	± (0.006 % rdg±0.001 %) (1000Ω range, slow)
Sampling rate	FAST, MEDIUM, SLOW, 3 settings
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..
Interface	RS-232C, Printer, GP-IB (Model RM3542-01)
External I/O	Trigger, Hold input, Comparator output, Settings monitor terminal
Power supply	100 to 240 V AC ±10%, 50/60 Hz
Dimensions, mass	Approx. 260W × 88H × 300D mm (without projections), Approx. 2.9 kg
Accessories	Power Cord, EXT I/O Male Connector

OPTIONS

FOUR-TERMINAL PROBE	9140	GP-IB CONNECTION CABLE (2 m)	9151-02
TEST FIXTURE (direct connection type)	9262	RS-232C CABLE (9pin-9pin/cross/1.8m)	9637
SMD TEST FIXTURE (direct connection type)	9263	RS-232C CABLE (9pin-25pin/cross/1.8m)	9638

RESISTANCE HiTESTER

3541

Wide measurement range & high-resolution, Optimized for Automated Systems

- Wide measurement range, 0.1 μΩ (20 mΩ range) to 110.000 MΩ
- High speed & high precision measurements, as fast as 0.6 ms with 70 ppm precision (in the 2 kΩ to 110 kΩ range)
- Two types of temperature correction, correction by Pt sensor or infrared thermometer



SPECIFICATIONS

Measurement	Four-terminal resistance measurement: 0.1 μΩ (20 mΩ range) to 110.000 MΩ Low power four-terminal resistance measurement: 10 μΩ (2Ω range) to 2.00000 kΩ Temperature measurement (Pt) -10.0 to 99.9 °C Temperature measurement (analog input) 0 to 2V
Accuracy	±0.007 % rdg ±0.0015 % f.s. dgt. (at 2k/20kΩ range) [at Low Power ON] ±0.011 % rdg ±0.01 % f.s. (at 2 to 2kΩ range)
Functions	Temperature correction, temperature conversion, self calibration, measurement fault detection, overflow detection, offset voltage compensation, average, statistical calculation, key lock, save/load, comparator, BIN measurement
Interface	GP-IB, RS-232C
External I/O	[Output] BCD, End of measurement, Comparator result, BIN result, NG, with open collector output [Input] Select setting, Trigger, Calibration, Zero-adjust, Print, with C-MOS level
Power supply	100 to 240 VAC 50/60 Hz
Dimensions, mass	Approx. 215W × 80H × 295D mm (excluding projections), Approx. 2.6 kg
Accessories	CLIP TYPE LEAD 9287-10, TEMPERATURE PROBE 9451, Power Cord, EXT I/O Male Connector

OPTIONS

CLIP TYPE LEAD	9287-10	PIN TYPE LEAD	9771
CLIP TYPE LEAD	9452	LARGE CLIP TYPE LEAD	9467
FOUR TERMINAL LEAD	9453	CONNECTION CABLE (for multipolar connectors)	9300
ZERO ADJUSTMENT BOARD	9454	RS-232C CABLE (9pin-9pin/cross/1.8m)	9637
PIN TYPE LEAD (for ultra precision)	9455	RS-232C CABLE (9pin-25pin/cross/1.8m)	9638
PIN TYPE LEAD	9461	GP-IB CONNECTOR CABLE (2m)	9151-02
PIN TYPE LEAD	9770		

mΩ HiTESTER | 3540 | 3540-01 | 3540-02 | 3540-03

Offers selectable manual measurement or system application

- 4-terminal method mΩ meter (Fast 80 ms Response)
- Comparator function memorizes up to seven tables
- Temperature compensation function measures temperature and calculates value relative to copper at 20°C



The 3540 is the low-price version without external control interfaces, for manual measurement. The 3540-01 adds BCD output and external control, the 3540-02 includes a printer interface and the 3540-03 includes an RS-232C interface.

SPECIFICATIONS	
Measurement ranges and Accuracy	30 mΩ to 30 kΩ, 7 ranges, 3500 full digits ±0.1 % rdg. ±6 dgt. (30 mΩ, 3Ω range), ±0.1 % rdg. ±4 dgt. (300 mΩ, 30Ω to 30 kΩ range)
Measurement current	100 mA (30 mΩ, 300 mΩ range) to 10 μA (3kΩ, 30kΩ range)
Max. applied measurement voltage	3.5 mV DC (30 mΩ range) to 350 mV DC (30 kΩ range)
Sampling speed	16 times /second (fast mode), 4 times /second (slow mode)
Response time	80 ms (fast mode), 300 ms (slow mode)
Display	3500 full digits, Liquid Crystal Display
Measurement method	Four-terminal measurement
Open-circuit terminal voltage	4.0 V Max. (30 mΩ to 30 kΩ all ranges)
Digital input/output (-01, -02 and -03 Ver. only)	TTL output BCD, or other inputs /outputs for external control
Comparator functions	Setting: Upper and lower limit, or reference value and % for resistance, Up to 7 tables Output: 3 levels (Hi, In, Lo), Open-collector, LED display, beep sound
Interface	External printer (-02 only), RS-232C (-03 only)
Power supply	LR6 (AA) or R6P (AA) × 6, or 9445-02, -03 AC ADAPTER (9V, 1A)
Dimensions, mass	215W × 61H × 213D mm, 900 g, 1 kg (-01, -02, -03)
Accessories	CLIP-TYPE LEAD 9287-10(1), TEMPERATURE PROBE 9451 (1), Fuse (1), Ferrite Clamp (1), External Connector Socket (-01 only)

OPTIONS

DIGITAL PRINTER	9203
RECORDING PAPER (10 m, 10 rolls /1set)	9233
CONNECTION CORD (for 9203-3540-02, 2m)	9425
AC ADAPTER (100 to 240 VAC, 9 V/1A output, for USA)	9445-02
AC ADAPTER (100 to 240 VAC, 9 V/1A output, for EU)	9445-03
CLIP TYPE LEAD WITH TEMPERATURE SENSOR	9460
LARGE CLIP-TYPE LEAD	9467
RS-232C CABLE (9pin-9pin)	9637
RS-232C CABLE (9pin-25pin)	9638
CLIP TYPE LEAD	9452
FOUR-TERMINAL LEAD	9453
PIN TYPE LEAD	*9455
PIN TYPE LEAD	9461
PIN TYPE LEAD	9770
PIN TYPE LEAD	9771

*Note: The 9455 probe is a precision instrument. Exercise appropriate care when handling it.

BATTERY HiTESTER | BT3563 | BT3562

High Efficiency Inspection from Large Cells to Battery Packs Simultaneous high speed testing of internal resistance and battery voltage

- Measure high-voltage battery packs of up to 300V (BT3563)
- Testing for production line of high-voltage battery pack and battery module
- 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.



SPECIFICATIONS	
Measurement ranges and Accuracy	3 mΩ to 3000Ω, 7 ranges, ±0.5 % rdg. ±5 dgt. (3mΩ range only: ±0.5 % rdg. ±10 dgt.) 6/60/300 V (300V range available only in the BT3563), ±0.01 % rdg. ±3 dgt.
Measurement current	100 mA (3/30 mΩ range), 10 mA (300mΩ range) 1 mA (3Ω range), 100 μA (30Ω range), 10 μA (300/3000Ω range)
Max. applied measurement voltage	BT3562: ± 60 V DC rated input voltage ± 70 V DC maximum rated voltage to ground BT3563: ±300 V DC rated input voltage ±300 V DC maximum rated voltage to ground
Sampling speed	Four steps 8 ms(Extra-FAST), 24 ms(FAST), 84/70 ms(Medium), 259/253 ms(Slow)
Display	31000 full digits (resistance), 600000 full digits (voltage), LED
Measurement method	1kHz AC four-terminal measurement
Comparator functions	Setting: Upper and lower limit Output: 3 levels (Hi, In, Lo) or (Pass, Fail), Open-collector, Display, Dual audible indicator
Panel save/load	Up to 126 configuration settings
Other functions	Over-range display, measurement error detection Self-calibration, dual comparators, key-lock
Interface	External I/O, RS-232C, Printer (RS-232C), GP-IB(Model BT3562-01, BT3563-01)
Power supply	100 to 240 V AC, 50/60 Hz
Dimensions, mass	215W × 80H × 295D mm, 2.4 kg
Accessories	Power cord (1)

OPTIONS

PIN TYPE LEAD	L2100
CLIP TYPE LEAD	9287-10
FOUR TERMINAL LEAD	9453
* LARGE CLIP TYPE LEAD	9467
PIN TYPE LEAD	9770
PIN TYPE LEAD	9771
RS-232C CABLE (9pin-9pin/cross/1.8m)	9637
RS-232C CABLE (9pin-25pin/cross/1.8m)	9638
GP-IB CONNECTOR CABLE (2m)	9151-02

*Note: Not CE marked

BATTERY HiTESTER | 3561 | 3561-01

Simultaneous high-speed testing of the internal resistance and voltage of small secondary batteries

- The perfect battery tester for the production line
- High speed and reliable battery inspection
- High precision accuracy
- Choice of PC interfaces for full remote operation



SPECIFICATIONS	
Measurement ranges and Accuracy	300 mΩ to 3Ω, 2 ranges, ±0.5 % rdg., ±5 dgt. 20 V, ±0.01 % rdg., ±3 dgt. (Input impedance 1MΩ)
Measurement current	10 mA (300 mΩ range) to 1 mA (3Ω range)
Max. applied measurement voltage	±22 V DC rated input voltage ±70 V DC maximum rated voltage above ground
Sampling speed	Four steps 7 ms(Extra-FAST), 23 ms(FAST), 83/69 ms(Medium), 258/251 ms(Slow)
Display	31000 full digits (resistance), 199999 full digits (voltage), LED
Measurement method	1kHz AC four-terminal measurement
Comparator functions	Setting: Upper and lower limit Output: 3 levels (Hi, In, Lo) or (Pass, Fail), Open-collector, Display, Dual audible indicator
Panel save/load	Up to 126 configuration settings
Other functions	Over-range display, measurement error detection Self-calibration, dual comparators, key-lock
Interface	External I/O, RS-232C, Printer (RS-232C), GP-IB(Model 3561-01)
Power supply	100 to 240 V AC, 50/60 Hz
Dimensions, mass	215W × 80H × 295D mm, 2.4 kg
Accessories	Power cord (1)

OPTIONS	
CLIP TYPE LEAD	9287-10
CLIP TYPE LEAD	9452
FOUR TERMINAL LEAD	9453
* PIN TYPE LEAD (for ultra precision)	9455
* LARGE CLIP TYPE LEAD	9467
PIN TYPE LEAD	9770
PIN TYPE LEAD	9771
RS-232C CABLE (9pin-9pin/cross/1.8m)	9637
RS-232C CABLE (9pin-25pin/cross/1.8m)	9638
GP-IB CONNECTOR CABLE (2m)	9151-02

*Note: Not CE marked

BATTERY HiTESTER | 3554

The New Standard for Assessing Deterioration of Lead-acid Batteries

- Ideal for testing UPS batteries
- Auto Hold and Auto Memory
- Store up to 4800 sets of battery data
- Averaging function



SPECIFICATIONS	
Resistance Range	3.100m/31.00 m/310.0 m/3.100 Ω
Accuracy	±0.8 %rdg.±6 dgt.; 3.000 mΩ range only: ±1.0 %rdg.±8 dgt.
Voltage Range	±6.000 V/60.00 V [Accuracy] ±0.08 %rdg.±6 dgt.
Temperature Measurement Range	-10.0°C to 60.0°C (when used with 9460) [Accuracy] ±1°C
Measurement Frequency	1 kHz ± 30 Hz
Measurement Current (Range)	150 mA (3 m/30 mΩ), 15 mA(300 mΩ), 1.5 mA(3 Ω); Open terminal voltage: 5 V max.
Max. Allowable Voltage	60V DC (No AC input allowed)
Comparator	Primary and secondary resistance limits, minimum voltage limit
No. of Comparator Settings	200
Data Storage	4800 sets(date & time, resistance, voltage, temperature, comparator value, judgement decision)
PC interface	USB (with bundled software for data transfer to PC)
Power Supply	AA (LR6) Alkaline Batteries × 8 for up to 10 hours of continuous use
Dimensions & Mass	192W×121H × 55D mm, 790 g
Accessories	PIN TYPE LEAD 9465-10 (1), USB cable (1), Application software CD (1), Carrying case (1), Strap (1), LR6 alkaline batteries (8), Replacement fuse (1), Zero adjustment board (1)

OPTIONS			
CLIP TYPE LEAD Temperature Sensor	9460	TIP PIN (for 9465-10)	9465-90
PIN TYPE LEAD	9772	TIP PIN (for 9772)	9772-90
REMOTE CONTROL SWITCH	9466	PIN TYPE LEAD	9465-10
LARGE CLIP TYPE LEAD	9467		(bundled with standard 3554)

BATTERY HiTESTER | 3555

Instantaneous determination of battery deterioration

- Ideal for testing compact storage batteries
- Three-rank rating of battery state:
Pass, Warning, or Fail



SPECIFICATIONS	
Resistance Measurement	300 mΩ to 30Ω, 3 ranges, 100mΩ resolution max.
Voltage Measurement	3 or 30V DC, 2 ranges, 1 mV resolution max.
Sampling rate	1.25 times/second
Comparator functions	Setting: Upper and lower limit, for resistance, and lower limit for voltage, Output: LED, beep
Power Supply	LR6(AA), 6 pieces (Continuous use of 18 hours)
Dimensions, Mass	196W × 130H × 50D mm, 680g (including batteries)
Accessories	PIN-TYPE LEAD 9461 (1), LR6 (6)

OPTIONS			
LARGE CLIP TYPE LEAD	9467	ZERO ADJUSTMENT BOARD (when 9461 or 9465 is used)	9454
PIN TYPE LEAD	*1 9455	PIN TYPE LEAD	9770
CLIP TYPE LEAD	9287-10	PIN TYPE LEAD	9771
CARRYING CASE	9382	PIN TYPE LEAD	9465

*1Note: The 9455 probe is a precision instrument. Exercise appropriate care when handling it.

DIGITAL HiTESTER | 3238 | 3239

High-accuracy, multi-functional model (3238) 4-terminal resistance measurement (3239)

- Sample at rates of up to 300 samples/sec. (3.3 ms/ sample)
- Comparator function provides high-speed pass/fail evaluation
- Equipped with external input and output for sequence control
- Useful Save/Load function helps work go faster
- Interface supports full remote operation
- AC/DC current and frequency functions



SPECIFICATIONS

DC voltage (DC V)	200m/2/20/200/1000V(±0.01% rdg. ±2dgt./2V)
AC voltage (AC V)	2/20/200/750V(±0.1% rdg. ±100dgt./45 to 10kHz) True RMS
DC current (DC A)	200m/2A(±0.1% rdg. ±6dgt./200mA)
AC current (AC A)	200m/2A(±0.3% rdg. ±100dgt./200mA, 45 to 3kHz) True RMS
Frequency	100/1k/10k/100k/300kHz (±0.015% rdg. ±2dgt./10 to 300kHz)
Resistance (Ω)	200/2k/20k/200k/2000k/20M/100MΩ (±0.02% rdg. ±2dgt./2k to 200kΩ)
Resistance (LPΩ)	2k/20k/200k/2000kΩ (±0.02% rdg. ±6dgt./2k to 200kΩ)
Open terminal voltage	6V DC max. (Ω, Diode check) 0.45V DC max. (LPΩ, Continuity check)
Continuity check	A built-in buzzer sounds when the resistance value is less than 50.00Ω.
Sampling rate	FAST approx. 300 samples/s, MEDIUM approx. 8 to 9 samples/s, SLOW approx. 1 sample/s
Display	LED max. 199999 (999999 for frequency)
Ancillary functions	Comparator, Average, Zero Adjust, Trigger and the Save/Load functions
Interface	External input/output, RS-232C, GP-IB (3238-01, 3239-01)
Power supply	AC 100V/120V/220V/240 V, (50/60Hz)
Dimensions and mass	approx. 215W × 80H × 265D mm, 2.6 kg
Accessories	TEST LEAD L9170-10(1)

OPTIONS

CLAMP ON PROBE (10/20/50/100/200/500 A AC)	9010-50
CLAMP ON PROBE (10/20/50/100/200/500 A AC)	9018
CLAMP ON PROBE (20/50/100/200/500/1000 A AC)	9132
RS-232C CABLE (9pin-9pin, Reverse type/1.8m)	9637
RS-232C CABLE (9pin-25pin, Reverse type/1.8m)	9638
GP-IB CONNECTION CABLE (2 m /4 m)	9151-02/04
PRINTER	9442
AC ADAPTER (for the 9442, for 200~240 V power lines)	9443-02
CONNECTION CABLE (for 9442 printer)	9444
RECORDING PAPER (25 m, 10 rolls/1 set, for the 9442)	1196
FOUR TERMINAL LEAD for 3239 (refer to P.68)	

DIGITAL HiTESTER | 3237

High-speed DMM (3.3ms/sample) Minimizing tact time with sequence control at a truly affordable price

- Sample at rates of up to 300 samples/sec. (3.3ms/ sample)
- Comparator function provides high-speed pass/fail evaluation
- Equipped with external input and output for sequence control
- Useful Save/Load function helps work go faster
- Interface supports full remote operation

SPECIFICATIONS	
DC voltage (DC V)	200m/2/20/200/1000V (±0.025% rdg. ±2dgt./2V)
AC voltage (AC V)	2/20/200/750V (±0.2% rdg. ±100dgt./45 to 3kHz) True RMS
Resistance (Ω)	200/2k/20k/200k/2000k/20M/100MΩ (±0.05% rdg. ±2dgt./2k to 2MΩ)
Resistance (LPΩ)	2k/20k/200k/2000kΩ (±0.05% rdg. ±6dgt./2k to 200kΩ)
Open terminal voltage	6V DC max. (Ω, Diode check) 0.45V DC max. (LPΩ, Continuity check)
Continuity check	A built-in buzzer sounds when the resistance value is less than 50.00Ω.
Sampling rate	FAST approx. 300 samples/s, MEDIUM approx. 8 to 9 samples/s, SLOW approx. 1 sample/s
Display	LED max. 199999
Ancillary functions	Comparator, Average, Zero Adjust, Trigger and the Save/Load functions
Interface	External input/output, RS-232C, GP-IB (3237-01)
Power supply	AC 100V/120V/220V/240 V, (50/60Hz)
Dimensions and mass	approx. 215W × 80H × 265D mm, 2.6 kg
Accessories	TEST LEAD L9170-10 (1)



OPTIONS

CLAMP ON PROBE (10/20/50/100/200/500 A AC)	9010-50
CLAMP ON PROBE (10/20/50/100/200/500 A AC)	9018-50
CLAMP ON PROBE (20/50/100/200/500/1000 A AC)	9132-50
RS-232C CABLE (9pin-9pin, Reverse type/1.8m)	9637
RS-232C CABLE (9pin-25pin, Reverse type/1.8m)	9638
GP-IB CONNECTION CABLE (2 m /4 m)	9151-02/04
PRINTER	9442
AC ADAPTER (for the 9442, for 200~240 V power lines)	9443-02
CONNECTION CABLE (for 9442 printer)	9444
RECORDING PAPER (25 m, 10 rolls/1 set, for the 9442)	1196



RS-232C/
STANDARD

GP-IB/
3237-01

True RMS

SUPER MΩ HiTESTER | SM7810 series

Test System Ideal for MLCC Leakage Current Measurement

- 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

SM7810: rated 100/110V, SM7810-20: rated 220V



Models SM7810 series and the SM7860 series are not CE marked.

The Super MΩ HiTESTER SM7810 is produced to order. An input/output terminal connection cable*1 is required separately. Please contact your local HIOKI distributor.

*1 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 distributor.

SPECIFICATIONS

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: 100pA/1n/10n/100n/1μ/10μ/100μ/1mA Resistance: $1 \times 10^2 \Omega$ to $1 \times 10^8 \Omega$
Measurement speed (INDEX typical time)	FAST: 6.8ms, MED: 26.0ms, SLOW: 100.0ms, SLOW2: 320.0ms
Basic measurement accuracy (1μA range, FAST)	Current: $\pm (2.0 + (0.5\mu A \div \text{Current Measurement Value}) \%)$ Resistance accuracy: Current accuracy + Voltage generation accuracy of external power supply
Testing voltage setting	0.1 V to 1000 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
Interface	GP-IB, RS-232C, EXT I/O
Power supply	SM7810: AC 100V/110 V, 50/60 Hz, 30 VA SM7810-20: AC 220 V, 50/60 Hz, 30 VA
Dimensions, mass	425W × 99H × 488D mm, 10.5kg
Accessories	Power cord (1), Voltage input connector (1), Fuse (1)(located in inlet), Rubber feet x4

OPTIONS

GP-IB CONNECTION CABLE (2 m)	9151-02
RS-232C CABLE (9pin-9pin, cross, 1.8m)	9637
RS-232C CABLE (9pin-25pin, cross, 1.8m)	9638

POWER SOURCE UNIT | SM7860 series



Models SM7810 series and the SM7860 series are not CE marked.

The Power source unit ideal for MLCC Leakage Current Measurement

- 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

The Power Source Unit SM7860 is produced to order. The SM7860 allows for setting the dual-line output voltage on 8 channels or 16 channels, and enables up to 32-channel output. Select a power source unit combining positive and negative power source (1 kV/500 V), discharge, and low-voltage power source (10 V) modules to build a power source ideal for the leakage current test system.

SPECIFICATIONS

Applicable model	Super MΩ HiTESTER SM7810 Object to which voltage is applied: MLCC (the Multilayer Ceramic Capacitor)
Generation accuracy	Output voltage accuracy: $\pm 2\%$ 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, consumption	SM7860-01 to -07: 100 V AC, SM7860-21 to -27: 220 V AC, 50/60 Hz, 860 VA
Dimensions, mass	425 mmW × 249 mmH × 581 mmD, 45 kg, (SM7860-07 / -27: 32 kg)
Supplied accessories	Power cable ×1, Voltage output connector ×4 (SM7860-01, 02, 21, 22 ×2)

Functions & Output channel configuration

SM7860-XX		-01 / -21	-02 / -22	-03 / -23	-04 / -24	-05 / -25	-06 / -26	-07 / -27
OUT1 to 4 output content	OUT1	+500V	+1kV	+500V	+1kV	+500V	+1kV	+10V
	OUT2			+500V	+1kV	discharge	discharge	+10V
	OUT3	-500V	-1kV	-500V	-1kV	-500V	-1kV	discharge
	OUT4			-500V	-1kV	discharge	discharge	discharge
Overview (Total number of channels and output voltage)		16 ch ± 500 V	16 ch ± 1000 V	32 ch ± 500 V	32 ch ± 1000 V	32 ch ± 500 V, discharge	32 ch ± 1000 V, discharge	32 ch 10 V, discharge
Line A	Number of OUT1 channels	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT1 output voltage range*1	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
	Number of OUT2 channels	--	--	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT2 output voltage range*1	--	--	1.0 V to 500.0 V	250.0 V to 1000.0 V	discharge	discharge	1.0 V to 10.0 V
	Current limitation	± 50 mA/ch	± 10 mA/ch	± 50 mA/ch	± 10 mA/ch	± 50 mA/ch	± 10 mA/ch	± 50 mA/ch
	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 (200 VA)
Line B	Number of OUT3 channels	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT3 output voltage range*1	-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
	Number of OUT4 channels	--	--	8 ch	8 ch	8 ch	8 ch	8 ch
	OUT4 output voltage range*1	--	--	-1.0 V to -500.0 V	-250.0 V to -1000.0 V	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
	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 (200 VA)

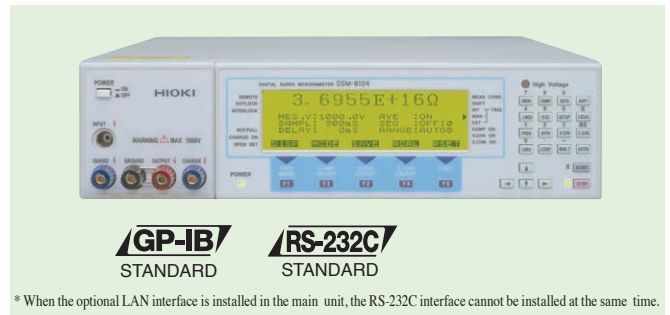
*1 The resolution of the output voltage range is 0.1 V.

*2 Only when the operating conditions as stated in the restriction warnings of the specifications are met.

DIGITAL ULTRA-INSULATION / MICRO AMMETER 1-CH | DSM-8104

- Measurement voltage : DC 0.1 to 1,000 V
Measurement range : 1×10^7 to $3 \times 10^{16}\Omega$
- Measures insulation resistance of capacity with high speed & high accuracy
- High resolution current measurements of 0.1 fA

SPECIFICATIONS	
Measurement range	
DC Measurement Capability	
Current Measurement	
	10 pA / \pm (3.0% of rdg+1.2% of range)
	100 pA / \pm (1.5% of rdg+0.6% of range)
	1 nA / \pm (0.6% of rdg+0.6% of range)
	10 nA / \pm (0.4% of rdg+0.5% of range)
	100 nA / \pm (0.4% of rdg+0.5% of range)
	1 μ A / \pm (0.4% of rdg+0.5% of range)
	10 μ A / \pm (0.4% of rdg+0.5% of range)
	100 μ A / \pm (0.4% of rdg+0.5% of range)
DC Current Measurement Range Name (Accuracy)	
Measurement Time:300ms	
Resistance Measurement Range	$1 \times 10^7 \sim 3 \times 10^{16}$
Measurement Time Setting	
Delay	0~9.999ms
Sampling Time	2~300ms
Voltage Generator	
Setting Voltage Accuracy and Resolution	
Setting Voltage Range	0.1 to 250.0V / \pm (0.1% of setting + 150mV)
Accuracy	251 to 1,000V / \pm (0.1% of setting + 400mV)
Current Limiter	
Setting Voltage Range	Current Limit Value
0.1 to 250.0V	5/10/50mA
251 to 1,000V	5/10mA



* When the optional LAN interface is installed in the main unit, the RS-232C interface cannot be installed at the same time.
Model DSM-8104 is not CE marked.

Measurement Check Function	
Voltage Monitor, Contact Check Function.	
Measurement Functions	Comparator Measurement, Deviation/Percentage Measurement, Surface/Volume Resistivity Measurement
Interface, EXT-I/O	GP-IB, RS-232C, Handler Interface
Power Supply	100V AC (115V, 220V, 240V factory option), \pm 10% at 50/60Hz Approx. 55VA
Dimension, mass	Approx. 332W \times 89H \times 450D mm Approx. 6.7kg
Accessories	Power cord (1) (Measurement leads must be purchased separately.)

OPTIONS		
Measurement lead	0GE00002	1m, red
	0GE00001	1m, black
Interlock Connection Cable	DSM8104F	1m
Rack Mount Adapter	DSM8104E	
Electrodes	: refer to P.36	

DIGITAL ULTRA-INSULATION / MICRO AMMETER 4-CH | DSM-8542

POWER SOURCE UNIT | PSU-8541

- 4-channel, high-speed measurement capability when combined with PSU-8541 dedicated power source unit sold separately
- System compatibility made easy by connecting charge terminal handler interface
- Measures insulation resistance of capacity with high speed & high accuracy



* When the optional LAN interface is installed in the main unit, the RS-232C interface cannot be installed at the same time.

SPECIFICATIONS DSM-8542	
Measurement Specification	4-ch same as DSM-8104 Specifications (with PSU-8541 dedicated power source unit sold separately)
SPECIFICATIONS PSU-8541	
Configuration	Voltage generator A (HIGH) 1 circuit 250V-150W, 1000V-120W Voltage generator B (LO) 1 circuit 10V-6W Current control Circuits (Measurement System) 4 circuits Current control Circuits (Charge System) 20 circuits
Voltage Generator (HIGH)	0.1V to 250.0V (\pm 0.1% of setting +150 mV) Max.600mA 251V to 1,000V (\pm 0.1% of setting +400 mV) Max.120mA
Voltage Generator (LO)	0.1V to 10.0V (\pm 0.1% of setting +150 mV) Max.600mA
Current limiter	0.1V to 250.0V (5/10/25/50mA) 251V to 1,000V (5mA)
Control	Control by the DSM-8542
Power Supply	100V AC \pm 10% at 50/60Hz Max. Approx. 350VA
Dimension, mass	Approx. 332W \times 178H \times 450D mm Approx. 28kg
Accessories	Power cord (1), DSM-8542 Connection Cable (2)

The DSM-8542 and the PSU-8541 are not CE-marked.

OPTIONS	
RACK MOUNT ADAPTER	LMA-PSU
Electrodes	: refer to P.36

SUPER MEGOHM METER | SM-8200 SERIES

- Measurement voltages : 5 – 1000V DC
- Digital/analog display on LCD (except SM-8216)
- Equipped with timer, remote starter, comparator & interlock function
- Compatible for measurement of several sample types of electrode & other devices



SPECIFICATIONS					
	SM-8213	SM-8215	SM-8220	SM-8216	
Measuring voltage & Measuring range	5V	2.5×10^3 to $1 \times 10^{10}\Omega$			
	10V	5×10^3 to $2 \times 10^{10}\Omega$		5×10^3 to $2 \times 10^{10}\Omega$	
	15V	7.5×10^3 to $3 \times 10^{10}\Omega$			
	25V	1.25×10^4 to $5 \times 10^{10}\Omega$		1.25×10^4 to $5 \times 10^{10}\Omega$	
	50V	2.5×10^4 to $1 \times 10^{11}\Omega$	2.5×10^4 to $1 \times 10^{11}\Omega$	2.5×10^4 to $1 \times 10^{11}\Omega$	2.5×10^4 to $1 \times 10^{11}\Omega$
	100V	5×10^4 to $2 \times 10^{11}\Omega$	5×10^4 to $2 \times 10^{11}\Omega$	5×10^4 to $2 \times 10^{11}\Omega$	5×10^4 to $1 \times 10^{12}\Omega$
	250V		1.25×10^5 to $5 \times 10^{11}\Omega$	1.25×10^5 to $5 \times 10^{11}\Omega$	1.25×10^5 to $5 \times 10^{11}\Omega$
500V		2.5×10^5 to $1 \times 10^{12}\Omega$	2.5×10^5 to $1 \times 10^{12}\Omega$	2.5×10^5 to $1 \times 10^{12}\Omega$	
1,000V		5×10^5 to $2 \times 10^{12}\Omega$	5×10^5 to $2 \times 10^{12}\Omega$	5×10^5 to $1 \times 10^{13}\Omega$	
Accuracy of measuring voltage	\pm 3% of setting voltage value				
Output current	Max. 50mA		Max. 2mA		
Measuring accuracy	\pm 10% (within 10 times range of min. value on each range at 20°C)				
Display	LCD (digital & analog display)				
Standard function	timer, comparator (alarm), remote start, HV-EN, RS-232C				
Power supply	100V, 120V, 220V, 240VAC \pm 10%, but max. 250VAC, 50/60Hz (approx.25VA)				
Dimensions, mass	approx.284W \times 139H \times 215D mm (approx.4.3kgs)				
Accessories	0GE00002 1m, red, 0GE00001 1m, black, Power cord (1)				

The SM-8200 Series are not CE-marked.

OPTIONS	
MEASURING LEAD (BLACK, mold type, 1m)	0GE00001
MEASURING LEAD (RED, mold type, 1m)	0GE00002
Electrodes	: refer to P.36

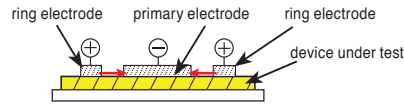
SURFACE/VOLUME RESISTANCE MEASUREMENT ELECTRODE SM-9001



- Electrodes compliant with the JIS C 2170 and IEC 61340-2-3 standards
- Measurement voltage up to 1,000 V, and measurement resistance up to $10^{13} \Omega$
- 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 antistatic flooring and molded products

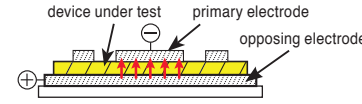
When used in combination with the DSM-8104 or SM-8220 super megohm meter, Measurement resistance range: 10^3 to $10^{13} \Omega$ (* When using the SM-8220: 5×10^4 to $10^{13} \Omega$)

Dimensions: $\phi 100 \times 223$ mm
Mass: 2.5 kg
Cord length: 1 m



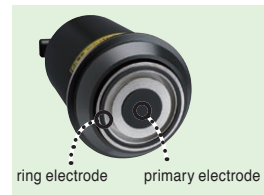
Surface resistance measurement

Test the surface resistance between the primary and ring electrodes on the upper surface



Volume resistance measurement

Test the volume resistance of the DUT sandwiched between the primary and opposing electrodes

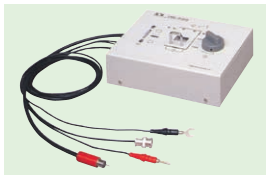


VERIFICATION FIXTURE FOR SURFACE RESISTANCE MEASUREMENT SM9002



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 CHIP CAPACITOR SME-8360



The electrodes on this fixture are for insulation resistance measurement of chip capacitors, and the fixture can be adjusted anywhere from 0 to 11 mm to measure a wide range of chip capacitors. When the fixture is connected with the interlock connection cable, measurement voltage is disabled when the lid is open.

Plugs need to be modified when used in combination with the SM-8200 series.

External Dimensions: Approx. 200 (W) \times 52 (H) \times 150 (D) mm, Lead Length: Approx. 85 cm, connects with special Hioki plug.

PLATE SAMPLE ELECTRODE SME-8310



The electrodes on this fixture are for measuring the characteristic resistivity of flat samples up to 100 mm square and 8 mm thick: the main electrode is 50 mm in diameter, and the guard electrode has 70 mm ID and 80 mm OD. When the fixture is connected with the interlock connection cable, measurement voltage is disabled when the lid is open. A side panel switch easily selects between volume and surface resistivity.

External Dimensions: Approx. 215 (W) \times 78 (H) \times 165 (D) mm, Lead Length: Approx. 75 cm, connects with special Hioki plug.

ELECTRODE FOR FLAT SAMPLE SME-8311



The electrodes on this fixture are for measuring characteristic resistivity of flat samples up to 40 \times 100 mm and 8 mm thick. The main electrode is 19.6 mm in diameter, and the guard electrode has 24.1 mm ID and 28.8 mm OD.

A side panel switch easily selects between volume and surface resistivity.

External Dimensions: Approx. 215 (W) \times 78 (H) \times 165 (D) mm, Lead Length: Approx. 75 cm, connects with special Hioki plug.

WEIGHT ELECTRODE SME-8320



These electrodes for flat samples are used in combination with the SME-8350 Shielded Enclosure. Easily measures surface and volume resistivity of even coarse surfaces such as carpet. The main electrode is 50 mm in diameter, and the guard electrode has 70 mm ID and 80 mm OD. The jig for concentric electrodes is included.

Accessories: Two banana-plug leads

Note: Illustrated with the SM-8350 shielded enclosure.

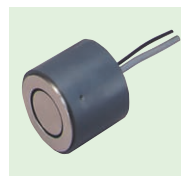
ELECTRODE FOR SURFACE RESISTANCE SME-8302



This two-electrode probe is suitable for surface resistivity measurement of curved surfaces such as molded resin and rubber products, and for small samples. Measures surface resistivity simply by pressing the probe tips on the sample. Electrode spacing is 10 mm, and measures up to $10^{10} \Omega$. (4 mm inter-electrode spacing)

External Dimensions: Approx. 40 mm OD \times 115 mm long, Lead Length: Approx. 1 m, connects with special Hioki plug.

SURFACE RESISTANCE MEASUREMENT ELECTRODE SME-8301



Measures surface resistivity simply by pressing the probe tips on the sample.

Primarily intended for use with the SM-8213, to measure surface resistivity of electrostatic-discharge-related samples. Measures up to $10^{10} \Omega$.

External Dimensions: Approx. 60 OD \times 50 mm long, Lead Length: Approx. 1 m, connects with special Hioki plug.

LIQUID SAMPLE ELECTRODE SME-8330



The electrodes for fluid samples are equipped with a guard. Capacity is 25 mL, capacitance between main and counter electrodes is approximately 45 pF, electrode constant is about 500 cm inter-electrode spacing is 1 mm, electrode OD is 36 mm and height is about 140 mm. Measures up to $10^{10} \Omega \text{cm}$ (@1,000 V) when combined with the SM-8220.

Accessories:

Connection cable, one each red and black, approx. 60 cm long

SHIELDING BOX SME-8350



This enclosure provides electromagnetic shielding when measuring samples with high insulation resistance or reactance.

When used with the SME-8320 Weight Electrodes, it provides the counter or guard electrode. When measuring electronic components such as capacitors and transformers, it shields against external noise and leakage current to provide stable measurements.

*When used with the DSM-8104, the optional DSM-8104F interlock connection cable is required.

External Dimensions: Approx. 250 (W) \times 100 (H) \times 200 (D) mm, Lead Length: Approx. 80 cm, with special Hioki plug. Accessorie: Rubber seat

STANDARD RESISTOR SR-2



This resistance box is designed for calibrating Hioki's series of ultra insulation testers. The construction ensures secure connection between the box and the tester. Maximum operating voltage is 1,000 V DC, and it provides 24 resistance values between 10 M Ω and 10,000 M Ω .

External Dimensions: Approx. 270 (W) \times 90 (H) \times 195 (D) mm

SIGNAL SOURCE | 7016

Incorporates high-performance DMM functions into a handy signal generator

- Convenient pulse source for calibrating flow meters, as well generation of constant current and constant voltage
- Bipolar sink/source generation expands test utility
- High resolution, high accuracy and advanced measurement functions
- Signal generator and measurement functions can be used simultaneously to measure input/output insulation



USB 1.1
OPTION

Model 7016 is not CE marked.

SPECIFICATIONS

DC constant voltage generation	±1.5000V, Accuracy: ±0.03% of setting ±3 dgt. ±15.000V, Accuracy: ±0.03% of setting ±3 dgt.
DC constant current generation	±25.000mA, Accuracy: ±0.03% of setting ±5dgt.
Pulse generation	0.5 to 4800Hz, Accuracy: ±0.005% of setting ±0.01 Hz
Measurement functions	DC voltage, AC voltage, AC+DC voltage, DC current, AC current, AC+DC current, Resistance, Diode test, Continuity test, Temperature, Frequency, Duty ratio, Pulse width
Voltage measurement	DC voltage, AC voltage, AC+DC voltage, 1 ms peak-hold voltage: ±51.000mV to ±250.00V, 5 ranges, (Represented DC V accuracy: ±0.03% rdg. ±5 dgt.)
Current measurement	DC current, AC current, AC+DC current, 1 ms peak-hold current: ±51.000mA to ±510.00mA, 2 ranges, (Represented DC A accuracy: ±0.03% rdg. ±5 dgt.)
Resistance measurement	510.00Ω to 51.000MΩ, 6 ranges, Basic accuracy: ±(0.15% rdg. ±5 dgt.)
Power supply	LR6 (AA) alkaline batteries ×8, Ni-MH batteries (bundled with standard) ×8, AC adapter (bundled with standard, SA-141A0F-11)
Dimensions, mass	90W × 192H × 54D mm, 735g (instrument only)
Accessories	Carrying case ×1, AC adapter* ×1, Ni-MH battery ×8, TEST LEAD ×1 set (for measurement), Test lead ×1 set (for generation), Yellow test lead ×1 (include 15V ZD), Instruction manual ×1, Operating guide ×1

*Note: Not CE marked

OPTIONS

COMMUNICATION PACKAGE(USB)	3856-02
SHEATH TYPE TEMPERATURE PROBE	9180
SURFACE TYPE TEMPERATURE PROBE	9181
SHEATH TYPE TEMPERATURE PROBE	9182
SHEATH TYPE TEMPERATURE PROBE(class1)	9183
SHEATH TYPE TEMPERATURE PROBE(class1)	9472
SHEATH TYPE TEMPERATURE PROBE(class1)	9473
SHEATH TYPE TEMPERATURE PROBE(class1)	9474
SHEATH TYPE TEMPERATURE PROBE(class1)	9475
SURFACE TYPE TEMPERATURE PROBE	9476
TEST LEAD (Lead length:1m/standard accessories) L9207-10	

DC SIGNAL SOURCE | SS7012

Generate and Measure Signals Simultaneously

- 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 testing and routine maintenance of production equipment such as calibrators
- Use the max. 25 mA DC sink as an electric load



CE

SPECIFICATIONS

[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, mass	104W × 180H × 58D mm, 570 g (excluding batteries)
Accessories	INPUT CORD 9168 (1), TEST LEAD L9170-10 (1), Fuse (1), LR6 (AA) (4)

OPTIONS

RJ SENSOR (for reference contact compensation)	9184
AC ADAPTER (EU)	9445-03
AC ADAPTER (US, Japan)	9445-02
CARRYING CASE	9380
CARRYING CASE	9782
COMMUNICATION PACKAGE	SS9000

LEAK CURRENT HiTESTER | ST5540 | ST5541

Leak Current Measurement - Essential to Electrical Safety

- IEC 60601-1: (2005) 3rd Edition-compliant (ST5540)
- Supports JIS/IEC/UL standards for testing medical devices and general electrical equipment
- Power On Polarity switching function increases tact time
- Supports rated currents of up to 20A to fully comply to rigorous standards
- Intuitive touch panel operation
- Communication protocols and external I/O interfaces are ideal for automated production lines



SPECIFICATIONS	
Measurement methods	<ul style="list-style-type: none"> • Measurement of voltage drop across body simulated resistance points • Calculation and display of current values from True rms measurement • Measurement unit floats relative to instrument ground
Measurement modes	Leak current measurement, voltage measurement, safety conductor current measurement
Standards compliance	<ul style="list-style-type: none"> • Medical electrical equipment: IEC 60601-1 (1988) + A2:1995, (2005, 3rd Edition), JIS T0601-1:1999 (ST5540 only) • Electrical Appliances and Materials Safety Act • Measurement of touch current and protective conductor current: IEC 60990 (1999) • Electrical equipment for measurement, control, and laboratory use: IEC 61010-1 (2001) • Information technology equipment: IEC 60950-1 (2005) • Household and similar appliances: IEC 60335-1 (2001) + A1:2004 + A2:2006 • Audio, video and similar electronic apparatus: IEC 60065 (2001) + A1:2005 • Personnel Protection Systems for EV: UL-2231-1 (2002), UL-2231-2 (2002) • UL: UL-1492 (1996) • Electrical equipment for measurement, control, and laboratory use; current measurement circuits in damp conditions: IEC 61010-1 (2001)
Measurement current	ST5540: 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) ST5541: 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 accuracy (current measurement)	<ul style="list-style-type: none"> • DC measurement: $\pm 2.0\%$ rdg. ± 6 dgt. (typ.) • AC / AC+DC measurement: $\pm 2.0\%$ rdg. ± 6 dgt. (15 Hz to 100 kHz, typ.) • AC peak measurement: $\pm 2.0\%$ rdg. ± 6 dgt. (15 Hz to 10 kHz, typ.)
Interfaces	External I/O, medical device relay output, USB 1.1 (for data communication), RS-232C
Functionality	Automatic test, data storage for 100 target devices, clock, data backup, printed output (optional), etc.
HiTESTER 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 240 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, mass	Approx. 320W x 110H x 253D mm, 4.5 kg
Accessories	TEST LEAD L2200 (1 set), TEST LEAD (red) (1), ENCLOSURE PROBE 9195(1), Power cord(3)(1 for instrument and 2 for measuring instrument line supply use), Spare fuse(1)(250 V F50mAL, measurement use)

OPTIONS

RS-232C CABLE (1.8 m) (9pin-9pin/Cross)	9637
RS-232C CABLE (1.8 m) (9pin-25pin/Cross)	9638
PRINTER	9442

AC GROUNDING HiTESTER | 3157-01

Protective ground tester indispensable for standards certification



SPECIFICATIONS	
Measurement items	Low resistance, AC 4-terminal method
Generator section	Current generator principle: PWM constant current control, Current setting range: 3.0A to 31.0A (0.1A resolution), into 0.1Ω load, Maximum output power: 130VA (at output terminals) Subject to derating according to ambient temperature (80% at 40°C) Frequency: 50Hz or 60Hz sine wave Soft start function: Apply current only after checking load connection
Monitor section	Resistance measurement: 0 to 1.800Ω (0.001Ω resolution), Accuracy: $\pm 2\%$ rdg. ± 4 dgt. (after zero-adjust), Current monitoring range: 0 to 35.0A AC (0.1A resolution), Monitoring cycle: 2 times/second
Other functions	Timer setting: Counts down time after start until preset time, or shows elapsed time after start, Setting range: 0.5 to 999 second, Comparator: Pass/Fail evaluation using preset upper/lower limit, I/O output, Memory function: max. 20 settings (with save/load)
Display	Fluorescent tube digital display
Power supply	100 to 120V, 200 to 240V AC (auto-switching), 50/60Hz
Dimensions, mass	320W x 90H x 263D mm, 7kg
Accessories	Power cord(1), Spare fuse(1), Shorting bar(2)

OPTIONS

SAFETY TEST DATA MANAGEMENT SOFTWARE	9267
CURRENT PROBE (1.5 m, alligator clip type)	9296
CURRENT APPLY PROBE (1.5 m, switch type)	9297

AC AUTOMATIC INSULATION / WITHSTANDING HiTESTER

3174

- Built-in contact check function for both withstanding voltage and insulation resistance
- 100VA capacity for withstanding voltage testing
- Accurate test voltage generation by PWM method
- Full remote operation
- Store up to 8 settings in memory



RS-232C STANDARD

SPECIFICATIONS	
[Withstanding voltage test]	
Output voltage	0.2 to 5.0kV AC, 100 VA
Voltage setting method	Digital setting, 0.01kV resolution
Waveform, Frequency	Sine wave (5% or less distortion with no load), 50/60Hz selectable
Measurement range	0.01mA to 20.0mA, True RMS
Voltage meter	True RMS, $\pm 1.5\%$ rdg. (1000V or higher), $\pm 15\%$ (1000V or lower)
Judgment method	Window comparator method
[Insulation resistance test]	
Testing voltage	500, 1000V DC
No load voltage	1 to 1.2 times than the testing voltage
Rated testing current	1 to 1.2mA, Short circuit current: 4 to 5mA (500V) / 2 to 3mA (1000V)
Measurement range and accuracy	0.5M Ω to 999M Ω (500V), 1M Ω to 999M Ω (1000V): $\pm 4\%$ rdg. 1000M Ω to 2000M Ω : $\pm 8\%$ rdg.
Judgment method	Window comparator method

[Timer]	
Range and accuracy	0.3 to 999s (0.3 to 99.9s: ± 50 ms, 100 to 999s: ± 0.5 s)
Delay/Ramp timer	0.1 to 99.9s (± 50 ms)
Interface	EXT I/O, EXT SW, RS-232C
Function	8 settings memory, Hold, Beeper, Contact check (withstanding voltage, insulation resistance)
Monitor function	Output voltage, Measured current, Insulation resistance
Power supply	100 to 240V AC (50/60Hz), 200VA max.
Dimensions, mass	320W x 155H x 395D mm, 15kg
Accessories	High Voltage Test Lead 9615 (1 each for HV and Return), Power cord (1)

OPTIONS

REMOTE CONTROL BOX (single)	9613	RS-232C CABLE	9638
REMOTE CONTROL BOX (dual)	9614	(Dsub 9pin-25pin, cross, 1.8m)	
SAFETY TEST DATA MANAGEMENT SOFTWARE	9267	GP-IB CONNECTOR CABLE (2m)	9151-02
RS-232C CABLE	9637		
		(Dsub 9pin-9pin, cross, 1.8m)	

DIGITAL M Ω HiTESTER 3154

For the laboratory to the production line, six test voltages from 25 to 1000V



RS-232C STANDARD

SPECIFICATIONS	
Measurement function	Insulation resistance (Applied DC voltage method)
Testing voltage	25, 50, 100, 250, 500, 1000 V DC
Measurement range	25 to 50 V: 2M Ω to 200 M Ω , 3 ranges 100 to 250 V: 2M Ω to 2000 M Ω , 4 ranges 500 to 1000 V: 2M Ω to 4000 M Ω , 4 ranges
Accuracy	$\pm 2\%$ rdg., ± 5 dgt. (at 25 to 100 V testing voltage, 0 to 20.00 M Ω) (at 250 V testing voltage, 0 to 100.0 M Ω) (at 500 to 1000 V testing voltage, 0 to 999 M Ω) $\pm 5\%$ rdg. (at 25 to 50V testing voltage, 19.0 to 200.0M Ω) (at 100V testing voltage, 19.0 to 2000M Ω) (at 250V testing voltage, 100.1 to 2000M Ω) (at 500 to 1000V testing voltage, 1000 to 4000M Ω)
Response times	Fast: less than 0.7 second, Slow: less than 1.5 seconds (at manual ranging)
Sampling rates	Fast: 10 samples/s, Slow: 1 sample/s
Functions	Comparator functions: judgments PASS or FAIL Test time timer functions: 0.5 to 99 second Delay time timer functions: 0.1 to 99 second
Display	LED
Power supply	100 to 240 V AC (50/60 Hz)
Dimensions and mass	215W x 61H x 213D mm, 1.1 kg
Accessories	Power cord (1)

OPTIONS

TEST PROBE	L9787
SWITCHED PROBE	9299
RS-232C CABLE (1.8 m) (9pin-9pin/Cross)	9637
RS-232C CABLE (1.8 m) (9pin-25pin/Cross)	9638
SAFETY TEST DATA MANAGEMENT SOFTWARE	9267
OUTPUT CORD	9094

AUTOMATIC INSULATION / WITHSTANDING HiTESTER

3153

Programmable testing, full remote control Automatic Insulation Withstanding Tester

- Insulation resistance test (DC50V~1200V), Withstanding voltage test (AC/DC5000V), full remote control in series
- Programmable testing (Testing Programs 32 files, Testing points 50 steps/file)
- Accurate testing voltage generation by PWM control method
- HIGH VOLTAGE SCANNER 3930 (Option)



SPECIFICATIONS

■ Withstanding test

Testing voltage	AC 0.2 to 5.00 kV 500 VA (maximum 30 minutes) DC 0.2 to 5.00 kV 50 VA (continuous)
Voltage setting method	Digital setting
Waveform	Sin wave
Frequency	50/60Hz DC
Measurement range	Current: 0.01 to 100.0 mA, ±(2% rdg. +5dgt.) 10 mA/100 mA(AC) AC (Average value rectified, RMS display)

■ Insulation test

Testing voltage	DC 50 to 1200 V
Measurement range	0.1 to 9999 MΩ, 4 ranges
Judgment function	Contents: UPPER-FAIL / PASS / LOWER-FAIL (Digital setting window comparator method)
Timer section	Setting range: 0.3 to 999 seconds
Interfaces	EXT I/O, EXT SW, RS-232C, GP-IB
Display	Fluorescent tube display (digital), Analog meter
Monitor function	Output voltage, detection current, Insulation resistance
Power Supply	AC100-120V/AC200-240V, (50/60 Hz), 1000VA max.
Dimension, mass	320W × 155H × 480D mm, 18 kg
Accessories	H.V. TEST LEAD (high voltage side and return, 1 each) 9615, Power cord (1), spare fuse (1)

OPTIONS

REMOTE CONTROL BOX (single)	9613
REMOTE CONTROL BOX (dual)	9614
HIGH VOLTAGE SCANNER	3930
SAFETY TEST DATA MANAGEMENT SOFTWARE	9267
RS-232C CABLE (Dsub 9pin-9pin, cross,1.8m)	9637
RS-232C CABLE (Dsub 9pin-25pin,cross,1.8m)	9638
GP-IB CONNECTOR CABLE (2m)	9151-02

INSULATION / WITHSTANDING HiTESTER 3159-02

Perform insulation resistance and withstand voltage testing in a single series

- Insulation resistance test (DC500V/1000V)
- Withstanding voltage test (AC5000V)
- Testing in series (Insulation resistance test to Withstanding voltage test)
- Standard Interfaces (EXT I/O, EXT SW, RS-232C, STATUS OUT)



SPECIFICATIONS

■ Withstanding test

Testing voltage	0 to 2.5 kV / 0 to 5.0 kV AC, dual-range configuration (Average value rectified, effective value display) 500 VA (maximum 30 minutes)
Voltage setting method	Manual adjusted transformer
Waveform	Same as the power supply waveform
Frequency	Same as the power supply frequency
Measurement range	Current: 0.01 to 120 mA, ±(3% f.s.+20μA) 2mA/8mA/32mA/120mA AC (Average value rectified, RMS display)

■ Insulation test

Testing voltage	DC500V/1000V
Measurement range	0.5 MΩ to 999 MΩ (500V), 1 MΩ to 2000 MΩ (1000V)
Judgment function	Contents: UPPER-FAIL / PASS / LOWER-FAIL (Digital setting window comparator method)
Timer section	Setting range: 0.5 to 999 seconds
Interfaces	EXT I/O, EXT SW, RS-232C
Display	Fluorescent tube display (digital), Analog meter
Monitor function	Output voltage, detection current, Insulation resistance
Power Supply	220 V AC, 50/60 Hz (3159-02)
Dimension, mass	320W × 155H × 330D mm, 18 kg~21.5kg
Accessories	H.V. TEST LEAD (high voltage side and return, 1 each) 9615, Power cord (1), spare fuse (1)

OPTIONS

REMOTE CONTROL BOX (single)	9613
REMOTE CONTROL BOX (dual)	9614
HIGH VOLTAGE SCANNER	3930
SAFETY TEST DATA MANAGEMENT SOFTWARE	9267
RS-232C CABLE (Dsub 9pin-9pin, cross,1.8m)	9637
RS-232C CABLE (Dsub 9pin-25pin,cross,1.8m)	9638
GP-IB CONNECTOR CABLE (2m)	9151-02

Environmental Measuring Instruments



Environmental Measuring Instruments Index

Temperature Illumination Sound level Rotation Magnetic Fields

 <p>3441/3442 -100 °C to 1300 °C Choose from Basic or Waterproof models p.44</p>	 <p>3423 Illumination 20 to 200,000 lx, digital p.44</p>	 <p>FT3432 Sound level meter 30 to 130 dB, digital p.44</p>	 <p>FT3405 500mm non-contact detection distance FT3406 Analog output and pulse output functions p.45</p>	 <p>3470-01, 3470-02 Magnetic field tester for home appliances -01: Including 3471 -02: Including 3471, 3472 p.45</p>
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Non-contact temperature measurement (via infrared radiation energy)

 <p>3419-20 -35°C to 500 °C One-beam laser marker, MAX/MIN indication, Data memory p.43</p>	 <p>3415-01, 3416-01 -50 °C to 500 °C 3415-01: Narrow field measurement Two-beam laser marker 3416-01: LED spot marker Spot measurement p.43</p>	 <p>3443 -50.0 °C to 500.0 °C Two-beam laser marker Narrow field measurement Data memory, Memory dump to printer, RS-232C interface p.43</p>	 <p>3444 -50.0 °C to 500.0 °C Two-beam laser marker Narrow field measurement MAX. MIN. indication, Analog output, RS-232C interface p.43</p>	 <p>3445 -50.0 °C to 500.0 °C Two-beam laser marker Spot measurement MAX. MIN. indication, Analog output, RS-232C interface p.43</p>
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Data Loggers (Temperature/Humidity/Instrumentation/DC-Voltage/AC-Current)











 <p>LR5011 1ch, Temperature -40 °C to 180 °C (with optional sensor) p.42</p>	 <p>LR5001 2 ch Temperature / Humidity -40 °C to 85 °C, 0 to 100 %rh (with LR9504 sensor) p.42</p>	 <p>LR5041 1ch, DC Voltage LR5041: ±50mV DC LR5042: ±5V DC LR5043: ±50V DC p.42</p>	 <p>LR5051 2 ch, AC current 1000 A rms AC (max.) (Sensor is sold separately) p.42</p>	 <p>LR5031 1 ch, Instrumentation ± 30mA p.42</p>
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Data Loggers (Data Collection and PC Communication)

 <p>LR5091 LR5092-20 Used with the LR5000 series Transfer data from LR5000s to the PC p.42</p>
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Data Loggers | LR5000 Series | CE

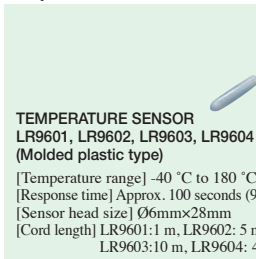
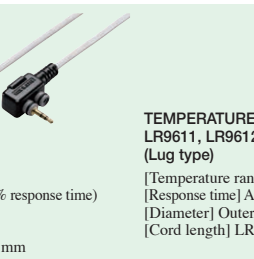


Complete Line of Easy-to-Use Compact Loggers with Expanded Memory

Temperature or Humidity measurement		Instrumentation Measurement	AC Current or Measurement	DC Voltage Measurement
TEMPERATURE LOGGER	HUMIDITY LOGGER	INSTRUMENTATION LOGGER	CLAMP LOGGER	VOLTAGE LOGGER
LR5011   <ul style="list-style-type: none"> 1 ch, Temperature recording -40 °C to 180 °C (with optional sensor) Minimum 1 sec interval 60000 data × 1ch memory Dry cell battery operation IP54 (splash-proof) <p>Accessories LR6 (AA) Alkaline battery 1.5V×1 Kickstand, Instruction manual ×1 Operation manual×1</p>	LR5001   <ul style="list-style-type: none"> 2 ch, Temperature / Humidity alternating recording -40 °C to 85 °C/0 to 100 %rh (with LR9504 sensor) Minimum 1 sec interval 60000 data × 2ch memory Dry cell battery operation IP54 (splash-proof) <p>Accessories HUMIDITY SENSOR LR9504×1 LR6 (AA) Alkaline battery 1.5V×1 Kickstand, Instruction manual ×1 Operation manual×1</p>	LR5031   <ul style="list-style-type: none"> 1 ch, ± 30mA recording Minimum 1 sec interval 60000 data × 1ch memory Dry cell battery operation IP54 (splash-proof) <p>Accessories CONNECTION CABLE LR9801×1 LR6 (AA) Alkaline battery 1.5V×1 Kickstand, Instruction manual ×1 Operation manual×1</p>	LR5051   <p>Sensor is sold separately</p> <ul style="list-style-type: none"> 2ch, AC current recording (with optional sensor) 1000 A rms AC (max.) Minimum 1 sec interval 60000 data × 2ch memory Dry cell battery operation <p><small>Note: 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.</small></p> <p>Accessories LR6 (AA) Alkaline battery 1.5V×2 Instruction manual ×1 Operation manual×1</p>	LR5041, 5042, 5043   <ul style="list-style-type: none"> 1ch, DC voltage recording LR5041: ± 50 mV DC LR5042: ± 5 V DC LR5043: ± 50 V DC Minimum 1 sec interval 60000 data × 1ch memory Dry cell battery operation IP54 (splash-proof) <p>Accessories CONNECTION CABLE LR9802×1 LR6 (AA) Alkaline battery 1.5V×1 Kickstand, Instruction manual ×1 Operation manual×1</p>

Common options

 <p>COMMUNICATION ADAPTER LR5091</p>	 <p>DATA COLLECTOR LR5092-20</p>	 <p>MAGNETIC STRAP Z5004</p>	 <p>WALL-MOUNTED HOLDER LR9901</p> <p><small>Not compatible with Model LR5051</small></p>
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Options for LR5011

 <p>TEMPERATURE SENSOR LR9601, LR9602, LR9603, LR9604 (Molded plastic type)</p> <p>[Temperature range] -40 °C to 180 °C [Response time] Approx. 100 seconds (90% response time) [Sensor head size] Ø6mm×28mm [Cord length] LR9601:1 m, LR9602: 5 m, LR9603:10 m, LR9604: 45 mm</p>	 <p>TEMPERATURE SENSOR LR9611, LR9612, LR9613 (Lug type)</p> <p>[Temperature range] -30 °C to 180 °C [Response time] Approx. 45 seconds (90% response time) [Diameter] Outer: 7mm (0.26in), Inner: 3.2mm (0.13in) [Cord length] LR9611:1 m, LR9612: 5 m, LR9613:10 m</p>	 <p>TEMPERATURE SENSOR LR9621 (Sheathed type)</p> <p>[Temperature range] -40 °C to 120 °C [Response time] Approx. 90 seconds (90% response time) [Sensor head size] Ø4mm×180mm [Cord length] 1 m</p>	 <p>TEMPERATURE SENSOR LR9631 (Needle type)</p> <p>[Temperature range] -40 °C to 120 °C [Response time] Approx. 20 seconds (90% response time) [Sensor head size] Ø1.3mm×25mm [Cord length] 1 m</p>
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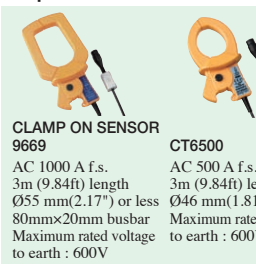
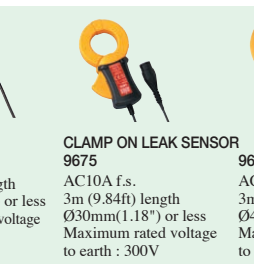

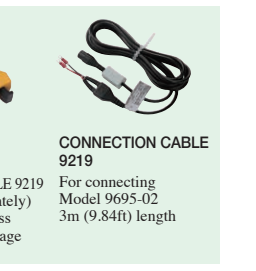

Options for LR5001



HUMIDITY SENSOR LR9501, LR9502, LR9503, LR9504

[Temperature range] -40 °C to 85 °C
[Humidity range] 0.0%rh to 100.0%rh
[Response time] Approx. 300 seconds
[Sensor head size] 13 mm×30 mm
[Cord length] LR9601:1 m, LR9602: 5 m, LR9603:10 m, LR9604: 45 mm

Options for LR5051

 <p>CLAMP ON SENSOR 9669</p> <p>AC 1000 A f.s. 3m (9.84ft) length Ø55 mm(2.17") or less 80mm×20mm busbar Maximum rated voltage to earth : 600V</p>	 <p>CT6500</p> <p>AC 500 A f.s. 3m (9.84ft) length Ø46 mm(1.81") or less Maximum rated voltage to earth : 600V</p>	 <p>CLAMP ON LEAK SENSOR 9675</p> <p>AC10A f.s. 3m (9.84ft) length Ø30mm(1.18") or less Maximum rated voltage to earth : 300V</p>	 <p>9657-10</p> <p>AC30A f.s. 3m (9.84ft) length Ø40mm(1.57") or less Maximum rated voltage to earth : 300V</p>	 <p>9695-02</p> <p>AC 50 A f.s. CONNECTION CABLE 9219 required (sold separately) Ø15mm(0.59") or less Maximum rated voltage to earth : 300V</p>	<p>CONNECTION CABLE 9219</p> <p>For connecting Model 9695-02 3m (9.84ft) length</p>
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COMMUNICATION ADAPTER | LR5091 | DATA COLLECTOR | LR5092-20

Transfer Data from a LR5000 Series Data Logger to a PC

- Transfer data from a data logger to a PC
- Transfer data logger configurations or clock settings from a PC to the data logger
- Collect recorded data from the data logger to internal memory or SD card (LR5092-20)

LR5091   <p>LR5091</p>	LR5092-20   <p>LR5092-20</p>
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SPECIFICATIONS	LR5091	LR5092-20
	Interface with Data Logger	Infrared optical communications
Interface with PC	USB2.0, Full Speed, Series Mini B Receptacle	
Display	-	Dot-matrix LCD (128 × 64 dots)
Display items	-	Data Logger configurations Collected data
Internal memory capacity of data	-	60,000 data elements ×16ch (instantaneous value mode) 15,000 data elements ×16ch (statistical value mode)
Removable storage media	-	SD Card (SDHC, Max 32GB) Save data and configurations
Power supply	USB bus power	LR6 (AA) Alkaline battery 1.5V×2 USB bus power
Battery life	-	Approx. 12 hours or 500 times of data collection
Dimensions & Mass	83mmW×61mmH×19mmD 43g	91mmW×141mmH×31mmD, 215g (excluding batteries)
Accessories	USB cable (1m) ×1 CD (Application software "LR5000 Utility") ×1	Instruction manual ×1 Operation manual ×1 LR6 (AA) Alkaline battery 1.5V × 2 USB cable(1m) × 1, CD (Application software "LR5000 Utility") ×1

INFRARED THERMO HiTESTER 3419-20

Gun-shaped design with easy-to-see display

- Hand-held infrared thermometer for hard-to-reach places
- Easy battery replacement
- Switchable between Celsius or Fahrenheit
- Audible Alarm Feature

SPECIFICATIONS	
Detection element	Thermopile
Measurement temperature range	-35.0 to 500.0 °C (-31.0 to 932.0 °F)
Display resolution	0.1 °C (0.2 °F)
Response time	2 times/ second
Measurement wavelength	6 to 14 μm
Adjustable emissivity	0.17 to 1.00 by steps of 0.01
Diameter of field of measurement	125 mm at 1000 mm (D : S=8 : 1)
Sighting	Laser marker MAX 1 mW (class 2)
Power supply	6F22 manganese battery × 1 or 6LR61 alkaline battery × 1
Continuous operating time	Approx. 55 hours (manganese battery), Approx. 80 hours (alkaline battery), When laser marker and backlight are OFF
Accuracy	-35.0 to -0.1°C: ±10 % rdg, ±2 °C 0.0 to 100°C: ±2 °C, 100.1 to 500.0°C: ±2 % rdg.
Temperature coefficient	Measurement accuracy × 0.1/ °C
Dimensions	Approx. 46 W × 172 H × 118 D mm (1.81" W × 6.77" H × 4.65" D)(excluding projections)
Mass	Approx. 220 g (7.8 oz.) (including manganese battery × 1)
Location for use	Indoors, altitude up to 2000 m (6562-ft.)
Operating temperature and humidity	0 to 50°C (32°F to 122°F), 80%RH or less (non-condensating)
Storage temperature and humidity	-10 to 50°C (14°F to 122°F), 80%RH or less (non-condensating) 50 to 60°C (122°F to 140°F), 70%RH or less (non-condensating)
Applicable standards	EN61326
Laser	IEC60825-1 CLASS 2 LASER
MAX/MIN display	Available
Additional Function	Alarm function, Backlight function, Memory (50 data)
Accessories	Instruction manual, 6F22 manganese battery × 1 (supplied with this product for monitor), Carrying case × 1



OPTIONS

Black body tape (50 mm × 10 m, 1 roll) Withstands 180 °C, ε=0.95

TEMPERATURE HiTESTER

3443 | 3444 | 3445

Non-contact measurement, quick and easy temperature management



3443 : SPECIFICATIONS

Measurement range	-50.0°C to 500.0°C, 0.1°C resolution
Measurement field diameter	φ24mm at a distance of 1 m
Accuracy	±1 % rdg. (at 200.1 to 500.0 °C), ±2°C (at 0.0 to 200.0 °C), ±10 % rdg, ±2°C (at -50.0 to -0.1 °C)
Response time	1.6 seconds (95% response)
Date memory function	130 points of data, memory dump to printer
Analog output function	None
Interface	RS-232C output (requires INTERFACE PACK 3909)
Other functions	Auto power save, low battery warning, auto-hold
Power supply	6F22 × 1, or AC adapter
Operating time	Continuous use of 20 hours (light on) and 50 hours (light off)
Dimensions, mass	47W × 200H × 48D mm, 280 g
Accessories	Carrying case (1), hand strap (1), 6F22 (1), screwdriver (1)

3444, 3445 : SPECIFICATIONS

Measurement range	-50.0°C to 500.0°C, 0.1°C, 0.1 or 1°C resolution switchable
Measurement field diameter	3444 : φ24mm at a distance of 1 m 3445 : φ2.5mm at a distance of 73 mm
Accuracy	±1 % rdg. (at 200.1 to 500.0 °C), ±2°C (at 0.0 to 200.0 °C), ±10 % rdg, ±2°C (at -50.0 to -0.1 °C)
Response time	1.6 sec (95% at 0.1°C resolution), 0.7 sec (95% at 1°C resolution)
Date memory function	None
Analog output function	Possible (requires INTERFACE PACK 3909)
Interface	RS-232C output (requires INTERFACE PACK 3909)
Other functions	Auto power save, low battery warning
Power supply	6F22 × 1, or AC adapter
Operating time	Continuous use of 20 hours (light on) and 50 hours (light off)
Dimensions, mass	47W × 200H × 48D mm, 280 g
Accessories	Carrying case (1), hand strap (1), 6F22 (1), screwdriver (1)

OPTIONS

INTERFACE PACK 3909

Black body tape (50 mm × 10 m, 1 roll) Withstands 180 °C, ε=0.95

Note: The connection cable (for 3909 to Computer) is not supplied. Computer (3909 output) connector: D-sub 9 pin

TEMPERATURE HiTESTER

3441 | 3442



Supports temperature management demands of various applications

- Compact and weighing only 160g
- More than 200 hours of continuous operation on a single battery
- An assortment of 9 optional temperature sensors
- 3442 : Waterproof construction

SPECIFICATIONS

Material type	K type thermocouple (Chromel /Alumel)
Measurement range	-100 °C to 1300 °C (-148 °F to 2372 °F) The actual measurement range is restricted by the temperature probe.
Resolution	0.1 °C*1 or 1 °C*2
Unit Accuracy	±0.1%rdg. ±0.8 °C (1.5 °F)*1 or ±0.2% rdg. ±1 °C (1.8 °F)*2 (in addition to accuracy of temperature sensor) *1 during measurement from -100 to 199.9 °C (-148 °F to 392 °F) *2 during measurement from 200 to 1300 °C (392 °F to 2372 °F)
Display	LCD
Sampling rate	2 times/second
Contact compensation	Auto compensation
Functions	Max/Min temperature recording and display, display data hold, sensor discontinuity display, Over-range display, °C/ °F display switching (3441-02), auto power save, low battery warning
Place of use	Indoor use to altitude of 2000 m
Power supply	R6P (AA) × 4, or LR6 (AA) × 4
Operating time	200 hours or better of continuous use (with manganese battery)
Dimensions, mass	74W × 155H × 24D mm, 160 g
Accessories	Strap band(1), R6P(AA) Batteries(4)

Temperature sensors sold separately



3441

3442
(Waterproof construction)

LUX HiTESTER | 3423

Digital illumination meter, maximum scale of 199,900 lx

- Easy-to-operate, hand-held unit
- From the low light up to a maximum intensity of 199,900lx
- For illumination equipment, lighting work, and facility management

SPECIFICATIONS

Measurement range	20 to 200,000 lx full-scale, 5 ranges
Accuracy	±4 % rdg. ±1 dgt. (environment temperature: 23 ±5 °C)
Display	1999 full digits, LCD with EL backlight (Note: in the 20,000 lx range, the maximum is 19990/10 digits steps, and in the 200,000 lx range, the maximum is 199900/100 digits steps)
Response time	5 sec. or less (auto range), 2 sec. or less (manual range)
Receptor element	Silicon photodiode
Other functions	Sensor separate: Permits remote measurement with the sensor separated from the main unit. (using the 9436) Analog output: 200 mV DC at full scale rate
Power supply	R6P (AA) × 2 (Continuous use of 25 hours) or AC adapter (6 V, 300 mA)
Dimensions, mass	74W × 170H × 30D mm, 310 g (including the dry cells)
Accessories	CARRYING CASE 9376(1), Sensor cap(1), R6P(2)



SOUND LEVEL METER | FT3432

The ideal noise pollution management device for users aiming to create a comfortable working environment - perfect for school and factory use.

- Single-handed testing
- Auto-ranging and easy operation using only 3 buttons

SPECIFICATIONS

Processing type	Sound level (Lp), Equivalent continuous sound level (Leq), Sound exposure level (LE), Maximum Sound level (Lmax), C weighting peak sound level (LCpeak)
Measurement times	1 minute, 5 minutes, 10 minutes, or 1hour
Microphone	1/2-inch electret condenser microphone, Model: UC-52
Measurement level range	(Wide range) A weighting: 30 dB to 130 dB, C weighting: 36 dB to 130 dB
Inherent noise level	(Wide range) A weighting: 24 dB or less, C weighting: 30 dB or less
Measurement frequency range	20 Hz to 8 kHz
Power supply	LR03 or R03 (AAA) × 2
Dimensions and Mass	Approx. 120 mm(H)×63 mm(W)×23.5 mm(D), 105g
Accessories	Windscreen WS-14(1), Hand strap VM-63-017(1), Windscreen fall out prevention rubber NL-27-014(1), Silicon cover NL-27-026(1), Carrying Case 9757(1), Size AAA(IEC LR03) alkaline batteries(2)



IEC 61672-1:2002 Class 2

TACHO HITESTER FT3405 FT3406

Rugged design and optimal functionality

- Convenient analog and pulse output functions
- Optional AC Adapter power supply
- Non-contact detection distance of 500mm ensures safety for the user
- Dustproof 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

SPECIFICATIONS	
Measurement ranges Non-contact, AVG=ON	[r/min] (30.00 to 199.99) to (20000 to 99990)
	[r/s] (0.5000 to 1.9999) to (200.0 to 1600.0)
	[cycle (ms)] (0.6000 to 1.9999) to (200.0 to 1999.9)
	[count] 0 to 999999
Measurement ranges Contact, AVG=ON	[r/min] (15.00 to 199.99) to (2000 to 19999)
	[r/s] (0.2500 to 1.9999) to (200.0 to 333.00)
	[cycle (ms)] (3.000 to 19.999) to (200.0 to 3999.9)
	[count] 0 to 999999
Sampling period	[cycle (m/min)] (1.500 to 19.999) to (200.0 to 1999.9)
	[cycle (ms)] (0.0250 to 1.9999) to (20.00 to 33.30)
	0.5 second to 2 seconds
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)
Detection range	Period measurement only: ±0.5 % rdg. is added to above-mentioned accuracy
Dustproof and waterproof	50 mm to 500 mm
Functions	IP50 (EN60529)
Functions (FT3406 only)	MAX/MIN display, Display hold, Average, Drop proof etc.
Power Supply	Analog output, Pulse output, Use with the AC adapter possible
Dimensions, Mass	LR6 alkaline battery × 2 (continuous use of 30 hours (FT3405) or 25 hours (FT3406)) or AC ADAPTER Z1004 (FT3406 only)
Accessories	71W × 186H × 38D mm, 230 g
	REFLECTIVE TAPE 9211(1Sheet), Carrying case(1)
	OUTPUT CORD 9094 (FT3406 only)



OPTIONS

REFLECTIVE TAPE (30 pieces/sheet, 10 sheets/1set, 12 mm × 12 mm/1 piece size)	9211
CONTACT ADAPTER SET (include 9032 × 1, 9033 × 2, 9212 × 1)	Z5003
METAL CONTACT TIP	9032
RUBBER CONTACT TIP	9033
PERIPHERAL RING	9212
AC ADAPTER	Z1004

MAGNETIC FIELD HITESTER 3470

MAGNETIC FIELD SENSOR 3471 3472

Test the magnetic field effect of home appliances against human exposure (for IEC62233, ICNIRP)

- Time domain evaluation complying with IEC 62233 magnetic flux measurements to gauge human exposure to electromagnetic fields.
- Choose from two magnetic field sensors: 100 cm² and 3 cm².
- Bundled with PC application offering RMS logging, batch export and tester setup functions.

3470 SPECIFICATIONS	
Magnetic flux density (Band)	10 Hz to 400 kHz / 10Hz to 2 kHz / 2kHz to 400 kHz
Exposure level	General Public/Occupational
Measurement ranges	Magnetic flux density : 2.000μT/ 20.00μT/200.0μT/2.000mT Exposure level : 20.00%/200.0%/2000%
Display	Indicated axis (x,y,z,R) / Magnetic flux density / Exposure level (LCD Display)
Accuracy (with a 3471 or 3472)	±3.5%rdg. ±0.5%f.s.
Output	200 mV/f.s.(for single axis of each range) 3-axis waveform output, resultant RMS output
Interface	USB ver.1.1
Power supply	Four LR6 alkaline battery 1.5V (Battery life : Approx. 10 hours) Or AC Adapter 9445-02, AC Adapter 9445-03
Dimensions, mass	100 W × 150 H × 42 D mm, 870 g (batteries included)
Accessories	CD (PC application software) , USB cable (1), LR6 alkaline battery (4) Carrying Case (1)

3471 SPECIFICATIONS	
Sensor cross-sectional area	100 cm ²
Rated magnetic flux density	2 mT at a single axis (Derating characteristics dependent on frequency)
Frequency characteristics	10 Hz to 400 kHz
Measured axes	x, y, z
External dimensions	Approx. φ122 × 295 (L) mm
Weight	Approx. 220 g

(for IEC 62233, EN 50366)

3472 SPECIFICATIONS	
Sensor cross-sectional area	3 cm ²
Rated magnetic flux density	2 mT at a single axis (Derating characteristics dependent on frequency)
Frequency characteristics	10 Hz to 400 kHz
Measured axes	x, y, z
External dimensions	Approx. φ27 × 165 (L) mm
Weight	Approx. 105 g



■ 3470-01 Package:

MAGNETIC FIELD HITESTER	3470 × 1
MAGNETIC FIELD SENSOR (3-axis, 100cm ² sensor)	3471 × 1
AC Adapter	9445-02 or -03 × 1

■ 3470-02 Package:

MAGNETIC FIELD HITESTER	3470 × 1
MAGNETIC FIELD SENSOR (3-axis, 100cm ² sensor)	3471 × 1
MAGNETIC FIELD SENSOR (3-axis, 3cm ² sensor)	3472 × 1
AC Adapter	9445-02 or -03 × 1
Extension Cable	9758 × 1
Output Cable	9759 × 1

Clamp Sensors



Clamp Sensors Index

For Oscilloscope/ MEMORY HiCORDERs,
DC to 100MHz wide-band for observing waveforms

For monitoring load current levels and observing waveforms
with the MEMORY HiCORDERs (50/60Hz use)

 3273-50/3276 DC to 50 MHz / DC to 100 MHz 30 A maximum 0.1 V / A output φ 5 mm core jaw dia. p.47	 3274 DC to 10 MHz 150 A maximum 0.01 V / A output φ 20 mm core jaw dia. p.47	 3275 DC to 2 MHz 500 A maximum 0.01 V / A output φ 20 mm core jaw dia. p.47	 3272/3269 Power supply for 3273-50, 3274, 3275, 3276 Single sensor (3272) Four sensors (3269) p.47	 9010-50 40Hz to 1kHz AC 10A to 500A range AC 0.2V/range output φ46mm(1.81in) dia. p.48	 9132-50 40Hz to 1kHz AC 20A to 1000A range AC 0.2V/ range output φ55mm(2.17in) dia. p.48	 9018-50 40Hz to 3kHz 10A to 500A range 200mV / each A range φ46 mm core jaw dia. p.48
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Wide-band/high-precision measurement for Power Meters and observing current waveforms

 CT6862 DC to 1 MHz, 50 A rated 2 V / 50 A output φ24 mm core jaw dia. CT6863 DC to 500 kHz, 200 A rated 2 V / 200 A output φ24 mm core jaw dia. p.48	 9709 DC to 100 kHz 500 A rated 2 V / 500 A output φ36 mm core jaw dia. p.48	 CT6865 DC to 20 kHz 1000 A rated 2 V / 1000 A output φ36 mm core jaw dia. p.48	 9277 200 A rated 2 V / 200 A output 9278 20 A rated 2 V / 20 A output DC to 100 kHz φ20 mm core jaw dia. p.48	 9279 DC to 20 kHz 500 A rated 2 V / 500 A output φ40 mm core jaw dia. p.48	 9272-10 1 Hz to 100 kHz 20 or 200 A rated 2 V / 20 or 200 A output φ46 mm core jaw dia. p.48	 9555-10 Power supply for 9272-10, 9277, 9278, 9279, 9709, CT6862, CT6863 Single sensor connectable p.48
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For current input to be used with Power Meter (3169), Power Quality Analyzer (PW3198, 3197)
For observing waveforms with the MEMORY HiCORDERs

 9695-02 9695-02 AC 50A, 10 mV/A less than φ15mm p.49	 9695-03 9695-03 AC 100A, 1 mV/A less than φ15mm p.49	 9669 40Hz to 1kHz (2.0%) AC current up to 1000 A AC 0.5mV / A output p.49	 9667 10Hz to 20kHz (±3dB) AC current up to 5000/ 500A, AC 0.1mV / A, AC 1mV / A output p.49	 9661 40Hz to 5kHz (±1%) AC current up to 500A AC 1mV / A output p.49	 9660 40Hz to 5kHz (±1%) AC current up to 100A AC 1mV / A output p.49	 9694 45Hz to 5kHz (±1%) AC current up to 5A AC 10mV / A output p.49
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To be used with the
PW3198, 3197

For monitoring load current levels, to be used with the
MICRO HiCORDERs 8205-10/8206-10 only

Conversion Adapter

 9657-10 LEAK CLAMP ON SENSOR 40Hz to 5kHz AC 10A rated input AC 100mV/A output φ30mm(1.18in) dia. p.49	 9675 LEAK CLAMP ON SENSOR 40Hz to 5kHz AC 10A rated input AC 100mV/A output φ40mm(1.57in) dia. p.49	 9668 40Hz to 1kHz (±3%) AC current up to 1000A Secondary current 1000mA AC p.49	 9651 40Hz to 1kHz (±3%) AC current up to 500A Secondary current 500mA AC p.49	 9650 40Hz to 1kHz (±8%) AC current up to 100A Secondary current 100mA AC p.49	 9290-10 AC current up to 1500 A, secondary current 1/10 of primary, φ55 mm dia. or 88 mm width Superior phase angle characteristics p.49	 CT-101A AC current up to 15 A, secondary current 1/1 or 10 times of primary, φ25 mm dia. Not CE marked Scheduled to be discontinued
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CLAMP ON PROBE | 3273-50 | 3274 | 3275 | 3276

POWER SUPPLY | 3269/3272

Wide-range current probe allows direct input to oscilloscope

- 3273-50/3276: Wide Band from DC to 50/100 MHz, For small Current Measurements (30 A rms)
- 3274/3275: Wide Band from DC to 10/2 MHz, For Large Current Measurements (150/500 A rms)



CE
 3274, 3275
 CAT III 300 V
 CAT II 600 V
 3273-50, 3276
 CAT I 300 V

Insulated conductor

CLAMP ON PROBE : 3276
 Wide-band model from DC to 100 MHz

SPECIFICATIONS

	3273-50	3276	3274	3275
Frequency bandwidth	DC to 50 MHz (-3dB)	DC to 100 MHz (-3dB)	DC to 10 MHz (-3dB)	DC to 2 MHz (-3dB)
Rise time	7 ns or less	3.5 ns or less	35 ns or less	175 ns or less
Continuous maximum input range	30 A rms	30 A rms	150 A rms	500 A rms
Maximum peak current	Non-continuous 50 A peak	Non-continuous 50 A peak	Non-continuous 300 A peak 500 A peak at pulse width of ≤ 30 μs	Non-continuous 700 A peak
Output voltage rate	0.1 V/A	0.1 V/A	0.01 V/A	0.01 V/A
Amplitude accuracy	±1.0 % rdg. ±1 mV (0 to 30 A, DC, 45 to 66 Hz) ±2.0 % rdg. (30 A to 50 A Peak, DC, 45 to 66 Hz)	±1.0 % rdg. ±1 mV (0 to 30 A, DC, 45 to 66 Hz) ±2.0 % rdg. (30 A to 50 A Peak, DC, 45 to 66 Hz)	±1.0 % rdg. ±1 mV (0 to 150 A / DC, 45 to 66 Hz) ±2.0 % rdg. (150 A to 300 A peak / DC, 45 to 66 Hz)	±1.0 % rdg. ±5 mV (0 to 500 A / DC, 45 to 66 Hz) ±2.0 % rdg. (500 A to 700 A peak / DC, 45 to 66 Hz)
Noise	2.5 mA rms or less (measured with 20 MHz bandwidth equipment)	2.5 mA rms or less (measured with 20 MHz bandwidth equipment)	25 mA rms or less (measured with 20 MHz bandwidth equipment)	25 mA rms or less (measured with 20 MHz bandwidth equipment)
Sensitivity temperature characteristics	Within ±2 % (At 50 Hz / 30 A input, 0 to 40 °C)	Within ±2 % (At 50 Hz / 30 A input 0 to 40 °C)	Within ±2 % (At 55 Hz/150 A input, 0 to 40 °C)	Within ±2 % (At 50 Hz/500 A input, 0 to 40 °C)
Maximum rated	5.6 VA	5.3 VA	5.5 VA (Input within the maximum input range.)	7.2 VA (Input within the maximum input range.)
Power supply voltage	±12 V ±0.5 V	±12 V ±0.5 V	±12 V ±1 V	±12 V ±0.5 V
Ambient conditions for usage	0 to 40 °C, max. 80 % rh (no condensation)	0 to 40 °C, max. 80 % rh (no condensation)	0 to 40 °C, max. 80 % rh (no condensation)	0 to 40 °C, max. 80 % rh (no condensation)
External magnetic field resistance	Max. 20 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)	Max. 5 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)	Max. 150 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)	Max. 800 mA (equivalent) (DC and 60 Hz, Magnetic field of 400 A/m)
Maximum voltage in measurement circuit	300 V, CAT I (insulated conductor)	300 V, CAT I (insulated conductor)	600 V CAT II, 300 V CAT III (insulated conductor)	600 V CAT II, 300 V CAT III (insulated conductor)
Measurement conductor	Diameter max. 5 mm	Diameter max. 5 mm	Diameter max. 20 mm	Diameter max. 20 mm
Dimensions and mass	Sensor: approx. 175W × 18H × 40D mm; 230g Termination unit: approx. 27W × 55H × 18D mm	Sensor: approx. 175W × 18H × 40D mm; 240g Termination unit: approx. 27W × 55H × 18D mm	Sensor: approx. 176W × 69H × 27D mm; 500g Termination unit: approx. 27W × 55H × 18D mm	Sensor: approx. 176W × 69H × 27D mm; 520 g Termination unit: approx. 27W × 55H × 18D mm
Cable length	Sensor cable: approx. 1.5 m (BNC connector) Power cable: approx. 1 m	Sensor cable: approx. 1.5 m (BNC connector) Power cable: approx. 1 m	Sensor cable: approx. 2 m (BNC connector) Power cable: approx. 1 m	Sensor cable: approx. 2 m (BNC connector) Power cable: approx. 1 m
Supplied accessories	Soft case (1)	Hard case 1	Hard case (1)	Hard case (1)

● Optional accessories

POWER SUPPLY 3269/3272 **CE**

Please specify voltage when ordering for use with 120 V, 220 V, or 240 V.

Use the Power Supply 3269/3272 for general measurements or when power is not available from the MEMORY HiCORDER or oscilloscope.



3269
(Four sensors)

3272
(Single sensor)

CLAMP ON PROBE 3273-50, 3274, 3275, 3276

3269/3272 SPECIFICATIONS

Suitable sensor model	CLAMP ON PROBE 3273-50, 3274, 3275, 3276
Number of power supply connectors	1 (3272), 4 (3269) (connector type: LEMO inc./ FFA..0S.304.CNAC42Z)
Output voltage	±12 V ±0.5 V
Ambient conditions for usage	0 to 40 °C, max. 80 %rh (no condensation)
Power requirements	Please specify voltage when ordering 3272 for use with 120 V, 220 V, or 240 V.
Maximum rated power consumption	20 VA max. (3272) 170 VA max. (3269)
Dimensions and mass	Approx. 73W × 110H × 186D mm; 1.1 kg (3272) Approx. 80W × 119H × 200D mm; 1.1 kg (3269)
Supplied accessories	Power cord × 1, spare fuse × 1 (3272)

UNIVERSAL CLAMP ON CT | 9277 | 9278 | 9279

High-precision sensors to view waveforms or to use with power meters (for AC/DC)

- Wide frequency ranges including DC
- Use together with the SENSOR UNIT 9555-10 for current waveform monitoring (with a waveform recorder or oscillograph)



CE

9277, 9278
CAT III 300 V
CAT II 600 V

9279
(Not CE marked)

9278

9277

SPECIFICATIONS

	9277	9278	9279 (Not CE marked)
Rated current	20 A AC/DC (continuous 50 A)	200 A AC/DC (continuous 350 A)	500 A AC/DC (continuous 650 A)
Frequency band width	DC to 100 kHz ($\pm 5\%$ f.s.)	DC to 100 kHz ($\pm 5\%$ f.s.)	DC to 20 kHz ($\pm 5\%$ f.s.)
Accuracy (DC or 45 to 66 Hz)	$\pm 0.5\%$ rdg. $\pm 0.05\%$ f.s., phase $\pm 0.2^\circ$	$\pm 0.5\%$ rdg. $\pm 0.05\%$ f.s., phase $\pm 0.2^\circ$	$\pm 0.5\%$ rdg. $\pm 0.05\%$ f.s., phase $\pm 0.2^\circ$
Output rate (with the 9555)	2 V/rated current range (waveform output, with the 9555-10)	2 V/rated current range (waveform output, with the 9555-10)	2 V/rated current range (waveform output, with the 9555-10)
Max. circuit voltage	CAT II 600 V, CAT III 300 V	CAT II 600 V, CAT III 300 V	AC 600 V rms (850 V peak, insulated wire)
Core jaw dia.	$\phi 20$ mm	$\phi 20$ mm	$\phi 40$ mm
Power supply	SENSOR UNIT 9555-10 or compatible HIOKI power meter	SENSOR UNIT 9555-10 or compatible HIOKI power meter	SENSOR UNIT 9555-10 or compatible HIOKI power meter
Dimensions, mass	176W \times 63H \times 34D mm, 430 g, cord length: 3 m	176W \times 63H \times 34D mm, 430 g, cord length: 3 m	220W \times 103H \times 43.5D mm, 860 g, cord length: 3 m
Accessories	CARRYING CASE 9375 (1)	CARRYING CASE 9375 (1)	CARRYING CASE 9375 (1)

AC/DC CURRENT SENSOR | 9709 | CT6862 | CT6863 | CT6865

Measure with Absolute Precision

- High current measurement
- Wide frequency range: DC to 100kHz (9709), DC to 1MHz (CT6862), DC to 500kHz (CT6863), DC to 20kHz (CT6865)

CE
CAT III 1000 V



CT6862

CT6863

9709

CT6865

SPECIFICATIONS

	CT6862	CT6863	9709	CT6865
Rated current	50A AC/DC	200A AC/DC	500A AC/DC	1000A AC/DC
Output voltage	2V/50A	2V/200A	2V/500A	2V/1000A
Max. allowable input	100 A continuous (requires derating at frequency or temperature)	400 A continuous (requires derating at frequency or temperature)	700 Arms (1000 A peak, requires derating at frequency)	1200A rms (1800A peak continuous, 100 Hz or less, 40°C or less)
Output resistance	50 Ω			
Frequency characteristic	Amplitude: DC to 1 MHz Phase: DC to 300 kHz	Amplitude: DC to 500 kHz Phase: DC to 300 kHz	Amplitude: DC to 100 kHz Phase: DC to 100 kHz	Amplitude: DC to 20 kHz Phase: DC to 1 kHz
Accuracy (DC or 45 to 66 Hz)	$\pm 0.05\%$ rdg. $\pm 0.01\%$ f.s., phase $\pm 0.2^\circ$ (DC, 16 Hz to 400 Hz)		$\pm 0.05\%$ rdg. $\pm 0.01\%$ f.s., phase $\pm 0.2^\circ$ (10 minutes after power is turned on)	$\pm 0.05\%$ rdg. $\pm 0.01\%$ f.s., phase $\pm 0.2^\circ$
Max. rated voltage to earth	1000 V AC/DC (50/60 Hz)			
Core jaw dia.	$\phi 24$ mm	$\phi 24$ mm	$\phi 36$ mm	$\phi 34$ mm
Power supply voltage	DC ± 11 V to ± 15 V (tracking)			
Dimensions, mass	70W \times 100H \times 53D mm, 340 g, cord length: 3 m		160W \times 112H \times 50D mm, 850 g, cord length: 3 m	160W \times 112H \times 50D mm cord length: 3 m
Accessories	Mark bands (6)			

CLAMP ON PROBE | 9010-50 | 9018-50 | 9132-50 | 9272-10 | 9555-10

New & Improved



CE

CAT III 600 V

9010-50

40 Hz to 1 kHz
10 A to 500 A range
200 mV / range output
 $\phi 46$ mm core jaw dia.

CE

CAT III 600 V

9018-50

40 Hz to 3 kHz
10 A to 500 A range
200 mV / range output
 $\phi 46$ mm core jaw dia.

CE

CAT III 600 V

9132-50

40 Hz to 1 kHz
20 A to 1000A range
200mV / range output
 $\phi 55$ mm core jaw dia.

CE

CAT III 600 V

9272-10

1 Hz to 100 kHz
20 or 200 A rated
2 V / 20 or 200 A output
 $\phi 46$ mm core jaw dia.

CE

SENSOR UNIT 9555-10
Power supply for the 9277 / 9278 / 9279/9709, and the 9272-10
Single sensor connectable
AC ADAPTER 9418-15






CE

CONVERSION ADAPTER 9704
Receiving: BNC male
Output: Banana female

Clamp On Sensors

For power line current measurement: Voltage output (PW3198, 3197, 3169s, MEMORY HiCORDERs)

SPECIFICATIONS



MODEL	9694	9660	9661	9669	9667
					
	CE CAT III 300V	CE CAT III 300V	CE CAT III 600V	CE CAT III 600V	CE CAT III 1000V
Primary current rating	AC 5 A	AC 100 A	AC 500 A	AC 1000 A	AC 500 A / 5000 A
Max. allowable input (45 to 66 Hz)	Continuous 50 A rms	Continuous 130 A rms	Continuous 550 A rms	Continuous 1000 A rms	Continuous 10000 A rms
Output voltage	AC 10 mV/A	AC 1 mV/A	AC 1 mV/A	AC 0.5 mV/A	AC 500 mV f.s.
Accuracy (45 to 66 Hz)	Amplitude: $\pm 0.3\% \text{rdg} \pm 0.02\% \text{f.s.}$ Phase: within $\pm 2^\circ$	Amplitude: $\pm 0.3\% \text{rdg} \pm 0.02\% \text{f.s.}$ Phase: within $\pm 1^\circ$	Amplitude: $\pm 0.3\% \text{rdg} \pm 0.01\% \text{f.s.}$ Phase: within $\pm 0.5^\circ$	Amplitude: $\pm 1.0\% \text{rdg} \pm 0.01\% \text{f.s.}$ Phase: within $\pm 1^\circ$	$\pm 2.0\% \text{rdg} \pm 1.5\% \text{mV}$ (for input 10% or more of the range) within $\pm 1^\circ$ (minimum 10% input)
Frequency characteristic	within $\pm 1.0\%$ at 40 Hz to 5 kHz (9669: within $\pm 2.0\%$)				
Max. rated voltage to earth	Less than AC 300 V rms		Less than AC 600 V rms		Less than AC 1000 V rms
Measurable conductor diameter	Less than ϕ 15 mm		Less than ϕ 46 mm	ϕ 55 mm, 80 × 20 mm	Less than ϕ 254 mm
Power supply	—				LR03 alkaline battery × 4 (continuous operation max. 168 hours) or AC adapter 9445-02/-03 (option)
Dimensions and weight	46W × 135H × 21D mm, 230 g	77W × 151H × 42D mm, 360 g		99.5W × 188H × 42D mm, 590 g	Sensor: 910 mm long, 240g, Circuit: 57W × 86H × 30D mm, 140g

● 9667 OPTION AC ADAPTER 9445-02/-03 (DC 9 V/1 A output)

f.s. is the sensor's rated primary current value.

For power line current measurement: Voltage output (PW3198, 3197, 3169s, MEMORY HiCORDERs)

SPECIFICATIONS




MODEL	9695-02	9695-03
		
	Insulated conductor CE CAT III 300V	Insulated conductor CE CAT III 300V
Primary current rating	AC 50 A	AC 100 A
Max. allowable input (45 to 66 Hz)	Continuous 60 A rms	Continuous 130 A rms
Output voltage	AC 10 mV/A	AC 1 mV/A
Accuracy (45 to 66 Hz)	Amplitude: $\pm 0.3\% \text{rdg} \pm 0.02\% \text{f.s.}$ Phase: within $\pm 2^\circ$	Amplitude: $\pm 0.3\% \text{rdg} \pm 0.02\% \text{f.s.}$ Phase: within $\pm 1^\circ$
Frequency characteristic	within $\pm 1.0\%$ at 40 Hz to 5 kHz	
Max. rated voltage to earth	Less than AC 300 V rms	
Measurable conductor diameter	Less than ϕ 15 mm	
Dimensions and weight	51W × 58H × 19D mm, 50 g Output terminal: M3 terminal Option: Connection cable 9219	

f.s. is the sensor's rated primary current value.

● 9695 OPTION CONNECTION CABLE 9219 (for 3169, 3m)

For power line current measurement: Current output (8205-10, 8206-10)



SPECIFICATIONS

MODEL	9650	9651	9668
			
	CE 8205-10/8206-10 CAT III 300V	CE 8205-10/8206-10 CAT III 600V	CE 8205-10/ 8206-10 CAT III 600V
Primary current rating	AC 100 A	AC 500 A	AC 1000 A
Max. allowable input (45 to 66 Hz)	Continuous 130 A rms	Continuous 600 A rms	Continuous 1000 A rms
Secondary current rating	AC 100 mA	AC 500 mA	AC 1000 mA
Amplitude Accuracy (45 to 66 Hz)	$\pm 1.5\% \text{rdg} \pm 0.03\% \text{f.s.}$		
Frequency characteristic	$\pm 8\%$ or better from 40 Hz to 1 kHz		
Max. rated voltage to earth	Less than AC 300 V rms		
Measurable conductor diameter	Less than ϕ 15 mm	Less than ϕ 46 mm	ϕ 55 mm, 80 × 20 mm
Power supply	—		
Dimensions and weight	46W × 135H × 21D mm, 200 g	77W × 151H × 42D mm, 340 g	99.5W × 188H × 42D mm, 550 g

f.s. is the sensor's rated primary current value.

ZCT type leak current sensor: Voltage output (PW3198, 3197, LR5051)


SPECIFICATIONS

MODEL	9675	9657-10
		
	CE CAT III 300V	Insulated conductor CE CAT III 300V
Primary current rating	AC 10 A	
Max. allowable input (45 to 66 Hz)	Continuous 10 A rms	Continuous 30 A rms
Output voltage	AC 100 mV/A	
Amplitude Accuracy (45 to 66 Hz)	$\pm 1.0\% \text{rdg} \pm 0.005\% \text{f.s.}$	$\pm 1.0\% \text{rdg} \pm 0.05\% \text{f.s.}$
Residual current	1 mA	5 mA
Effect of external magnetic fields	Equivalent to 7.5A max. (with a magnetic field of 400 A/m, AC)	Equivalent to 5mA, 7.5A max. (with a magnetic field of 400 A/m, AC)
Max. rated voltage to earth	Less than AC 300 V rms	
Measurable conductor diameter	Less than ϕ 30 mm	Less than ϕ 40 mm
Dimensions and weight	60W × 112.5H × 23.6D mm, 160 g	74W × 145H × 42D mm, 380 g

Cord length: 3 m, BNC

For power line current measurement: Current output (LR5051)

SPECIFICATIONS

MODEL	CT6500
	
	CE CAT III 600V
Primary current rating	AC 500 A
Maximum input (45 to 66 Hz)	600 A continuous
Output voltage	AC 1 mV/A
Amplitude Accuracy (50/60 Hz)	$\pm 1.5\% \text{rdg} \pm 0.03\% \text{f.s.}$
Frequency characteristic	$\pm 5\%$ or better from 40 Hz to 1 kHz
Max. rated voltage to earth	600 V rms
Measurable conductor diameter	Less than ϕ 15 mm
Power supply	—
Dimensions and weight	78W × 152H × 42D mm, 360 g

Cord length: 3 m, BNC

Clamp Testers



Clamp Testers Index

Current Meters (for AC only, basic type)

 <p>3280-10 CE AC current, up to 1000A, φ33 mm dia., 100g light and 16mm slim p.53</p>	 <p>3280-20 CE AC current, up to 1000A, φ33 mm dia., 100g light and 16mm slim True RMS p.53</p>	 <p>3281 CE AC current, 600A, 33mm dia., CAT IV 600V (Voltage) CAT III 600V (Current) True RMS p.53</p>	 <p>3282 CE AC current, 1000A, 46mm dia., CAT IV 600V, True RMS p.53</p>	 <p>3291-50 CE AC current, 1000A, 30mm dia., 115g light- weight, LCD Display reversible, True RMS p.54</p>	 <p>3127-10 AC current, up to 300A, φ33 mm dia. p.55</p>
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Current Meters (for AC/DC, two-way type)

 <p>3284 CE AC/DC current, 200A, 33mm dia., True RMS p.54</p>	 <p>3285/3285-20 CE AC/DC current, 2000A, 55mm dia., Resistance measurement feature (3285-20 only), True RMS p.54</p>	 <p>3287 CE AC/DC current, 100A, 35mm dia., True RMS p.53</p>	 <p>3288/3288-20 CE AC/DC current, 1000A, 35mm dia. 3288-20: True RMS p.53</p>	 <p>3290/3290-10 CE AC/DC current, 2000A, Choice of three sensors, True RMS p.55</p>	 <p>9691/9692/9693 9691 100A φ35mm 9692 200A φ33mm 9693 2000A φ55mm p.55</p>
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Leakage Current Meters

 <p>3283 CE AC leakage current only, min. 10mA range (10 μA resolution), Load current up to 200A, 40mm dia., True RMS p.54</p>	 <p>3293-50 CE AC leakage current only, min. 30mA range (10 μA resolution), Load current up to 1000A, 24mm dia., LCD Display reversible, True RMS p.54</p>	 <p>3286-20 CE Clamp-on Power Meter for AC, Various parameters (V, A, W, VA, var, PF, Hz, V-Harm, I-Harm), 55mm dia. (or 80mm busbar), True RMS p.55</p>
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Power/Harmonic measurement

Conversion Adapter (for AC only, clamp-on type)

 <p>9290-10 CE AC current up to 1500 A, secondary current 1/10 of primary, φ55 mm dia. or 88 mm width Superior phase angle characteristics</p>	 <p>CT-101A AC current up to 15 A, secondary current 1/1 or 10 times of primary, φ25 mm dia. Not CE marked <small>Scheduled to be discontinued</small></p>
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CLAMP ON HiTESTERS

Table of functions

	3280-10 MEAN 3280-20 True RMS	3281 True RMS 3282 True RMS	3283 True RMS	3284 True RMS 3285 True RMS 3285-20 True RMS	3286-20 True RMS
AC Current ranges	42.00/420.0/1000 A AC	3281: 30.00/300.0/600 A AC 3282: 30.00 /300.0/1000 A AC	10.00m/100.0m/1/10/200 A AC	AC, AC+DC (RMS or Peak value) 3284: 20.00/200.0A AC 3285/3285-20: 200.0/2000A AC	20.00/200.0/1000 A AC
Other current ranges	None	Wave peak value at AC Current 3281: 75.0 to 1000A peak 3 ranges 3282: 75.0 to 1700A peak 3 ranges	None	DC (Average or Peak value) 3284: 20.00/200.0A DC 3285/3285-20: 200.0/2000A DC	None
AC Voltage ranges	4.200/42.00/420.0/600V AC	300.0/600V AC	None	AC, AC+DC (RMS or Peak value) 30.00/300.0/600V AC	150.0/300.0/600 V AC
Other voltage ranges	DC Voltage range: 420.0m/4.2/42/420/ to 600V DC	Wave peak value at AC Voltage up to 750/1000V peak	None	DC (Average or Peak value) 30.00/300.0/600V DC	None
Other functions	Resistance: 420.0 to 42.00 M Ω , 6 ranges Accuracy: ± 2.0 % rdg. ± 4 dgt. (at 420 to 420 k Ω range) Continuity: 420.0 Ω (Buzzer sounds less than approx. 50 Ω $\pm 40\Omega$)	Distortion check: 1 to 5 Crest factor Resistance: 1k or 10k Ω range Frequency: 30.0 to 1000 Hz Mode: Slow/Peak/C.F./RMS Record mode/Auto-off/ Conduction	Frequency: 30.0 to 1000 Hz Filter function: 180Hz ± 30 Hz/-3dB	Resistance: 1k or 10k Ω range (3285-20 only)	Power (Single-phase or 3 phase): 3kW to 600kW(Single-phase) 6kW to 1200kW(3-phase) Power factor, Phase angle: Frequency: 30.0 to 1000Hz Voltage/current harmonic levels
Analog output Printer output	None	None	DC, or AC 1V / f.s. (200A range: 2V / f.s.) Level output with REC mode Waveform output with MON mode	DC, or AC 1V / f.s. Level output with REC mode Waveform output with MON mode (except for 3285-50)	None
Basic Accuracy (at 50 or 60Hz)	AC current: ± 1.5 % rdg. ± 5 dgt. AC voltage: ± 2.3 % rdg. ± 8 dgt. DC voltage: ± 1.3 % rdg. ± 4 dgt. Continuity: ± 2.0 % rdg. ± 6 dgt.	AC current: $\pm 1\%$ rdg. ± 5 dgt. AC voltage: $\pm 1\%$ rdg. ± 3 dgt. Peak: $\pm 3\%$ rdg. ± 5 dgt. Frequency: $\pm 0.3\%$ rdg. ± 1 dgt.	10m to 10A range: ± 1.0 % rdg. ± 5 dgt. 200A range: ± 1.5 % rdg. ± 5 dgt. Frequency: ± 0.3 % rdg. ± 1 dgt.	AC current: $\pm 1.3\%$ rdg. ± 3 dgt. AC voltage: $\pm 1.0\%$ rdg. ± 3 dgt. Frequency: $\pm 0.3\%$ rdg. ± 1 dgt.	AC current: ± 1.3 % rdg. ± 3 dgt. AC voltage: ± 1.0 % rdg. ± 3 dgt. Power: $\pm 2.3\%$ rdg. ± 5 dgt.(1f) $\pm 3.0\%$ rdg. ± 10 dgt.(3f) (Accuracy guaranteed only for 50/60Hz cos ϕ =1)
Frequency characteristics AC current / voltage	AC voltage: 50 to 500Hz AC current: 50 or 60Hz (3280-10) 40 to 1kHz (3280-20)	40 to 1000 Hz	40 to 2 kHz	3284: DC, 10 to 2kHz 3285/3285-20: DC, 10 to 1kHz	AC current: 45 to 1kHz AC voltage: 30 to 1kHz
Display	Digital /LCD, maximum 4199 dgt.	Digital /3000 dgt. Bar graph /35 seg.	Digital /2000 dgt. Bar graph /35 seg.	Current / 2500 dgt. Voltage / 3750 dgt. Bar graph /35 seg.	Digital /LCD, maximum 6000 dgt.
Sampling rate	2.5 times /sec or 1 time /3 sec	2 or 4 times /sec (Slow: 1 time /3 sec)	2 or 4 times /sec (Slow: 1 time /3 sec)	2 or 4 times /sec (Slow: 1 time /3 sec)	Normal: 1 time /sec (Slow: 1 time /3 sec)
Crest factor (RMS)	3280-10: Not defined 3280-20: 2.5 or less (current measurement only)	2.5 (1.7 at 600A, 1000A, 600 V range)	2.5 (1.5 at 200A range)	3284: 2.5, 1.5 (200A range) 3285/3285-20: 2.5, 1.42 (2000A range)	2.5 (1.7 at 1000 A, 600 V range)
Effect of external magnetic fields	Yes; level not defined	3281: 1.5A equivalent max. at 400 A/m 3282: 0.2A equivalent max. at 400 A/m	7.5 mA equivalent max. at 400 A/m	3284: 0.5A equivalent max. at 400 A/m 3285/3285-20: 2.0A equivalent max. at 400 A/m	1.00 A equivalent max. at 400 A/m
Max. circuit voltage	600V AC rms	600V AC rms	300 V AC rms	600V AC rms	600 V AC rms
Core jaw dia.	$\phi 33$ mm	3281: $\phi 33$ mm 3282: $\phi 46$ mm	$\phi 40$ mm	3284: $\phi 33$ mm 3285/3285-20: $\phi 55$ mm	$\phi 55$ mm or 80mm busbar
Power supply	CR2032 (3 VDC) \times 1	6F22 (006P) \times 1	6F22 (006P) \times 1 or AC adapter	6F22 (006P) \times 1 or AC adapter (except for 3285-20)	6LR61/6LF22 (006P) \times 1
Dimensions/mass	57W \times 175H \times 16D mm /100 g	3281: 62W \times 216.5H \times 39D mm/350 g 3282: 62W \times 231H \times 39D mm/400 g	62W \times 225H \times 39D mm/400 g	3284: 62W \times 230H \times 39D mm, 460 g 3285/3285-20: 62W \times 260H \times 39D mm, 540 g	100W \times 287H \times 39D mm /650 g
Included accessories	TEST LEAD L9208 (1) CARRYING CASE 9398 (1)	TEST LEAD L9207-10 (1) CARRYING CASE 9399 (1 for 3281/3282) Hand strap (1)	CARRYING CASE 9399 (1) Hand strap (1)	TEST LEAD L9207-10 (1) CARRYING CASE (1 for 3284) 9399 CARRYING CASE (1 for 3285/3285-20) 9345 Hand strap (1)	VOLTAGE CORD L9635-01 (1) CARRYING CASE 9245 (1) Hand strap (1)

3287 True RMS 3288 MEAN 3288-20 True RMS	3290 True RMS 3290-10 True RMS	3291-50 True RMS	3293-50 True RMS	3127-10 MEAN
3287: 10.00/100.0A AC 3288: 100.0/1000A AC 3288-20: 100.0/1000A AC	3290+9691: 20.00A/100.0A AC 3290+9692: 20.00A/200.0A AC 3290+9693: 200.0A/2000A AC AC+DC, AC RMS, AC MEAN	60.00/600.0/1000 A AC	30.00 m/300.0 m/ 6.000/60.00/600.0/1000 A AC	6/15/60/150/300A AC
DC current range 3287: 10.00 or 100.0 A DC, 2 ranges 3288/-20: 100.0 or 1000 A DC, 2 ranges	3290+9691 : 20.00A/100.0A DC 3290+9692 : 20.00A/200.0A DC 3290+9693 : 200.0A/2000A DC	None	None	None
4.200/42.00/420.0/600V AC	None	None	None	150/300/750V AC
DC voltage range 420.0m/4.200/42.00/420.0/600 V DC	None	None	None	DC Voltage range: 75 V DC 1 range
Resistance: 420.0Ω/4.200Ω/42.00kΩ/ 420.0kΩ/4.200MΩ/42.00MΩ Accuracy: ±2.0% rdg. ±4 dgt. (at 420 to 420kΩ range) Continuity: 420.0Ω (Buzzer sounds less than approx. 50Ω ±40Ω)	Frequency : 10.00Hz/100.0Hz/1000 Hz	None	None	Resistance: 1k or 100kΩ range *Temperature: -50 to 200°C 9021-01 TEMPERATURE PROBE required, (sold separately)
None	DC or AC Current : 2V/f.s. Level output with REC mode Waveform output with MON mode Integ./Frequency : 1V/f.s.	None	None	None
AC current: ±1.5 % rdg. ±5 dgt. AC voltage: ±2.3 % rdg. ±8 dgt. DC voltage: ±1.3 % rdg. ±4 dgt. DC current: ±1.5 % rdg. ±5 dgt. Continuity: ±2.0 % rdg. ±6 dgt.	AC/DC/AC+DC Current: ±1.3 % rdg. ±3 dgt. (Typical) Frequency: ±0.3 % rdg. ±1 dgt. (Typical)	AC current: ±1.5 % rdg. ±5 dgt.	AC current: ±1.5 % rdg. ±5 dgt.	AC current: ±3% f.s. AC/DC voltage: ±3% f.s.
AC current: 3287 DC, 10 to 1kHz AC current: 3288/-20 DC, 10 to 500Hz AC voltage: 30 to 500Hz	DC to 500Hz (9691) DC to 1kHz (9692, 9693) ±2.3 % rdg. + 8 dgt.	45 to 400Hz	45 to 400Hz	50 or 60 Hz
Digital /LCD, maximum 4199 dgt.	Digital / LCD maximum 3000 dgt. Bar graph / 20 seg. 3290-10 maximum 9999 dgt.	Digital /LCD, maximum 6000 dgt. Bar graph / 91 seg.	Digital /LCD, maximum 6000 dgt. Bar graph / 91 seg.	Indicator type
2.5 times /sec	3290 FAST : 4 times/sec (3290-10 AC, AC+DC FAST: 10 times/sec) Normal : 2 times/sec Slow : 1 time / 3sec	Maximum 1.1 sec	Maximum 1.1 sec	None
3287: 2.5 (150A, 1000V maximum) 3288: Not defined 3288-20: 3 (1000A/2 max, voltage/1.5 max.)	2.5 or less	2.8 1.68 (1000 A range)	2.8 1.68 (1000 A range)	Not defined
Yes; level not defined	9691 : 0.5 A equivalent max. at 400 A/m 9692 : 0.7 A equivalent max. at 400 A/m 9693 : 2.0 A equivalent max. at 400 A/m	Yes; level not defined	7.5 mA equivalent max. at 400 A/m	Yes; level not defined
600 V AC rms	600 V AC rms	600 V AC rms	300 V AC rms	750V AC rms (Insulated wire)
3287: φ35 mm 3288/-20: φ35 mm	9691 : φ35 mm 9692 : φ33 mm 9693 : φ55 mm	φ30 mm	φ24 mm	φ33 mm
CR2032 (3VDC) × 1	LR6(AA alkaline battery) × 4 or AC adapter	CR2032 (3VDC) × 1	CR2032 (3VDC) × 1	R6P (AA) × 1
3287: 57W × 180H × 16D mm/170 g 3288/-20: 57W × 180H × 16D mm/150 g	3290/-10 : 155W × 98H × 47D mm/545 g 9691 : 53W × 129H × 18D mm/230 g 9692 : 62W × 167H × 35D mm/410 g 9693 : 62W × 196H × 35D mm/500 g	50W × 136H × 26D mm/115 g	50W × 130H × 26D mm/135 g	78W × 190H × 34D mm/340 g
TEST LEAD L9208 (1) CARRYING CASE 9398 (1)	strap	CARRYING CASE 9757 (1) strap	CARRYING CASE 9757 (1) strap	TEST LEAD L9207-30 (1) CARRYING CASE 9351 (1)

*Model 9021-01 Temperature Probe has been discontinued. As such, the temperature function on Model 3030-10 is not available.

CLAMP ON HiTESTER

3280-10 | 3280-20

Easy clamping in narrow locations with
16 mm slim body

- 1000 A rms, clamp aperture: 33 mm dia.
- 100g light and 16mm slim
- Independent-opening double-lever design
- Slim body allows easy clamping even for narrow conductors
- No metal (iron core) exposure, ensuring enhanced safety

OPTIONS

LINE SPLITTER *CT-101A (Scheduled to be discontinued)

*Note: Not CE market

DIGITAL CLAMP ON HiTESTER

3281 | 3282

CAT IV 600V Safety

- 3281: 600A ACrms, Φ 33mm dia.
- 3282: 1000A ACrms, Φ 46mm dia.
- Non-fuse type protects up to 600VAC

OPTIONS

LINE SPLITTER *CT-101A (Scheduled to be discontinued)

*Note: Not CE market



CE

CAT III 600 V
(Current range)
CAT II 600 V
CAT III 300 V
(Voltage range)

DROP PROOF

True RMS

3280-20



CE

CAT IV 600 V
(3281:voltage range, 3282)
CAT III 600 V
(3281:current range)

True RMS

3281

3282

CLAMP ON AC/DC HiTESTER | 3287 | 3288 | 3288-20

Compact & easy, one-touch maintenance on all types of AC/DC equipment

- New Model 3288-20 True RMS AC/DC pocket clamp meter measuring up to 1000 A further expands the HIOKI lineup
- The 3287 can handle even cogenerator / inverter energy-saving equipment (10/100A)
- Use the 3288 for high current measurements such as UPS emergency batteries and train motors (100/1000A)
- A slim core of only 10 mm (0.39") for easy clamping even in crowded wiring



CE

CAT III 600 V
(AC/DC A)
CAT II 600 V
CAT III 300 V
(AC/DC V)

True RMS

3287/3288-20

OPTIONS

LINE SPLITTER *CT-101A (Scheduled to be discontinued)

*Note: Not CE marked



CLAMP ON AC/DC HiTESTER

3284 | 3285 | 3285-20

Analysis for DC to distorted waves

- 3284: 200 Arms, clamp aperture: 33 mm dia.
- 3285: 2000 Arms, clamp aperture: 55 mm dia.
- 3285-20: With resistance measurement range
No analog output
Battery power only
- Inrush current Peak value
- RMS value of full-wave rectified waveforms
- Waveform and harmonic analysis



3285-20



3284

CE
CAT III 600 V

True RMS

3285

OPTIONS

- AC ADAPTER (for USA) 9445-02
- AC ADAPTER (for EU) 9445-03
- CLAMP ON ADAPTER 9290-10
- OUTPUT CORD *19094
- BNC TO BANANA ADAPTER 9199
- LINE SPLITTER (Scheduled to be discontinued) *2CT-101A (cannot be used for DC, AC+DC current, for use on AC current only)

*1 Note: CE Mark standards do not apply
*2 Note: Not CE marked



CLAMP ON LEAK HiTESTER | 3283

Easily monitor leakage current fluctuations

- High-sensitivity with a full scale of 10mA (resolution:10μA)
- High-accuracy at ±1%
- True RMS measurement
- Analyzer functions, for filtering and output signals
- Wide bandwidth, 5Hz to 15kHz (Monitor output)



CAT III 300 V



Insulated conductor

True RMS

OPTIONS

- AC ADAPTER (for USA) 9445-02
- AC ADAPTER (for EU) 9445-03
- CLAMP ON ADAPTER 9290-10
- OUTPUT CORD *19094
- BNC TO BANANA ADAPTER 9199
- LINE SPLITTER (Scheduled to be discontinued) *2 CT-101A (cannot be used for leakage current, for use on load current only)

*1 Note: CE Mark standards do not apply
*2 Note: Not CE marked

CLAMP ON HiTESTER | 3291-50 | 3293-50

DIGITAL CLAMP ON HiTESTER

3291-50

Flip Clamp !

CE True RMS
CAT III 600 V
CAT IV 300 V

SPECIFICATIONS

AC Current range	60.00 A / 600.0A / 1000 A AC (3 ranges) Filter on : ±1.5 % rdg. ±5 dgt. at 50 or 60Hz Filter off : ±1.5 % rdg. ±5 dgt. at 45 to 66Hz Filter off : ±3.0 % rdg. ±5 dgt. at 66 to 400Hz
Other functions	Filter on/off (180Hz, -3dB), Display hold, Max. value hold, Auto power off, LCD Display reversible
Frequency bandwidth	45 to 400 Hz
Sampling rate	Maximum 1.1 sec
Crest factor (RMS)	2.8 / Max. 1.68 (1000A range)
Core jaw dia.	φ30 mm
Power supply	CR2032× 1
Dimensions, mass	50 mm W × 136 mm H × 26 mm D, 115 g
Accessories	CARRYING CASE 9757 (1), strap (1)



3291-50

CLAMP ON LEAK HiTESTER

3293-50

Flip Clamp !

CE True RMS
CAT III 300 V

SPECIFICATIONS

AC Current range	30.00 mA / 300.0 mA / 6.000A / 60.00 A / 600.0A / 1000 A AC (Auto range) Filter on : ±1.5 % rdg. ±5 dgt. at 50 or 60Hz Filter off : ±1.5 % rdg. ±5 dgt. at 45 to 66Hz Filter off : ±3.0 % rdg. ±5 dgt. at 66 to 400Hz
Other functions	Filter on/off (180Hz, -3dB), Display hold, Max. value hold, Auto power off, LCD Display reversible
Frequency bandwidth	45 to 400 Hz
Sampling rate	Maximum 1.1 sec
Crest factor (RMS)	2.8 / Max. 1.68 (1000A range)
Core jaw dia.	φ24 mm
Power supply	CR2032× 1
Dimensions, mass	50 mm W × 130 mm H × 26 mm D, 135 g
Accessories	CARRYING CASE 9757 (1), strap (1)



3293-50



Flip clamp
Display reversible

CLAMP ON AC/DC HiTESTER 3290/3290-10

CLAMP ON AC/DC SENSOR 9691 | 9692 | 9693

All the Functions You Need for Measurement at DC or 1Hz and Up

- Choice of three sensors (Example combinations)
3290/3290-10 +9691 : Measure up to 100A
3290/3290-10 +9692 : Measure up to 200A
3290/3290-10 +9693 : Measure up to 2000A
- Choice of measurement methods
DC (for battery measurement)
AC+DC RMS (for full-/half-wave rectification measurement)
AC RMS (for current distortion measurement)
PEAK (for peak value measurement) of inrush current, etc.)
- Choice of output (Simultaneous output)
RMS value output, frequency output, waveform output
- 3290-10 Functions
Current integral measurement
(obtain polarity-specific integrated DC values)
Operating time/duty measurement



OPTIONS

CLAMP ON AC/DC SENSOR (100 A)	9691	CONVERSION ADAPTER	9199
CLAMP ON AC/DC SENSOR (200 A)	9692	AC ADAPTER (for USA)	9445-02
CLAMP ON AC/DC SENSOR (2,000 A)	9693	AC ADAPTER (for EU)	9445-03
OUTPUT CORD	*9094	CARRYING CASE	9400

*Note: CE Mark standards do not apply

CLAMP ON HiTESTER

3127-10



Model 3127-10 is not CE marked.

One meter drop-proof "Tested Tough!"

- 300 A range
- Ohmmeter circuit tested to 250 V AC over voltage-OK

OPTIONS

CLAMP ON ADAPTER (for large AC current)	9290-10
LINE SPLITTER (Scheduled to be discontinued)	*CT-101A

*Note: Not CE marked

CLAMP ON POWER HiTESTER 3286-20

3286-20

Functionality and Safety Packed into a Handheld Unit

- Use as a single-phase power meter
- For harmonic suppression
- Measure phase on a single-phase line
- External output of data to PC
- Simple checking of three-phase lines
- Check power supply fluctuations

SPECIFICATIONS

Measurement lines	Single-phase/two-wires, Three-phase/three-wires (balanced load only)
Measurement items	Voltage, current, voltage/current peak, effective/reactive/apparent power(Single-phase or 3-phase), power factor, reactivity, phase angle, frequency, phase detection(3-phase), voltage/current harmonic levels(up to 20th)
Measurement ranges	Voltage: 150.0 V to 600 V, 3 ranges, Current: 20.00 to 1000 A, 3 ranges, Power: 3.000 kW to 1200 kW, 18 combination patterns, Note: 3-phase power is calculated and displayed on the basis of a balanced, 50/60 Hz, sine wave input. For apparent power and reactive power, the unit of watts in the above table is replaced by VA and var respectively.
Basic accuracy at 50/60 Hz, COS θ =1	Power/single-phase: $\pm 2.3\%$ rdg. ± 5 dgt., Power/3-phase: $\pm 3.0\%$ rdg. ± 10 dgt. (at balanced load) Voltage: $\pm 1.0\%$ rdg. ± 3 dgt. (True RMS), Current: $\pm 1.3\%$ rdg. ± 3 dgt. (True RMS)
Frequency characteristics	AC current : 45 to 1 kHz, AC voltage : 30 to 1 kHz
Other functions	Phase detection, Record (Max. value/Min. value), Battery capacity display, Data hold, Auto power off, Data output (RS-232C interface by optical insulating coupler)
Display update rate	NORMAL: approx. 1 time/ sec, SLOW: 1 time/ 3-sec, HARM meas.: approx. 1 time/ 2 sec
Power supply	6LR61 alkaline battery \times 1 (continuous operation max. 25 hours), 6F22 manganese battery \times 1 (continuous operation max. 10 hours)
Dimensions, mass	100 mm(3.94 in)W \times 287 mm(11.3 in)H \times 39 mm(1.54 in)D, 650 g (22.6 oz) Core jaw dia.: \varnothing 55 mm(2.17 in) or 80 mm (3.15 in) \times 20 mm (0.79 in) busbar
Accessories	VOLTAGE CORD L9635-01 (1), CARRYING CASE 9245, (1), Hand strap (1)



OPTIONS

RS-232C PACKAGE	9636-01
CARRYING CASE	9245






RS-232C PACKAGE 9636-01

Field Measuring Instruments



Field Measuring Instruments Index

Digital Multi Meters (basic functions) Voltage Meter Phase Detector

 <p>3246-60 Pencil type DMM 3244-60 Card size DMM with emphasis on safety p.58</p>	 <p>3245-60 A card size DMM with solar charged battery, Average rectifier p.59</p>	 <p>3255-50 Built tough for use with industrial power lines DMM, Average rectifier p.59</p>	 <p>3256-50 Terminal shutter interlock mechanism DMM, Average rectifier p.59</p>	 <p>3258 Non-contact testing to safely measure voltage breaker panels AC 600V p.58</p>	 <p>3126-01 Phase detector, Rotary disk style, 110 to 480V p.60</p>	 <p>3129/3129-10 Phase Detector, Non-contact types, AC 70 to 600 V(50/60 Hz) AC 70 to 1000V (3129-10) p.63</p>
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Digital Multi Meters (multi-functional and high precision) Voltage Detector

 <p>3257-50 Terminal shutter interlock mechanism DMM, True RMS rectifier p.59</p>	 <p>3801-50 Multi-function type, 51000 count display, USB communication, True RMS rectifier p.58</p>	 <p>3802-50 Low-cost type, 51000 count display, USB communication, True RMS rectifier p.62</p>	 <p>3805-50 Multi-function type, 9999 count display (V range), USB communication, True RMS rectifier p.61</p>	 <p>3237,3238,3239 High speed DMMs 199999 count display p.33</p>	 <p>3120 Voltage Detector AC 70 to 600 V(50/60 Hz) p.60</p>
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Insulation Testers

 <p>IR4016-20, IR4017-20, IR4018-20 Single range IR4016-20: 500V/100MΩ IR4017-20: 500V/1000MΩ IR4018-20: 1000V/2000MΩ Compact and lightweight, Luminous scale indicator type p.62</p>	 <p>3490 3 insulation resistance ranges, continuity, plus 4000MΩ testing at the 1000V range Conforms to IEC 61557/60364-6-61 p.62</p>	 <p>3453/3453-01 Testing voltage 125V to 1000V, Four ranges in one body, Compact and lightweight, Digital display, Comparator and memory function p.61</p>	 <p>3454-10/-11 Innovative and low-cost insulation resistance tester with continuity function p.61</p>	 <p>3455 Testing voltage 250V to 5000V, Five ranges 10 MΩ to 5 TΩ Seven ranges p.60</p>	 <p>3151 Grounding resistance meter, Two-wire or three-wire measurement method, Tough and durable design p.63</p>
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Measurement in Telecommunications Index

Analog Multi Meters

 <p>3030-10 Basic type analog tester, Average rectifier p.63</p>	 <p>3008 Use for industrial power lines Average rectifier p.64</p>
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LED OPTICAL METER

 <p>TM6101 Measure the optical characteristics of white LEDs with ultra high accuracy and high speed p.64</p>

LAN CABLE HiTESTER

 <p>3665-20 Identify the 3 most important criteria for proper networking at a glance p.64</p>

OPTICAL POWER METER

 <p>3664 For production of DVD recorders, CD drives, copiers, laser printers and more p.65</p>

NOISE HILOGGER

 <p>3145-20 Non-contact current sensor to search for noise invasion path 7 ranges from 5kHz to 100MHz 200 mA/2A/20A, 3 ranges p.65</p>
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NOISE SEARCH TESTER

 <p>3144-20 Non-contact, voltage sensor to search for noise invasion path 7 ranges from 500Hz to 30MHz 0 dBV (1V), -20 dBV (0.1V) f.s., 2 ranges p.65</p>

DIGITAL HiTESTERS

Table of functions

	3244-60	3245-60	3246-60	3256-50 3257-50 (3257-50: True RMS.)	3801-50 True RMS 3802-50 True RMS	3805-50 True RMS	3255-50
DC Voltage ranges	420.0 mV to 500V, 5 ranges Best accuracy: $\pm 0.7\%$ rdg. ± 4 dgt	420.0mV to 600V, 5 ranges Best accuracy: $\pm 1.3\%$ rdg. ± 4 dgt.	420.0mV to 600V, 5 ranges Best accuracy: $\pm 1.3\%$ rdg. ± 4 dgt.	420.0mV to 1000V, 5 ranges Best accuracy: $\pm 0.5\%$ rdg. ± 2 dgt.	51mV to 1000V, 7 ranges Best accuracy 3801-50: 0.025% rdg. ± 5 dgt. 3802-50: 0.03% rdg. ± 5 dgt.	999.9mV to 999.9V, 4 ranges Best accuracy: $\pm 0.09\%$ rdg. ± 2 dgt.	420mV to 1000 V, 5 ranges. Best accuracy: $\pm 0.5\%$ rdg. ± 4 dgt.
AC Voltage ranges	4.200 V to 500V, 4 ranges Accuracy: $\pm 2.3\%$ rdg. ± 8 dgt. Average rectifier effective value	4.2V to 600V, 4 ranges Accuracy: $\pm 2.3\%$ rdg. ± 8 dgt. Average rectifier effective value	4.2V to 600V, 4 ranges Accuracy: $\pm 2.3\%$ rdg. ± 8 dgt. Average rectifier effective value	420.0mV to 1000V, 5 ranges Best accuracy: $\pm 1.2\%$ rdg. ± 3 dgt. Average rectifier effective value	51mV to 1000V, 7 ranges Best accuracy 3801-50: 0.4% rdg. ± 25 dgt. 3802-50: 0.6% rdg. ± 25 dgt.	999.9mV to 999.9V, 4 ranges Best accuracy: $\pm 1\%$ rdg. ± 5 dgt. Effective value rectifier	420mV to 1000 V, 5 ranges. Best accuracy: $\pm 1.2\%$ rdg. ± 4 dgt. Average rectifier effective value
Frequency characteristics at AC Voltage	50 to 500 Hz	50 to 500 Hz	50 to 500 Hz	50 to 500 Hz	3801-50: 20 to 100 kHz 3802-50: 30 to 30 kHz	40 to 2 kHz	50 to 500 Hz
Resistance ranges	420.0 Ω to 42.00 M Ω , 6 ranges Best accuracy: $\pm 2.0\%$ rdg. ± 4 dgt.	420.0 Ω to 42.00M Ω , 6 ranges Best accuracy: $\pm 2.0\%$ rdg. ± 4 dgt.	420.0 Ω to 42.00M Ω , 6 ranges Best accuracy: $\pm 2.0\%$ rdg. ± 4 dgt.	420.0 Ω to 42.00 M Ω , 6 ranges Best accuracy: $\pm 0.7\%$ rdg. ± 2 dgt.	510 Ω to 510M Ω , 7(6) ranges (3802-50) Best accuracy 3801-50: 0.05% rdg. ± 5 dgt. 3802-50: 0.08% rdg. ± 5 dgt.	999.9 Ω to 99.99M Ω , 6 ranges Best accuracy: $\pm 0.3\%$ rdg. ± 3 dgt.	420 Ω to 42 M Ω , 6 ranges, Best accuracy: $\pm 0.7\%$ rdg. ± 4 dgt.
DC Current ranges	None	None	None	42.00 μ A to 10.00A, 6 ranges Accuracy: $\pm 1.5\%$ rdg. ± 4 dgt.	510 μ A to 10A, 6 ranges Best accuracy 3801-50: 0.05% rdg. ± 25 dgt. 3802-50: 0.1% rdg. ± 25 dgt.	999.9 μ A to 9.99A, 5 ranges Best accuracy: $\pm 0.1\%$ rdg. ± 3 dgt.	None
AC Current ranges	None	None	None	42.00 μ A to 10.00 A, 6 ranges Best accuracy: $\pm 2.5\%$ rdg. ± 5 dgt. Average rectifier effective value	510 μ A to 10A, 6 ranges Best accuracy 3801-50: 0.7% rdg. ± 20 dgt. 3802-50: 0.8% rdg. ± 20 dgt.	999.9 μ A to 9.99A, 5 ranges Best accuracy: $\pm 1\%$ rdg. ± 5 dgt. Effective value rectifier	Main unit Accuracy 10.00A to 1000A, 7 ranges Best accuracy: $\pm 2.0\%$ rdg. ± 4 dgt. Add the accuracy of clamp sensor
Frequency characteristics at AC Current	None	None	None	50 to 500Hz	3801-50: 20 to 100kHz 3802-50: 30 to 20kHz	40 to 2kHz	None
Frequency ranges	None	None	None	0.50Hz to 500.0kHz, 5 ranges input level: 800mV to 1000V rms Accuracy: $\pm 0.02\%$ rdg. ± 1 dgt.	99.999Hz to 999.99kHz Best accuracy 0.02% rdg. ± 3 dgt.	0.5Hz to 999.9kHz / 0.5V to 1000V rms Best accuracy: $\pm 0.03\%$ rdg. ± 3 dgt.	None
Continuity	50 Ω \pm 40 Ω	50 Ω \pm 40 Ω	50 Ω \pm 40 Ω	50 Ω \pm 40 Ω or less	Buzzer sounds for less than 1000 count in each range	Buzzer sounds for less than 100 count in each range	50 Ω \pm 40 Ω
Diode check	None	None	judgement only 3.4 V open terminal voltage	3.4 V open terminal voltage	3.1 V open terminal voltage	3.5 V open terminal voltage	judgement only 3.4 V open terminal voltage
Other functions	None	Light meter function ("1000" equates to approx. 50,000 lx)	None	Voltage detect function Hold-auto function Relative function	3801-50 only: AC+DC measurement, Pulse output Common functions: Capacitance, Data hold, dBm measurement, Duty ratio/Pulse width, Temperature, 1ms peak hold Relative, Max/Min/Ave, USB	Capacitance, Data hold, Refresh hold, Max/Min/Ave/Relative/ 4-20mA% display, USB Temperature	CLAMP (ACA) function (Clamp-on probe : Option) 10A to 1000A 7ranges
Auto power save	(Cancel impossible)	(Cancel possible)	(Cancel possible)	(Cancel possible)	(Cancel possible)	(Cancel possible)	(Cancel possible)
Range switching	Auto	Auto or Manual	Auto or Manual	Auto or Manual	Auto or Manual	Auto or Manual	Auto or Manual
Display/Safety	Digital/LCD, maximum 4199 dgt Safety: EN61010 Pollution degree 2 CAT II 600V CAT III 300V	Digital/LCD, max. 4199 dgt. Safety: EN61010 Pollution degree 2 CAT III 600V CAT IV 300V	Digital/LCD, with Back light max. 4199 dgt. Safety: EN61010 CAT III 600V CAT IV 300V	Digital/LCD, max. 4200 dgt. (all mode) max. 19999 dgt. (Frequency) Safety: EN61010 Pollution degree 2 CAT II 1000V, CAT III 600V	Digital/LCD, max. 51000 dgt. with Back light Safety: EN61010 Pollution degree 2 CAT III 1000V, CAT IV 600V	LCD, max. 9999 dgt. Safety: EN61010 Pollution degree 2 CAT II 1000V, CAT III 600V	LCD, max. 4199 dgt. Safety: EN61010 Pollution degree 2 CAT II 1000V, CAT III 600V
Bar graph display	None	None	None	Maximum 40 segments	Maximum 21 dots	Maximum 41 dots	None
Sampling rate	2.5 times /sec	2.5 times/sec	2.5 times/sec	2.5 times/sec (all mode) 5 times/sec (Frequency) 25 times/sec (Bar graph)	3.75 times/sec	7 times/sec (exclusive Hz and Ω range) 1 time/sec (Hz range) 14 times/sec (Ω range)	2.5 times/sec
Power supply	CR2032 \times 1 batteries (Continuous use 150 hours)	CR2032 \times 1 batteries (Continuous use 150 hours)	CR2032 \times 1 batteries (Continuous use 150 hours)	R03(AAA) \times 2 dry batteries (Continuous use 100 hours)	6LR61 \times 1 (9.0V) (Continuous use 50 hours)	6F22(006P) \times 1 6LR61 \times 1 (9.0V) (continuous use 60 hours)	R03(AAA) \times 2 dry batteries (continuous use 200 hours)
Dimensions/mass	55W \times 109H \times 9.5D mm 60g	60W \times 135H \times 23D mm 140 g	30W \times 182H \times 26.5D mm 80 g	76W \times 167H \times 33D mm 260 g	100W \times 202H \times 57D mm 680 g	83W \times 178H \times 58D mm 400 g	70W \times 145H \times 31D mm 210g
Included accessories	Hard case (1) Sleeve (1)	Carrying case (1) Sleeve (1)	Sleeve (1)	TEST LEAD (1) Fuse (2) CARRYING CASE 9378 (1) (3256-50)	TEST LEAD (1) Holster (1)	TEST LEAD (1) Holster (1)	TEST LEAD (1) fuse (1) CARRYING CASE 9371 (1)

SAFETY HiTESTER | 3258

Voltage measurement safety assured by non contact testing

- Non-Metallic contact for optimum safety
- Capture the voltage value of covered electric wires
- Also ideal for metallic busbars and terminals
- Optimized for 400 V AC circuits



OPTIONS
CARRYING CASE (included)



PENCIL HiTESTER | 3246-60

New

Pencil-type DMM with Penlight

In addition to being compact, this pencil-type tester comes with auto-range and data hold functions for incredibly easy measurement of electrical and electronic circuitry.

- Full-auto ranging, 4199 count display
- Penlight brightly illuminates test points
- Overload protection to 600 V (Ω and continuity functions)



When sleeve is not attached, the test leads can only be used in a CATII environment.



Penlight brightly illuminates test points



New



Sleeve attached No sleeve attached

When a sleeve is not attached, the test leads can only be used in a CATII environment.

CE

CAT II 600 V
CAT III 300 V

CARD HiTESTER | 3244-60

Compact! Palm size body. Less than 1cm thin!

- Only 9.5 mm thick and 60 g in weight
- 4199 count display
- Test leads fit neatly inside the case.
- Automatic power saving function saves your batteries even when you forget to turn off the power.

DIGITAL HiTESTER | 3801-50

High-precision, high-resolution, and multi-functional handy DMMs

- Display two different parameters simultaneously
- Optional USB package for transferring data captured by the 3801-50 to a PC
- Measures the AC components in DC voltage or DC current
- 1ms peak hold mode makes it possible to capture the peak value of a waveform

OPTIONS

TEST LEAD	L9207-10
CARRYING CASE	3853
COMMUNICATION PACKAGE (USB)	3856-02
TEMPERATURE PROBE	9180 to 9183
TEMPERATURE PROBE	9472 to 9476
CLIP ON BASE (for capacitance measurement)	*9617
CLIP TYPE LEAD (for capacitance measurement)	*9618

*Note: Not CE marked



When sleeve is not attached, the test leads can only be used in a CATII environment.

New insulated test pin sleeve prevent short circuits

Conforms to safety standard IEC61010-031 (revised) for hand-held probes



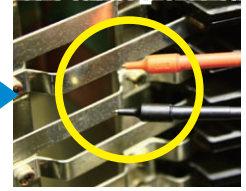
No sleeves attached to the tip of test leads?
DANGER of short-circuit accident!!

Previous model



With a sleeve attached to the tip of test leads, short-circuit accidents can be prevented.

NEW!

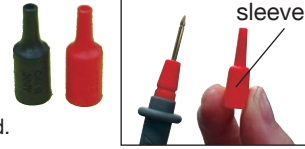


What are the new and additional requirements of the international safety standards?

1. "Exposed metal part must be 4mm or shorter" (Previously, 19mm max.) for CAT III and IV environments to prevent short-circuits from occurring.
2. Double-coating with different colors enables you to identify the wear condition of the test leads. (Previously, single-coated)

Detachable!

When a sleeve is not attached, the test leads can only be used in a CATII environment.



*When used in CATIII environments, test pin sleeves are required.
Included as a standard accessory
(This sleeve cannot be attached to previous products)

DIGITAL HiTESTER | 3256-50 | 3257-50

Terminal shutter interlock mechanism for safety

- 3256-50
- Average rectified type, AC voltage detection simply by placing the instrument close the insulated cable
 - Overload protect up to 600V for all measurement functions (V, Ω functions up to 1000V)
- 3257-50
- True RMS type, Duty ratio measurement for pulse signal analysis
 - Overload protect up to 1000V for all measurement functions

Fail-safe!

Shutter mechanism prevents incorrect test lead connection

Single operation
Simple operation with rotary switch

Voltage ranges
Only V and COM terminals open

10A range
Only A and COM terminals open

* The above photograph shows a demonstration model with a transparent cover.

Check for live lines safely and easily

In the AC V range, the 3256-50 can be used to check whether power lines are live. When the sensitivity level is set to 4 and the test head is placed near a live power line, the built-in buzzer sounds and a display indicator lights. Sensitivity threshold: 100 V AC or higher

When sleeve is not attached, the test leads can only be used in a CATII environment.

CE

3256-50
CAT II 1000 V
CAT III 600 V
3257-50
CAT III 1000 V
CAT IV 600 V

OPTIONS	
HIGH-VOLTAGE PROBE	*9014
CARRYING CASE	3853

*Note: Not CE market

DIGITAL HiTESTER | 3255-50

Tough for use on industrial power lines

- Built-in current limiter and fuse capable of withstanding 1000 V to prevent short-circuit accidents
- Wide range, maximum reading 4199 digit
- Two-terminal configuration eliminates the need for probe reconnections
- Industrial grade test leads for enhanced safety

When a sleeve is not attached, the test leads can only be used in a CATII environment.

CE

CAT II 1000 V
CAT III 600 V

OPTIONS	
TEST LEAD L9207-10	(Supplied as standard with the 3255-50)
CARRYING CASE 9371	(Supplied as standard with the 3255-50)
CLAMP ON PROBE 9010-50	(refer to p.48)
CLAMP ON PROBE 9018-50	(refer to p.48)
CONVERSION ADAPTER 9704	(Input: BNC, Output: banana)

VOLTAGE DETECTOR | 3120

Twin Light Audible Voltage Detector

- Top “primary supply level” safety class rating for voltage detectors
- CAT IV 600V safe
- Continually indicates battery status by green indicator lamp
- Provides both visual and audible voltage detection indication
- Automatic power switching prevents battery discharge

SPECIFICATIONS	
Measurement Function	Voltage Detection
Voltage Range	70 to 600 VAC, 50/60 Hz (when touching insulated wiring equivalent to IV 2mm ²)
Indication	Red LED and continuous beeping sound
Battery Check	Green LED
Power supply	AAA manganese (R03) or alkaline (LR03) batteries × 2 Continuous use 200 hr (using LR03 batteries)
Dimensions, mass	149 mmH × φ18.5 mm, 38 g
Supplied accessories	AAA manganese (R03) batteries × 2 (for trial purposes only)



CE
CAT IV 600 V

UL
LISTED

HIGH VOLTAGE INSULATION HiTESTER

3455

Maximum 5kV Test Voltage - Up to 5TΩ of Insulated Resistance Testing

- 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
- Adjustable testing voltage in 25 V steps up to 1 kV, and 100 V steps from 1 kV to 5 kV
- Wide measurement insulation range, up to 5 TΩ (at 5 kV testing voltage, 1 TΩ=10¹² Ω)
- Diagnose the insulation of various equipment with the built-in memory for data storage

SPECIFICATIONS	
250 V range	0.00 MΩ to 250 GΩ Accuracy : ± 5 % rdg. ± 5 dgt. (0 to 2.50 GΩ) ±20 % rdg. ± 5 dgt. (2.50 to 250 GΩ)
500 V range	0.00 MΩ to 500 GΩ Accuracy : ± 5 % rdg. ± 5 dgt. (0 to 5.00 GΩ) ±20 % rdg. ± 5 dgt. (5.00 to 500 GΩ)
1 kV range	0.00 MΩ to 1.00 TΩ Accuracy : ± 5 % rdg. ± 5 dgt. (0 to 10.0 GΩ) ±20 % rdg. ± 5 dgt. (10.0 to 500 GΩ) ±30 % rdg. ±50 dgt. (500 G to 1.00 TΩ)
2.5 kV range	0.00 MΩ to 2.50 TΩ Accuracy : ± 5 % rdg. ± 5 dgt. (0 to 25.0 GΩ) ±20 % rdg. ± 5 dgt. (25.0 to 500 GΩ) ±30 % rdg. ±50 dgt. (500 G to 2.50 TΩ)
5 kV range	0.00 MΩ to 5.00 TΩ Accuracy : ± 5 % rdg. ± 5 dgt. (0 to 50.0 GΩ) ±20 % rdg. ± 5 dgt. (50.0 to 500 GΩ) ±30 % rdg. ±50 dgt. (500 G to 5.00 TΩ)
Functions	Insulation resistance mode: Data memory(100 data), measurement value hold, average, bar graph display, timer etc. Leak current: (1.00nA to 1.20mA), Temperature: (-10°C to 70°C) Voltage: (DC±50V to 1kV AC 50V to 750V) All measurement mode: live wire warning, battery indicators, auto power save
Interface	USB ver 2.0 (full speed)
Display	LCD with backlight
Standards	Safety: EN61010, EN61010-031 EMC: EN61326, EN61000-3-2, EN61000-3-3
Power supply	LR6(AA) alkaline batteries × 6, BATTERY PACK 9459, AC ADAPTER 9753
Dimensions, mass	260 W × 250.6 H × 119.5 D mm, 2.8 kg
Accessories	TEST LEAD (3m) : 9750-01 (red), 9750-02 (black), 9750-03 (blue) ALLIGATOR CLIPS : 9751-01 (red), 9751-02 (black), 9751-03 (blue) LR6 (AA) Alkaline batteries (6), USB CABLE (1)



USB 2.0

CE

CAT III 1000 V rms
CAT IV 600 V rms



OPTIONS

TEMPERATURE SENSOR (1 m)	9631-01
TEMPERATURE SENSOR (6 cm)	9631-05
TEST LEAD (10 m)	9750-11 (red)
TEST LEAD (10 m)	9750-12 (black)
TEST LEAD (10 m)	9750-12 (blue)
BATTERY PACK	9459
AC ADAPTER	9753

DIGITAL MΩ HiTESTER

3453 | 3453-01

For efficient insulation measurement!

- One body with four ranges: 125 V/40 MΩ, 250 V/2000 MΩ, 500 V/2000 MΩ, and 1000 V/4000 MΩ
- Large and accurate digital display
- Insulation measurement through sight and sound
- Store data on the spot (Memorizes up to 20 data points)
- Recognizes variations of resistance
- Measure AC voltage and low resistance (continuity)



SPECIFICATIONS	
125 V range	125 V DC (testing voltage), 4.000 MΩ to 40.00 MΩ (measurement range), Accuracy at first effective measurement range $\pm 2\%$ rdg. ± 3 dgt. at 0.100 to 10.00 MΩ
250 V range	250 V DC (testing voltage), 4.000 MΩ to 2000 MΩ (measurement range), Accuracy at first effective measurement range $\pm 2\%$ rdg. ± 3 dgt. at 0.200 to 20.00 MΩ
500 V range	500 V DC (testing voltage), 4.000 MΩ to 2000 MΩ (measurement range), Accuracy at first effective measurement range $\pm 2\%$ rdg. ± 3 dgt. at 0.200 to 50.00 MΩ
1000 V range	1000 V DC (testing voltage), 4.000 MΩ to 4000 MΩ (measurement range), Accuracy at first effective measurement range $\pm 2\%$ rdg. ± 3 dgt. at 0.200 to 999 MΩ
Low resistance (conductivity)	0 to 400.0 ohm, $\pm 2\%$ rdg. $\pm 8\%$ dgt. , (aural warning below: 30 ohm), Open terminal voltage: 4 V max.
AC voltage range	0 to 600 V (50 to 60 Hz) $\pm 3\%$ rdg. ± 8 dgt. , Input impedance: 170 kΩ
Other functions	Insulation resistance mode: comparator, memory (20 data), measurement value hold, auto discharge, bar graph display, auto display of measurement value 1 minute after measurement start
Display	LCD, max. 4000 dgt., Bar graph 42 segment with backlight
Standards	Safety: EN61010 EMC: EN61326
Power supply	R6P(AA) manganese batteries $\times 4$ or LR6(AA) alkaline batteries $\times 4$
Dimensions, mass	155 mm W \times 98 mm H \times 80 mm D, 500 g
Accessories	TEST LEAD L9787 (1), Display cover (1), Suspension band (1)

- OPTIONS**
- BREAKER PIN L9787-91
 - MAGNETIC ADAPTER (Black) 9804-02



3453-01: Includes semi-hard case

DIGITAL MΩ HiTESTER

3454-10/-11

Revolutionary insulation resistance tester with continuity function all in one low price

- 50V/125V/250V/500VDC (3454-10)
- 250V/500V/1000VDC (3454-11)
- 200mA current continuity
- Compact storage without disconnecting test probes
- Complies with EN61557 (3454-11 only)



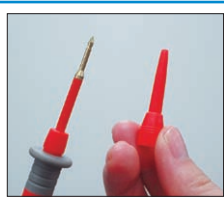
3454-11
Test voltage:
250V / 500V / 1000V DC

- OPTIONS**
- BREAKER PIN L9787-91
 - MAGNETIC ADAPTER (Black) 9804-02

SPECIFICATIONS	
Model 3454-11	250 V DC (testing voltage), 4.000 MΩ to 500 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 50.0 MΩ 500 V DC (testing voltage), 4.000 MΩ to 500 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 50.0 MΩ 1000 V DC (testing voltage), 4.000 MΩ to 4000 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 200.0 MΩ
Model 3454-10	50 V DC (testing voltage), 4.000 MΩ to 200.0 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 10.00 MΩ 125 V DC (testing voltage), 4.000 MΩ to 200.0 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 10.00 MΩ 250 V DC (testing voltage), 4.000 MΩ to 2000 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 100.0 MΩ 500 V DC (testing voltage), 4.000 MΩ to 2000 MΩ (measurement range), Accuracy at first effective range $\pm 3\%$ rdg. ± 4 dgt. at 0.200 to 100.0 MΩ
Low resistance (continuity)	40.00 ohm to 4.000 MΩ, Short circuit current:200 mA, Open terminal voltage:4 to 6 V
AC voltage range	0 to 750 V (50 / 60 Hz) $\pm 3\%$ rdg. ± 6 dgt. , Input impedance : 100 kΩ
Standards	EN61010, EN61326, IEC61557-1/-2/-4 (3454-11 only)
Power supply	R6P(AA) manganese batteries $\times 4$ or LR6(AA)alkaline batteries $\times 4$
Dimensions, mass	175 mm W \times 148 mm H \times 56 mm D, 530 g
Accessories	TEST LEAD L9787, Strap band (1)

Accessories

TEST LEAD L9787 (1.2m)
included as a standard accessory
(This sleeve cannot be attached to previous products)
When measuring in a CAT III environment, be sure to attach the sleeve to the test leads.



Detachable!
Conforms to safety standard IEC61010-031 (revised) for hand-held probes

ANALOG MΩ HiTESTER

IR4016-20 to IR4018-20

Reliable and efficient insulation Testing in the field

- Single range insulation resistance meters
- Luminous scale lets you see better in the dark
- Drop proof (1m)

Common SPECIFICATIONS

Discharge function : effective
 Power source : Rated power voltage: 1.5 VDC×4, LR6 alkaline battery × 4
 Dimensions, mass : 159W × 177H × 53D mm, 610 g (including battery, not including test lead)
 Accessories : TEST LEAD L9787(1), Shoulder strap(1)
 Standards : EN61010, EMC EN61326, EN61557-1/-2



CAT III 600 V



OPTIONS

TEST LEAD WITH REMOTE CONTROL SWITCH (1m)	L9788
COMPLETE TEST LEAD WITH REMOTE CONTROL SWITCH (1m)	L9788-01
TIP PIN (replacement pin for Model L9788)	L9788-90
BREAKER PIN (for Model L9787)	L9787-91
MAGNETIC ADAPTER (for Models L9788-01, L9787)	9804-02

SPECIFICATIONS

Model	IR4016-20	IR4017-20	IR4018-20
Testing voltage	500 V DC	500 V DC	1000 V DC
Rated resistance	100 MΩ	1000 MΩ	2000 MΩ
First effective measurement range and tolerances	±5 % of scale indication at 0.1 to 50 MΩ	±5 % of scale indication at 1 to 500 MΩ	±5 % of scale indication at 2 to 1000 MΩ
Second effective measurement range and tolerances	±10 % of scale indication at 0.01 to 0.1 MΩ, 50 to 100 MΩ	±10 % of scale indication at 0.5 to 1 MΩ, 500 to 1000 MΩ	±10 % of scale indication at 1 to 2 MΩ, 51000 to 2000 MΩ
Lower limit measurement resistance value to be maintained reted output voltage	0.5 MΩ	0.5 MΩ	1 MΩ
Open circuit voltage	1 to 1.2 times of rated output voltage		
Rated current	1mA (Tolerance: 1 to 1.2 times of the rating value)		
AC voltage range	0 to 600 V (50/60 Hz), ±5% of maximum scale value accuracy		
Input resistance	500 kΩ or more (50/60Hz)		

ANALOG MΩ HiTESTER

3490

Insulation Testing in 3 Easy Steps
 Flip the Cover, Select Range & Test

- 3-range testing voltage, Insulation meter
- Continuity check, 3Ω range via 200mA testing
- Luminous scale
- Check for the battery status
- Check for live circuits
- Complies with EN61557



CAT III 600 V



SPECIFICATIONS

Testing voltage	250 V DC	500 V DC	1000 V DC
Rated resistance	100 MΩ	100 MΩ	4000 MΩ
Accuracy	±5 % of indicated value	±5 % of indicated value	±5 % of indicated value
1st effective measuring range	0.05 to 50 MΩ	0.05 to 50 MΩ	2 to 1000 MΩ
Rated measurement current	1 mA		
Low resistance	3 Ω range, ±0.09 Ω accuracy, 200 mA DC measuring current, 4.1 to 6.9 V open-circuit voltage		30 Ω range, ±0.9 Ω accuracy, 20 mA DC measuring current, 4.1 to 6.9 V open-circuit voltage
AC voltage range	0 to 600 V (50/60 Hz), ±5 % of maximum scale value accuracy		
Other functions	Luminous scale, Battery status check, Live circuit check		
Standards	Safety: EN61010 EMC: EN61326		
Power consumption	AA alkaline (LR6) battery × 4, Continuous use: 20 hours (at 500 V range, no load)		
Dimensions, mass	159 mm (6.26 in) W × 177 mm (6.97 in) H × 53 mm (2.09 in) D, 610g (21.5 oz.)		
Accessories	Test lead L9787 × 1, Operation manual × 1, Shoulder strap × 1, AA alkaline battery (LR6) × 4		

OPTIONS

TEST LEAD WITH REMOTE CONTROL SWITCH (1m)	L9788
COMPLETE TEST LEAD WITH REMOTE CONTROL SWITCH (1m)	L9788-01
TIP PIN (replacement pin for Model L9788)	L9788-90
BREAKER PIN (for Model L9787)	L9787-91
MAGNETIC ADAPTER (for Models L9788-01, L9787)	9804-02



Field Measuring Instruments

Accessories TEST LEAD L9787 (1.2m)

included as a standard accessory
 (This sleeve cannot be attached to previous products)

When measuring in a CAT III environment, be sure to attach the sleeve to the test leads.



Detachable!

Conforms to safety standard IEC61010-031 (revised) for hand-held probes

EARTH HiTESTER 3151

Stable measurement for earth resistance

- Measurement range for grounding resistance increased to 115 % of normal range
- Elastomer rotary knob fits the hand perfectly.
- Select the "simple" two-wire measurement method, using a low ground conductor such as the ground side of a commercial power supply, or the conventional three-wire measurement method
- Select a measurement frequency to reduce the influence of harmonics of the power supply frequency on the ground current



CE
CAT II 30 V

SPECIFICATIONS	
Measurement item	Grounding resistance, Grounding voltage
Measurement ranges	10Ω (0 to 11.5Ω) to 1000Ω (0 to 1150Ω), 3 ranges / 30V (0 to 30 VAC), 1 range *Using the two-wire measurement method; applied to 100Ω/1000Ω range only.
Operating method	AC phase difference
Open terminal voltage	50V AC max.
Measurement current	15mA AC max. *3mA AC max. using two-wire method.
Measurement frequency	575Hz or 600 Hz selectable
Basic accuracy	Grounding resistance: ±2.5% f.s., Grounding voltage: ±3% f.s.
Power supply	R6P (AA), 6 pieces (at least 500 operations) or LR6 (AA), 6 pieces (at least 1400 operations) *Operating time: 30 second measurement, 30 second off
Dimensions, Mass	164W × 119H × 88D mm, 800g (main unit only)
Accessories	AUXILIARY EARTHING ROD 9214 (2), MEASURING CABLE 9215 (one earth: black 5m, yellow 10m, red 20m), CABLE WINDER(3), CARRYING CASE 9393(1)

OPTIONS

EARTH NET (set of two) 9050
*Use in location where there is no driven-in ground and where water seepage is present

PHASE DETECTOR 3129 3129-10

Non-Metallic Contact for Optimal Safety

SPECIFICATIONS	
Measurement Function	Phase detection (positive, negative), live wire check (R-S-T only)
Voltage Detection Method	Electrostatic induction method
Voltage Range	70V to 600V AC(50/60Hz)(sine wave, continuous input) (3129) 70V to 1000V(3129-10)
Clamp Diameter	φ2.4 to 17mm max. (3129) φ7 to 40mm (3129-10)
Display	Phase Detection Positive: 4 LEDs lit in clockwise order and 3 short beeps Negative: 4 LEDs lit in counterclockwise order and one continuous beep
	Live Wire Check R-S and S-T lamps will light if voltage between wires are within voltage range
Battery Check Function	ON lamp blinks to indicate battery low status when instrument is turned on
Auto Power Off	Auto shut off if no activity is detected after power is turned ON for 15 minutes
Power Supply	Two "AA" size batteries; rated voltage: DC3.0V; maximum rated power: 300mVA; continuous use: approx. 70 hours (standby)
Dimensions, Mass	70W×75H×30D mm, 200g (3129), 240g (3129-10) Cord length: 0.7m
Accessories	Carrying case (1), strap (1), R6P manganese battery (2) spiral tube (1)



4 magnets on the rear panel



Improved Efficiency



HiTESTER 3030-10

Basic tester with improved safety features (20kΩ/V)

- Drop proof design withstands dropping onto a concrete floor from a height of 1 m
- LED check function

SPECIFICATIONS	
DC Voltage range	0.3 V (16.7 k-ohm/V), 3/12/30/120/300/600 V (20 k-ohm/V) Accuracy: ±2.5 % f.s.
AC Voltage range	12 V (9 k-ohm/V) Accuracy: ±4 % f.s., 30/120/300/600 V (9 k-ohm/V) Accuracy: ±2.5 % f.s. Average rectifier effective value
Resistance range	0 to 3 k-ohm (center scale 30 ohm), R × 1, R × 10, R × 100, R × 1 k, ±3 % of scale length
DC Current range	60 μA/30 m/300 mA (300 mV internal voltage drop), Accuracy: ±3 % f.s.
Other functions	Battery check: 0.9 to 1.8 V, load resistance 10 ohm
Safety considerations	Complies with EN61010, Installation Category III (anticipated transient overvoltage 6000 V), Pollution Degree 2
Power supply	R6P(AA) × 2 batteries
Dimensions, 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), fuse (1), CARRYING CASE 9390 (1)

Note: The TEMP scale on Model 3030-10 is not effective without Model 9021-01 Temperature Probe, which has been discontinued.



CE
CAT III 600V

DROP PROOF

To prevent electric shock, a fuse for protection up to a commercial power supply of 250V is integrated into the internal circuitry of Model 3030-10. Please note that the fuse is not intended for preventing damage to the unit.

OPTIONS

HIGH-VOLTAGE PROBE *9017 (Not CE market)
(up to 30 kV DC)

LED OPTICAL METER | TM6101

Improve productivity with Ultra-fast and High precision measurement

- 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 TM6101 is not CE marked.

SPECIFICATIONS	
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] 100 lx to 100,000 lx
Accuracy	[Illuminance] $\pm 5\%$ (Luminous intensity standard light bulb 1,000 lx) * $23 \pm 5^\circ\text{C} / 80\% \text{ rh}$ or lower, Warm-up time 60 minutes After Dark compensation $\pm 5^\circ\text{C}$, Best range setting
Compensation	(1) Dark current correction (to cancel the dark current offset for each channel); user-selectable averaging count and range settings (all ranges) (2) Input of illuminance, chromaticity, and luminous flux values and calculation of gain correction values; user-selectable averaging count setting (3) Chromaticity value correction function; user-selectable averaging count setting
Interface	[USB2.0] [Digital I/O] Input: External trigger, Output: End of measurement
Incoming radiation diameter	$\phi 11.3 \text{ mm} \pm 0.1 \text{ mm}$
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 (AC100 to 240V, 50/60Hz, 6VA)
Dimensions, mass	[Main unit] 210 (W) \times 30 (H) \times 135 (D) $\pm 1 \text{ mm}$, 1,000 g $\pm 100 \text{ g}$ [Sensor unit] 70 (W) \times 39.5 (H) \times 172 (D) $\pm 1 \text{ mm}$, 550 $\pm 50 \text{ g}$
Accessories	AC adapter 9418-15 (1), USB cable (1), Aperture cap (1), Connection port screw (4), Ferrite core (3) Connecting cable (TM6101/sensor, 2 m) (1), Rubber foot (4), Operation manual (1), CD-R (1)(computer application software, measurement library)

< Measurement image >

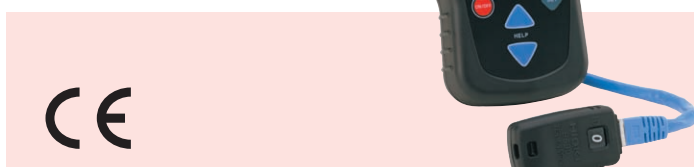
TM 6101 consists of main unit + sensor unit + PC application software. (PC is not included)



LAN CABLE HiTESTER | 3665-20

Identify the 3 most important criteria for proper networking at a glance

- Wire map check : Detect split pairs with wiring check
- Cable length : Get NVP-Enhanced measurement accuracy
- Direction check : Identify up to 21 cable destinations



SPECIFICATIONS	
Measurable cable	Twisted-pair cable, 100 Ω characteristic impedance, shielded and unshielded, CAT 3, 4, 5, 5e and 6
Compatible connectors	RJ-45 plugs
WireMap check	Wiring condition and shielding can be confirmed using the HIOKI TERMINATOR 9690 Detectable errors: open, short, reversed, transposed, split pairs and other miswiring
Cable length check	Measurable lengths: 2 to 300 m, 6.6 to 984 ft Measurement accuracy: $\pm 4\%$ rdg. $\pm 1 \text{ m}$, $\pm 4\%$ rdg. $\pm 3.3 \text{ ft}$ Display resolution: 0.1 m, 0.3ft
Direction check	Up to 21 cables can be identified using the supplied TERMINATOR 9690 and optional Models 9690-01 to 9690-04
Display	128 \times 64 dot matrix LCD (with backlight) Auto Backlight: pressing a button turns the backlight on (it turns off automatically after about 20 seconds) Beeper: sounds when pressing buttons and when measurement results are displayed Energy-Saving Mode: enter into energy-saving mode after measurement (and resume when the TEST button is pressed) Auto Power Save: the 3665-20 turns off automatically about 10 minutes after the last button press Battery Check: Battery indicator blinks when voltage falls below 2.4 V Unit Switch: Select between meters or feet
Power supply	Two AA-size (LR6) alkaline batteries 1.4VA Approx. 50 hours
Dimensions, mass	Approx. 85 W \times 130 H \times 33 D mm, approx. 160 g
Accessories	TERMINATOR 9690 (1), CARRYING CASE(1) (Stores the HiTESTER 3665-20 and TERMINATORS 9690)

NOISE HILOGGER 3145-20

Measure the noise current levels and frequencies on telecom, power and grounding lines

- Easily view the noise current level in each band
- Record noise level variations over time in each band
- Measure noise current on earth lines easily
- Reliably capture one-shot noise that is hard to detect with a spectrum analyzer or oscilloscope
- Automatically save data to a PC Card for continuous long-term recording



3145-20 SPECIFICATIONS

Input terminal	BNC (max. input voltage 5V peak), 5kHz to 100MHz (-3dB)
Measurement ranges	[Current] 200 mA, 2A, 20A (used with the 9754) [Voltage] 10mV, 100mV, 1V
Band Path Filter characteristics	Center frequency: 15k, 70k, 250k, 1M, 5M, 20M, 60MHz, 7 BPFs separates noise (fixed), measuring the peak value in each band
Monitor function	Displays real-time peak-to-peak values in each frequency band on level meters. Refresh interval: 100ms
Logging function	Records maximum peak-to-peak values in each frequency band at the specified recording interval to internal memory (16 days at 1sec interval to 2.5 years at 60sec interval)
Recording interval	1, 2, 5, 10, 20, 30, 60 sec
Functions	Displays a time-series graph, Alarm function, Event mark function, External trigger
Interface	LAN, RS-232C
Power consumption	AC ADAPTER 9418-15 /30VA max., BATTERY PACK 9447 / Continuous use 1hour (20VA max.)
Dimensions and mass	203 W x 170 H x 52D mm, 1.2kg
Accessories	AC ADAPTER 9418-15 x 1, Carrying case x 1, Strap x 1, Ferrite clamp x 3, CD-R (DATA VIEWER for 3145-20 software, Communication commands manual, or other) x 1, Operating manual x 1, Operating guide x 1

9754 SPECIFICATIONS (bundled with the 3145-20 upon purchase)

Band width	1kHz to 100MHz (-3dB)
Rated current	AC 10A (15A peak)
Amplitude accuracy	±3.0% rdg, ±0.001% f.s. (f.s. =10A, f=15kHz, with conductor centered in clamp)
Measurable conductor diameter	up to φ20mm
Max. rated voltage to earth	CAT II 600V, CAT III 300V (insulated conductor)
Dimensions and mass	176 W x 69H x 27D mm, 450g, Cord length 2m

OPTIONS

CLAMP ON NOISE SENSOR	9754 (required)	LAN CABLE	9642
AC ADAPTER	9418-15	PC CARD 256M	9727
BATTERY PACK	9447	PC CARD 512M	9728
RS-232C CABLE	9721	PC CARD 1G	9729
RS-232C CABLE	9612		

NOISE SEARCH TESTER 3144-20

Identify noise voltage in communication and power lines

3144-20 SPECIFICATIONS

Input unit configuration	9741 dedicated input terminal, BNC input terminal (9741 takes priority)
Frequency range band	500Hz to 30MHz, separated into 7 ranges (-3 dB) 500Hz to 3kHz (1 kHz range) / 7.5kHz to 22.5kHz (15kHz range) / 35kHz to 105kHz (70kHz range) / 125kHz to 375kHz (250kHz range) / 0.5MHz to 1.5MHz (1MHz range) / 1.5MHz to 4.5kHz (3MHz range) / 10MHz to 30MHz (20MHz range) / (BNC input 50Ω termination)
Detection method	RMS value conversion
Detection accuracy	500Hz to 1 MHz or less ±1.5dBV 1MHz to 30 MHz ±2.0dBV
Monitoring function	Display of measurement voltage level of each frequency range in levels on LCD (2.5dBV/SEG equivalent)
Logging function	Measurement data and time saved to internal memory according to specified recording interval
Recording interval	1/2/5/10/20/30 seconds 1/2/5/10/20/30/60 minutes
Output function	Wave monitoring (Output of input signal coming from 9741 or BNC input) Audible range monitoring (Use earphone to monitor for detected envelope signals)
Power	AA-size alkaline batteries (LR6) x6, DC9 V 500mA
Dimensions and mass	98W x 179H x 46D mm, 430g (excluding batteries)



9741 SPECIFICATIONS (bundled with the 3144-20 upon purchase)

Sensor configuration	Electrostatic coupling non-contact voltage sensor
Frequency range	600Hz to 30MHz (-3dB)
Conductor diameter	φ20mm
Dimensions and mass	62W x 158H x 40D mm, 260g
Accessories	CLAMP ON VOLTAGE SENSOR 9741 x 1, AC adapter 9445-02(UL) or 9445-03(CEE) x 1, Carrying case x 1, PC application software CD-R x 1, USB cable x 1, PC application software CD-R x 1, strap x 1, earphone x 1, AA alkaline(LR6) batteries x 6

Options & Peripherals

METER RELAY | 2103 | 2104

Advancing power saving and automation

- Electronic design assures high accuracy and reliability
- Ultra sensitive 1μA, 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



Models 2103 and 2104 are not CE marked.

Standard SPECIFICATIONS

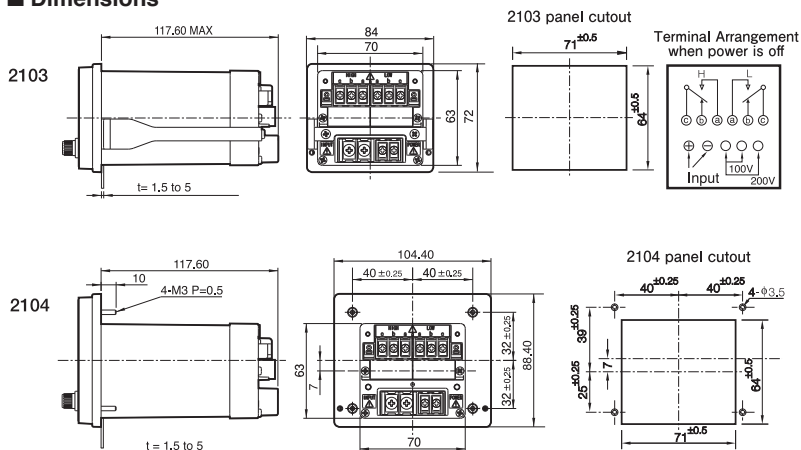
Meter class	2103: ±2.5% class, 2104: ±1.5% class
Deflecting range	Passing type, full scale
Setting pointer	Lance shape, upper limit and lower limit pointer
Setting accuracy	±1.5% of scale length
Minimum setting width	Within 3% of scale length
Relay power delay circuit	Approx. 2 second
Relay output response	Approx. 0.5 second
Output contact capacity	5A (under condition of 250V AC, 30V DC, resistance load)
Power supply	100 or 200V AC ±10%, 3VA max.

OPTIONS

(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
- **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.
- **Power supply:** Version with 110, 120, 220, 230, 240 V AC ±10 %

Dimensions



Standard Scale Graduations

Full-Scale Value	Graduations	Graduation 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

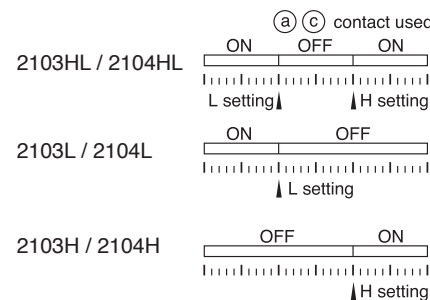
DC Ammeter		DC Voltmeter	
Std. Full-Scale Value	Meter Sensitivity Spec.	Std. Full-Scale Value	Meter Sensitivity Spec.
1 μA	50mV	10 mV	100kΩ/V
10		15	100kΩ/V
20		30	100kΩ/V
50		50 ^{*1}	100kΩ/V
100		100	100kΩ/V
200		150	100kΩ/V
500	300	100kΩ/V	
1 mA	50mV	500	10kΩ/V
2		1 V	10kΩ/V
5		1.5	10kΩ/V
10		3	10kΩ/V
20		5	10kΩ/V
50		10	10kΩ/V
100		15	10kΩ/V
200		30	10kΩ/V
500		50	10kΩ/V
1 A		100	10kΩ/V
2	150	10kΩ/V	
5	300	10kΩ/V	
10			
20			
Full-Scale: 4-20mA	50mV	Full-Scale: 1-5V	10kΩ/V

Rectifying AC Ammeter		Rectifying AC Voltmeter	
Std. Full-Scale Value	Meter Sensitivity Spec.	Std. Full-Scale Value	Meter Sensitivity Spec.
200 μA	50mV	50 mV	10kΩ/V
500		100	10kΩ/V
1 mA		150	10kΩ/V
2		300	10kΩ/V
5		500	1kΩ/V
10		1 V	1kΩ/V
20		1.5	1kΩ/V
50		3	1kΩ/V
100		5	1kΩ/V
200		10	1kΩ/V
500	15	1kΩ/V	
1 A	30	1kΩ/V	
2	50	1kΩ/V	
3	100	1kΩ/V	
5 ^{*2}	150	1kΩ/V	
	300	1kΩ/V	

● When the full-scale value is larger than 20A, an external shunt device is used with the 50-mV instrument denoted by ^{*1}.

● When the full-scale value is larger than 5A, an external CT is used with the 5A instrument denoted by ^{*2}.

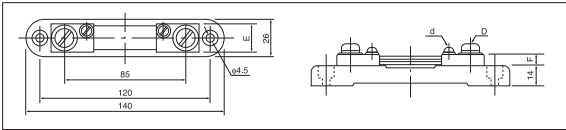
Contact operation



EXTERNAL SHUNTS | HS-1 |

Expand current range use with the 50 mV full scale meter (0.5 % class)

- Combination use with the 50 mV meter
- 30A to 300A



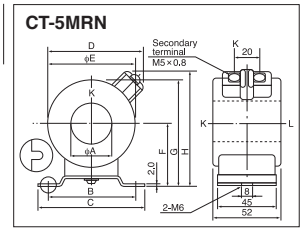
Model	Rated current	Accuracy	E	F	d	D
HS-1-30	30A	±0.5 % at 80 % of rated current 60°C or less around temperature	20 mm	6 mm	M4 mm	M5 mm
HS-1-50	50A		20 mm	8 mm	M4 mm	M8 mm
HS-1-75	75A		20 mm	8 mm	M4 mm	M8 mm
HS-1-100	100A		20 mm	15 mm	M5 mm	M8 mm
HS-1-150	150A		20 mm	15 mm	M5 mm	M8 mm
HS-1-200	200A	±0.5 % at 0 A to 200 A ±1.0 % at 200 A to 240 A 60°C or less around temperature	25 mm	15 mm	M5 mm	M10 mm
HS-1-300	300A		25 mm	15 mm	M5 mm	M10 mm

The total resistance of the connection cord must be 0.1 Ω or less

Note: These products are Production by order

CURRENT TRANSFORMER

CT-5MRN



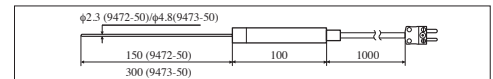
CT-5MRN SPECIFICATIONS

Model & rated current	CT-5MRN(100A), CT-5MRN(120A), CT-5MRN(150A)
Accuracy (50/60 Hz)	JIS-Class1.0 (±1% of rated value)
Rated load	5VA
Secondary current	5A (all models)
Conductor voltage rating	1150VAC
Dimensions	A: 23 (φA), 70 (B), 85 (C), 65 (D), 60 (φE), 45 (F), 75 (G), 83 (H) mm
Accessories	None

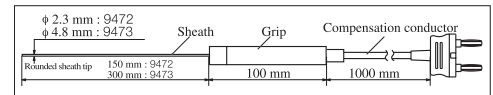
Wiring: Pass the wire through center of the C.T. When measuring under 100 A, use the equation below to find the number of times that the wire is to be passed through. Number of turns = (Primary current of C.T.)÷(Maximum value measured) However, in order to make the number of turns a full number, select the primary current or full scale.

Temperature probes or sensors ...Included as accessories with main unit, or sold separately (optional products) Note: * marked products are discontinued models.

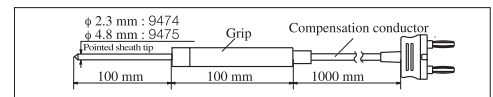
Model	Type/Note	Compatible Instrument
SHEATH TYPE TEMPERATURE PROBE 9180	-50 to 750°C	3412-50*, 3441, 3442
SHEATH TYPE TEMPERATURE PROBE 9181	Surface type, -50 to 400°C	3412-50*, 3441, 3442
SHEATH TYPE TEMPERATURE PROBE 9182	-50 to 750°C, non-waterproof	3412-50*, 3441, 3442
SHEATH TYPE TEMPERATURE PROBE 9183	-50 to 750°C, non-waterproof	3412-50*, 3441, 3442
RJ SENSOR 9184 (Reference contact compensation)	-25 to 80°C	7011*, SS7012
TEMPERATURE PROBE 9451	included with the 3540, 3541	3540, 3541
SHEATH TYPE TEMPERATURE PROBE 9472	Up to 300°C, waterproof structure	3441, 3442
SHEATH TYPE TEMPERATURE PROBE 9472-50	Up to 300°C, waterproof structure	3446-01
SHEATH TYPE TEMPERATURE PROBE 9473	Up to 800°C, waterproof structure	3441, 3442
SHEATH TYPE TEMPERATURE PROBE 9473-50	Up to 800°C, waterproof structure	3446-01
SHEATH TYPE TEMPERATURE PROBE 9474	Up to 300°C, waterproof structure	3441, 3442
SHEATH TYPE TEMPERATURE PROBE 9475	Up to 500°C, waterproof structure	3441, 3442
TEMPERATURE PROBE 9476	Surface type, up to 500°C	3441, 3442
TEMPERATURE PROBE 9476-50	Surface type, up to 500°C	3446-01
SHEATH TYPE TEMPERATURE PROBE 9478	Up to 300°C Waterproof structure	3447-01 (Pt-100)
SHEATH TYPE TEMPERATURE PROBE 9479	Up to 300°C Waterproof structure	3447-01 (Pt-100)
HUMIDITY SENSOR 9701	3 m length, 0.0 to 100.0%rh	8420-50*, 8421/-50*, 8423
HUMIDITY SENSOR LR9501	1 m length, -40.0 to 85.0°C, 0.0 to 100.0%rh	LR5000s
HUMIDITY SENSOR LR9502	5 m length, -40.0 to 85.0°C, 0.0 to 100.0%rh	LR5000s
HUMIDITY SENSOR LR9503	10 m length, -40.0 to 85.0°C, 0.0 to 100.0%rh	LR5000s
HUMIDITY SENSOR LR9504	44 mm length, -40.0 to 85.0°C, 0.0 to 100.0%rh	LR5000s
TEMPERATURE SENSOR LR9601	Molded plastic type, 1 m length, -40 to 180°C	LR5000s
TEMPERATURE SENSOR LR9602	Molded plastic type, 5 m length, -40 to 180°C	LR5000s
TEMPERATURE SENSOR LR9603	Molded plastic type, 10 m length, -40 to 180°C	LR5000s
TEMPERATURE SENSOR LR9604	Molded plastic type, 45 mm length, -40 to 180°C	LR5000s
TEMPERATURE SENSOR LR9611	Lug type, 1 m length, -30 to 180°C	LR5000s
TEMPERATURE SENSOR LR9612	Lug type, 5 m length, -30 to 180°C	LR5000s
TEMPERATURE SENSOR LR9613	Lug type, 10 m length, -30 to 180°C	LR5000s
TEMPERATURE SENSOR LR9621	Sheathed type, 1 m length, -40 to 120°C	LR5000s
TEMPERATURE SENSOR LR9631	Needle type, 1 m length, -40 to 120°C	LR5000s
HUMIDITY SENSOR Z2000	3 m length	LR8400s



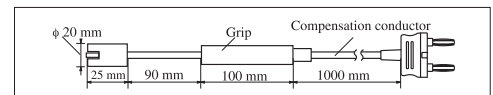
9472-50, 9473-50 (K)



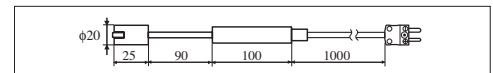
9472, 9473



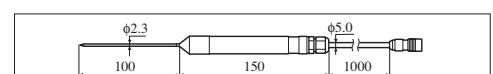
9474, 9475



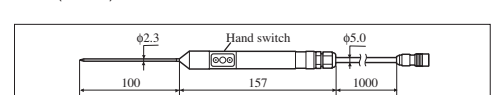
9476



9476-50 (K)



9478 (Pt-100)



9479 (Pt-100)

RECORDING PAPER ...Sold separately (optional products)














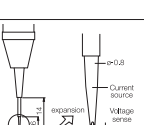
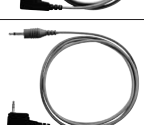


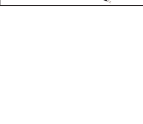









Note: * marked products are discontinued models.

Model	Paper Size	Compatible Instrument
1196	112 mm × 25 m, 10 rolls	for 1105*, 1107*, 1114/1115*, 1116*, 1117, 1240, 9442
9073	70 mm × 15 m, 10 rolls	for 8201*, 8202*, 8204*
9074	70 mm × 15 m, 10 rolls	for 8203*
9221	110 mm × 30 m, 10 rolls	for 3195*, 3620*, 8710*, 8801*, 8802*, 8803*, 8810S*, 8815*, 8830s*, 8835s*, 8851*, 8852*, 8853*
9222	38 mm × 8.5 m, 5 rolls	for 3223-02*, 3224-02*, 3225-02*, 3235*, 9200*, 9514*
9223	80 mm × 30 m, 5 rolls	for 3165*, 3191*
9227	38 mm × 3 m, 5 rolls	for 3234*
9229, 9229-01	264 mm × 30 m, 6 rolls	for 8825*, 8826
9231	216 mm × 30 m, 6 rolls	for 8840*, 8841*, 8842*, 8845*, 8846*, 8847, 8855*, 8860*, 8861*, 8860-50, 8861-50
9232	74 mm × 10 m, 10 rolls	for 3193, 3194, 8804*, 8805*, 8806*, 8712*, 8713*
9233	58 mm × 10 m, 10 rolls	for 3155*, 9203 (3540-02, 3560)
9234	112 mm × 18 m, 10 rolls	for 8714*, 8715*, 8992 (8807, 8808, 8420s*), 8995-01 (8860*, 8861*, 8860-50, 8861-50), MR9000 (MR8880)
9235, 9236-01	60 mm × 15 m, 10 rolls	for 8205*, 8206*, 8205-10, 8206-10
9237	80 mm × 25 m, 4 rolls	for 9670* (3196*, 3390, BT3562, BT3563, RM3542)
SE-10	170 mm × 20 m, 10 rolls	for PR8111, PR8112
SE-10Z-2	170 mm × 20 m, 10 sets (fanfold)	for PR8111, PR8112

Test Leads and Probes ... Included as accessories with main unit, or sold separately (optional products)

 Not CE marked	Model HIGH VOLTAGE PROBE 9014 for 3250s		Model INPUT CORD 9177 for 8904*, 8906*, 8932*, 9555*		Model WIRING ADAPTER PW9000 (For three-phase 3-wire) PW9001 (For three-phase 4-wire) for PW3198		Model LOGIC PROBE 9320 for 8800s
 Not CE marked	Model HIGH VOLTAGE PROBE 9017 for 3030-10		Model ENCLOSURE PROBE 9195 for 3156*, ST5540, ST5541		Model DC BIAS VOLTAGE UNIT 9268 for 3511-50, 3522-50 3532-50		Model LOGIC PROBE 9320-01 for 8807*, 8808*, MR8880
 Not CE marked	Model THERMISTER TEMPERATURE PROBE 9021-01 for 3030-10, 3127-10 3128-10*		Model CONNECTION CORD 9197 for MEMORY HiCORDER		Model DC BIAS CURRENT UNIT 9269 for 3511-50, 3522-50 3532-50		Model LOGIC PROBE MR9321 for 8800s
	Model TEST LEAD 9060 for 3008		Model CONNECTION CORD L9198 for MEMORY HiCORDER		Model TEST PROBE 9286 for 3119*		Model LOGIC PROBE MR9321-01 for 8807*, 8808*, MR8880
 Not CE marked	Model OUTPUT CORD 9094 for 3412-50*, 3283, 3284 3285, 3290, 3290-10 3404*, FT3406		Model CONVERSION ADAPTOR 9199 for MEMORY HiCORDER		Model CLIP TYPE LEAD 9287-10 for 3239, 3540, 3541 3555, 3560, 3561, BT3562, BT3563		Model DIFFERENTIAL PROBE 9322 for 8800s, 8714*, 8715*
	Model CLIP TYPE LEAD 9099 for 3220*, 3224*		Model TEST LEAD L9207-10 for 3255-50/3256-50/s1*/ 3257-50/s1*/3281/3282/ 3284/3285/20/3800s/7016	 Not CE marked	Model BREAKER PIN 9288 for 3118-11*/12*, 3451-11* 15*, 3452-11* 10-13*, 3453, 3454s, IR4000s		Model CONVERSION CABLE 9323 for 8807*, 8808*, MR8880(9320/9321)
	Model 4-TERMINAL PROBE 9140 for 3504, 3504-10, 3505 3506, 3511-50, 3522-50 3532-50		Model TEST LEAD L9207-30 for 3030-10	 Not CE marked	Model TEST PROBE 9289 for 3118-11*, -12* 3154, 3453, 3454s		Model POWER CORD 9324 for 9322 (LOGIC INPUT)
	Model PINCHER PROBE 9143 for 3504, 3504-10, 3505 3506, 3511-50, 3522-50 3532-50		Model TEST LEADS L9208 for 3280-10, 3280-20 3287, 3288/20		Model TEST PROBE 9292 for 3451-11*, -12*, -13*, -14* -15*, 3452-11*, -12*		Model POWER CORD 9325 for 9322(8940)
	Model TEST LEAD with FUSE 9153 for 3021*, 3127* 3128*, 3030*		Model MEASURING CABLE 9215 for 3151		Model PIN TYPE EARTH PROBE 9293 for 3451-11*, -12*, -13*, -14* -15*, 3452-11*, -12*		Model CONNECTION CORD 9326 for 8205*, 8205-10
 Not CE marked	Model CONNECTION CORD 9165 for 7075*		Model CONNECTION CORD 9217 for MEMORY HiCORDER		Model TEST PROBE L9287 for 3117s*, 3118-11* 3118-12*, 3154, 3453		Model LOGIC PROBE 9327 for 8855*
	Model CONNECTION CORD 9166 for 7075*		Model CONNECTION CABLE 9219 for 9695-02, 9695-03		Model CURRENT PROBE 9296 for 3157, 3157-01		Model POWER CORD 9328 for 9322(8950/8953*)
	Model INPUT CORD 9168 for 7010*, 7011* SS7012		Model GRABBER CLIP 9243 for 3390		Model CURRENT APPLY PROBE 9297 for 3157, 3157-01		Model CONNECTION CABLE 9425 for 9203
	Model TEST LEAD L9170-10 for 3237, 3238, 3239, 3255, 3256, 3257, 7011*, ST5540, SS7012		Model CONNECTION CORD L9257 for 8205-10, 8206-10 3454-11, 3454-10 3453, 3118-11*/12*		Model SWITCHED PROBE 9299 for 3154		Model CONNECTION CABLE 9436 for 3423
	Model 4-TERMINAL LEAD 9173 for 3220*, 3224* 3225*		Model TEST FIXTURE 9261 for 3503*, 3511-50 3520*, 3521*, 3522-50 3530*, 3531*, 3532-50		Model CONNECTION CABLE 9300 for 3541		Model VOLTAGE CORD 9438 for 3166*
	Model PIN TYPE LEAD 9174 for 3220*, 3224* 3225*		Model TEST FIXTURE 9262 for 3511-50, 3522-50 3532-50, RM3542		Model CONVERSION CABLE 9318 for 8940 (9270*, 9271*, 9272*, 9272-10, 9277, 9278, 9279)		Model VOLTAGE CORD L9438-50 for 3390, 3193
	Model CLIP TYPE LEAD 9175 for 3220*, 3224* 3225*		Model SMD TEST FIXTURE 9263 for 3511-50, 3522-50 3532-50, RM3542		Model CONVERSION CABLE 9319 for 8940 (3273*, 3273-50)		Model VOLTAGE CORD L9438-53 for 3169-20, -21

















Test Leads and Probes ... Included as accessories with main unit, or sold separately (optional products)

	Model VOLTAGE CORD L9438-55 for 3197		Model 4-TERMINAL PROBE 9500 for 3532-80		Model CONNECTION CABLE 9678 for 3535		Model BREAKER PIN L9787-91 for L9787
	Model CONNECTION CABLE 9440 for 3166*		Model INPUT CORD 9574 for 8944(8855*)		Model CONNECTION CABLE 9683 for 8423		Model TEST LEAD WITH REMOTE CONTROL SWITCH L9788 for 3490, IR4000s
	Model CONNECTION CABLE 9441 for 3166*, 3169-21		Model H.V. TEST LEAD 9615 for 3153, 3158*, 3159 3173, 3930		Model SMD TEST FIXTURE 9699		Model COMPLETE TEST LEAD WITH REMOTE CONTROL SWITCH L9788-01 for 3490, IR4000s
	Model CONNECTION CABLE 9444 for 3166*, 3332 9442, 3511*		Model H.V. TEST LEAD 9615-01		Model HUMIDITY SENSOR 9701 for 8420-50*, 8421-50* Z2000 for LR8400s		Model TIP PIN L9788-90 for L9788
No image	Model CONNECTION CABLE 9446 for 3522*, 3532* 3330.02*		Model CLIP ON BASE 9617 for 3501, 3801-50 3802-50, 3804-50*, 3805-50 Not CE marked		Model CONVERSION CABLE 9705 for 9272-10, 9709		Model CONNECTION CORD L9790 for 8870-20, MR8880
	Model CONCENT INPUT CORD 9448 for 3168*, 8715-01* 3390		Model CLIP-TYPE LEAD 9618 for 3501, 3801-50 3802-50, 3804-50*, 3805-50 Not CE marked		Model EXTENSION CABLE 9706 for 9272-10, 9709		Model ALLIGATOR CLIP 9790-01 for 8870-20, MR8880
	Model CLIP TYPE LEAD 9452 for 3239, 3540, 3541 3555, 3560*, 3561		Model CONNECTION CORD 9629 for 3639*		Model LOGIC CABLE 9714-01 for 8910		Model GRABBER CLIP 9790-02 for 8870-20, MR8880
	Model FOUR TERMINAL LEAD 9453 for 3239, 3540, 3541 3555, 3560*, 3561, BT3562, BT3563		Model CONNECTION CORD 9632 for 3634-20*, 3636-20*		Model LOGIC CABLE 9714-02 for 8910		Model CONTACT PIN 9790-03 for 8870-20, MR8880
	Model ZERO ADJUSTMENT BOARD 9454 for 3239, 3540, 3541 3554, 3555, 3560*, 3561 BT3562, BT3563		Model CONNECTION CORD 9633 for 3634-20*, 3635-23*		Model TEST LEAD 9750-01 (Red, 3m) 9750-02 (Black, 3m) 9750-03 (Blue, 3m) for 3455		Model MAGNETIC ADAPTER 9804-01, 9804-02 for 3169-20, 3169-21 9804-01:Red 9804-02:Black
	Model PIN TYPE LEAD 9455 for 3239, 3540, 3541 3555, 3560*, 3561 Not CE marked		Model CONNECTION CORD 9634 for 3634-20*, 3635series*		Model ALLIGATOR CLIP 9751-01 (Red) 9751-02 (Black) 9751-03 (Blue, for GUARD) for 3455		Model PIN TYPE LEAD L2100 for BT3562, BT3563
	Model CLIP TYPE LEAD WITH TEMPERATURE SENSOR 9460 for 3540, 3554		Model VOLTAGE CORD L9635-01 for 3286-20		Model EXTENSION CABLE 9758 for 3470		
	Model PIN TYPE LEAD 9461 for 3239, 3540, 3541 3555, 3560*, 3561		Model CONNECTION CABLE 9639 for 3637-20*, 3645-20*		Model OUTPUT CABLE 9759 for 3470		
	Model PIN TYPE LEAD 9465 for 3239, 3540, 3541 3555, 3560*, 3561		Model CONNECTION CABLE 9641 for 8420-51* 8421-51*, 8422-51* 8430-20		Model PIN TYPE LEAD 9770 for 3239, 3540 3541 3555, 3560*, 3561, BT3562, BT3563		
	Model PIN TYPE LEAD 9465-10 for 3239, 3540, 3541 3554, 3555, 3560*, 3561		Model 10:1 PROBE 9665 for MEMORY HiCORDER		Model PIN TYPE LEAD 9771 for 3239, 3540 3541 3555, 3560*, 3561, BT3562, BT3563		
	Model REMOTE CONTROL SWITCH 9466 for 3554, 3560*, 3561		Model 100:1 PROBE 9666 for MEMORY HiCORDER		Model PIN TYPE LEAD 9772 for 3239, 3540 3541 3554, 3555, 3560* 3561		
	Model LARGE CLIP TYPE LEAD 9467 for 3239, 3540, 3541 3554, 3560*, 3561, BT3562, BT3563 Not CE marked		Model SMD TEST FIXTURE 9677 for 3511-50, 3522-50 3532-50, 3535 Not CE marked		Model TEST LEAD L9787 for 3490, IR4000s		

CARRYING CASE ...Sold separately (optional products)














Model	Model	Model	Model
 3853 for 3803*, 3804*, 3805*, 3804.50*, 3805.50, 3256.50, 3257.50	 9371 for 3255*, 3255.50	 9391 for 8807*, 8808*	 9757 for 3291.50, 3293.50, FT3432
 9245 for 3286.20	No image 9375 for 9277~9279	 9393 for 3151	 9782 for 8870.20, SS7012 8430.20
 9246 for 3664, 9742	No image 9376 for 3423	 9397-01 for 8855*, 8841* 8720*	 9783 for MR8847 Series
 9338 for 3143	 9378 for 3256*, 3256.50 3257*, 3257.50	 9398 for 3280, .01*, .10, .20 3287, 3288, 3288.20	 9794 for 3390
 9339 for 3196*	 9380 for SS7012	 9399 for 3281, 3282, 3284	 9812 for 8870.20, 8430.20
 9340 for 3196*	 9382 for 3550*, 3555	 9400 for 3290, 3290.10	 C1000 for LR8400s
 9344 for 8205*, 8205.10 8206*, 8206.10	 9384 for 3451, 3452	 9648 for 8420 series*	 C1001 for PW3198
 9345 for 3285	 9386-01 for 3441, 3442, 3446 3447	 9696 for 3453.01	 C1002 for PW3198
 9351 for 3127*, 3100*	 9388 for 8835*, 8835.01 3155*	 9720-01 for 3169.20, .21	 C1003 for MR8880.20
 9355 for 3264*, 3265* 3266*, 3267*, 3286* 9270*, 9271*, 9272*	 9390 for 3030.10	 9730 for 3661.20, 3662.20 3663.20*	 C1004 for MR8875

Clamp on sensors

Model	Model	Model	Model
 CLAMP ON PROBE 9010-50 for 3255.50, 3237, 3238, 3239, 8714*, 8715*, MR8880.20	 UNIVERSAL CLAMP ON CT 9277 for 3390, 3192*, 3193 3167*, MR8880.20 (AC/DC20A)	 CLAMP ON SENSOR 9291 for 3166*	 CLAMP ON LEAK SENSOR 9657-10 for PW3198, 3197, MR8880.20
 CLAMP ON PROBE 9018-50 for MEMORY RECORDERs	 UNIVERSAL CLAMP ON CT 9278 for 3390, 3192*, 3193 3167*, MR8880.20 (AC/DC200A)	 CLAMP ON SENSOR 9650 for 100A 8205*, 8205.10, 8206* 8206.10, 3636.20*	 CLAMP ON LEAK SENSOR 9658 for 3638.20
 CLAMP ON PROBE 9132-50 for AC1000A	 UNIVERSAL CLAMP ON CT 9279 for 3390, 3192*, 3193 3167*, MR8880.20 (AC/DC 500A) <i>Not CE marked</i>	 CLAMP ON SENSOR 9651 for 500A 8205*, 8205.10, 8206* 8206.10, 3636.20*	 CLAMP ON SENSOR 9660 for PW3198, 3196, 3169, 3197 (100A AC)
 CLAMP ON SENSOR 9272-10 for 3390, 3191*, 3165* 3192* 3167*, MR8880.20 (20/200A)	 CLAMP ON ADAPTER 9290-10 for 1000A CT 10 : 1	 CLAMP ON LEAK SENSOR 9657 for 3638.20*	 CLAMP ON SENSOR 9661 for PW3198, 3196*, 3169, 3197 (500A AC)

Note: * marked products are discontinued models.

Clamp on sensors

	Model FLEXIBLE CLAMP ON SENSOR 9667 for PW3198, 3197, 3196, 3191*, 3165*, 3192*, 3167* (5000A AC)		Model CLAMP ON AC/DC SENSOR 9691 for 3290 AC100A		Model CLAMP ON SENSOR 9694 for PW3198, 3196*, 3169, 3197 (5A AC)		Model AC/DC CURRENT SENSOR CT6862 for 3390 CT6862-10 for 3390-10
	Model CLAMP ON SENSOR 9668 for 8205-10/8206-10 AC1000A		Model CLAMP ON AC/DC SENSOR 9692 for 3290 AC200A		Model AC/DC CURRENT SENSOR 9709 for 3390, 3193 9709-10 for 3390-10		Model AC/DC CURRENT SENSOR CT6863 for 3390, 3193 CT6863-10 for 3390-10
	Model CLAMP ON SENSOR 9669 for PW3198, 3196*, 3169, 3197 (1000A AC)		Model CLAMP ON AC/DC SENSOR 9693 for 3290 AC2000A		Model CLAMP ON SENSOR CT6500 for LR5051		Model AC/DC CURRENT SENSOR CT6865 for 3390, 3193
	Model CLAMP ON LEAK SENSOR 9675 for PW3198, 3197, MR8880-20						

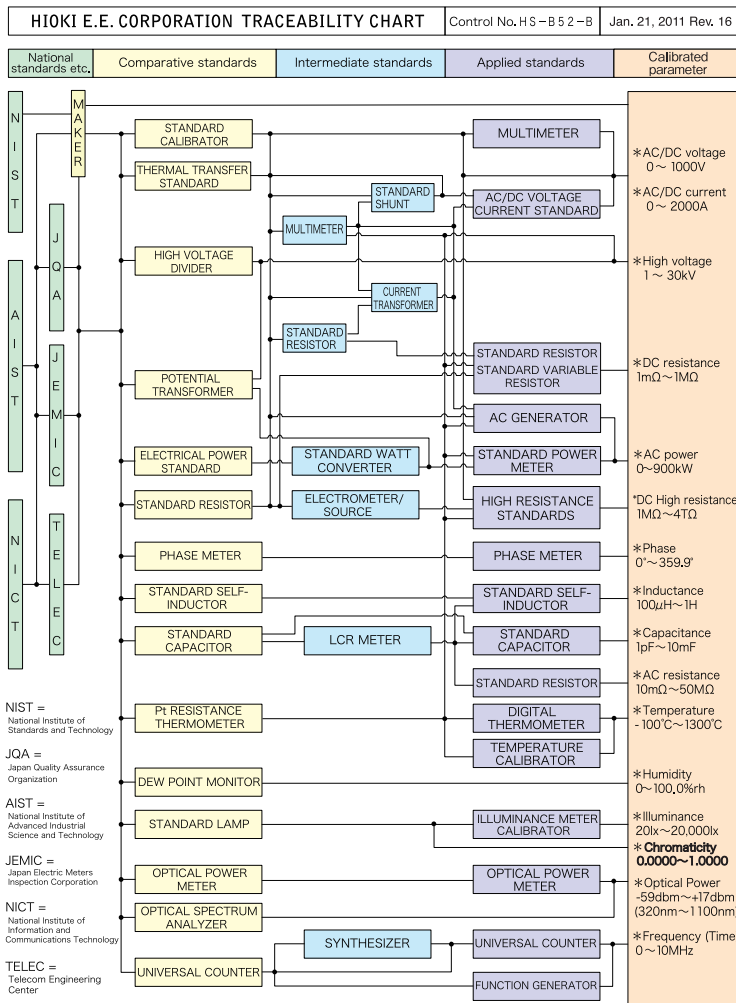
Others

	Model COMMUNICATION PACK (USB) 3856-02 for 3801-50, 3802-50, 3803, 3804-50, 3805-50, 7016		Model DIGITAL PRINTER 9203 for 3227*, 3540, 3550* 3560*		Model AC ADAPTER 9418-15 for 3197, 8420 Series* 8714*/15, 8807/08*, MR8880-20		Model FUNCTION UP DISK 9540-01 for 8835-01*
No image	Model INTERFACE PACK 3909 for 3443, 3444, 3445		Model REFLECTIVE TAPE 9211 for 3402*, 3403*, 3404*, FT3405, FT3406		Model PRINTER 9442 for 3332, 3154, 3443, 3444, ST5540, ST5541 Not CE marked		Model FUNCTION UP DISK (POWER MONITOR) 9549 for 8855*
	Model HIGH VOLTAGE SCANNER 3930 for 3153		Model PERIPHERAL RING 9212 for 3402*, 3403*, 3404*, FT3405, FT3406		Model AC ADAPTER 9443-02 for 3166*, 3330-02* 3332, 3511*, 3154 Not CE marked		Model SENSOR UNIT 9555-10 for 9272-10, 9277, 9278, 9279
	Model METAL CONTACT TIP 9032 3402*, 3403*, 3404* FT3405, FT3406	No image	Model AUXILIARY EARTHING ROD 9214 for 3151		Model AC ADAPTER 9445-02 (for USA, CANADA) for 3283, 3284, 3285, 3540, 3670, 3671, 3913, SS7012	No image	Model GP-IB INTERFACE 9588 for 3227*, 3167*, 3187*, 3330*, 3330-02*, 3560*
	Model RUBBER CONTACT TIP 9033 for 3402*, 3403*, 3404*, FT3405, FT3406	No image	Model SAFETY TEST DATA MANAGEMENT SOFTWARE 9267 for 3153, 3156*, 3157, 3158*, 3159, 3332	No image	Model AC ADAPTER 9445-03 (for EU)	No image	Model RS-232C INTERFACE 9593-01 for 3522*, 3531* 3532*, 3522-50, 3532-50
No image	Model AC ADAPTER 9035 for 3108*, 3131*, 3132* 3161*, 3162*, 3220*, 3205* 3209*, 3402-04*, 3422 (6V)* for 100V AC power lines only Not CE marked		Model PT 9303 for 8815*, 8825* 8830*, 8832*, 8851* (PT 40:1, 20:1) Not CE marked		Model BATTERY PACK 9447 for 8807*, 8808* 8420 series*	No image	Model RS-232C INTERFACE 9593-02 for 3157, 3157-01
	Model AC ADAPTER 9039 for 3501* (12V) for 100V AC power lines only Not CE marked		Model LAN COMMUNICATOR 9333 for MEMORY HiCORDER		Model AC ADAPTER 9458 for 3196*		Model MEMORY BOARD 9599 for 8826 (48M-word)
	Model EARTH NETS 9050 for 3124*, 3150*, 3151		Model LOGGER COMMUNICATOR 9334 for 8420 Series*		Model BATTERY PACK 9459 for 3196*, 3197		Model AC/DC DIRECT INPUT UNIT 9600 for 3193, 3194
	Model AC ADAPTER 9070 for 3118*, 3119* for 100V AC power lines only Not CE marked		Model WAVE PROCESSOR 9335 for MEMORY HiCORDER	No image	Model GP-IB INTERFACE 9518-01 for 3511*, 3522* 3531*, 3532*, 3511-50, 3522-50, 3532-50		Model AC DIRECT INPUT UNIT 9601 for 3193, 3194
	Model GP-IB CONNECTOR CABLE 9151-02 for 3511*, 3330-02* 3332 (2m)		Model AC ADAPTER 9418-10 for 3167*, 3551*, 7011*	No image	Model GP-IB INTERFACE 9518-02 for 3157, 3157-01		Model AC/DC CLAMP INPUT UNIT 9602 for 3193, 3194

Others

	Model		Model		Model		Model
	EXTERNAL SIGNAL INPUT UNIT 9603 for 3193, 3194		MEMORY BOARD 9645 for 8855*		PC CARD 1GB 9729 for 8800s		ANALOG/TEMPERATURE UNIT LR8500 for LR8400s
No image	EXTERNAL SIGNAL INPUT UNIT 9603-01 for 3194	No image	MEMORY BOARD 9645-01 for 8855*		PC CARD 2GB 9830 for 2354/3390/8430-20/8730*/8731*/8826/8835-01/8841/8842/8847*/8855*/8860s/8861s/8870-20/MR8880-20/MR8847 Series		UNIVERSAL UNIT LR8501 for LR8400s
	PRINTER UNIT 9604 for 3193, 3194		LUX SENSOR 9662 for 3640*		FC CONNECTOR ADAPTER 9731 for 3661-20		FELT PEN P-1201-A (red) P-1202-A (green) P-1203-A (blue) for PR8111, PR8112
No image	HARMONIC/FLICKER MEASUREMENTS UNIT 9605 for 3193		HD UNIT 9663 for 8855*		SC CONNECTOR ADAPTER 9732 for 3661-20		GPS BOX PW9005 for PW3198
No image	HARMONIC MEASUREMENTS UNIT 9605-01 for 3194	No image	RS-232C PACKAGE 9674 for 3446, 3447		FC CONNECTOR ADAPTER 9733 for 3662-20, 3663-20*		COMMUNICATION PACKAGE SS9000 for SS7012
	RS-232C CABLE 9612 for DIN 9pin-Dsub 9pin 8807*, 8808*, 8420*		DC POWER UNIT 9684 for 8860-50, 8861-50		SC CONNECTOR ADAPTER 9734 for 3662-20, 3663-20*		BATTERY PACK Z1000 for LR8400s, MR8880-20
	REMOTE CONTROL BOX (SINGLE) 9613 for 3158*, 3159		HEAD AMP UNIT 9700-10 for 3535		OPTICAL CONNECTOR CLEANER 9738 for 3661-20, 3662-20, 3663-20*		AC ADAPTER Z1004 for FT3406
	REMOTE CONTROL BOX (DUAL) 9614 for 3158*, 3159		CONVERSION ADAPTER 9704 for 9010-50, 9018-50		SPARE CLEANER 9739 for 3661, 3662, 3663*		SD MEMORY CARD (2GB) Z4001 for LR5092, PW3198
	PQA-HIEW PRO 9624-50 for PW3198, 3196*, 3197		MEMORY BOARD 9715-50, -51, -52, -53 for 8860-50, 8861-50		OPTICAL SENSOR 9742 for 3664		FUXED STAND Z5000 for LR8400s
	POWER MEASUREMENT SUPPORT SOFTWARE 9625 for 3166*, 3169		HD UNIT 9718-50 for 8860-50, 8861-50		OPTICAL SENSOR 9742-10 for 3664		CONTACT ADAPTER Z5003 for 3403*, 3404*, FT3405, FT3406
	RS-232C PACKAGE 9636-01 for 3286*, 3286-20	No image	MEMORY BACK UP UNIT 9719-50 for 8860-50, 8861-50		AC ADAPTER 9753 for 3455		
	RS-232C CABLE (9pin-9pin/1.8m) 9637 for 3154, 3630S 3911-20, ST5540, ST5541		RS-232C CABLE 9721 for 3169		BATTERY PACK 9780 for 8430-20, 8870-20		
	RS-232C CABLE (9pin-25pin/1.8m) 9638 for 3154, 3630S, 3911-20, 9593-01, ST5540, ST5541		MEMORY HIEWER 9725 for 8860*, 8860-50 8861*, 8861-50		AC ADAPTER 9786 for 8430-20, 8870-20		
	LAN CABLE 9642 for 8420 series*, 3196, 3390, Memory HiCORDERs		PC CARD 256M 9727 for 8800s, 3169, 3196*		PROTECTION SHEET 9809 for 8430-20, 8870-20		
	CHARGE STAND 9643 for 9447		PC CARD 512M 9728 for 8800s, 3169, 3196*		LINE SPLITTER CT-101A for 3127-10 etc. Not CE marked		

HIOKI - Offering Top Quality Products and Services



Note: Only the primary standards are indicated above. For details, please refer to each product's TRACEABILITY CHART. Please also note that the naming of the standards indicated in this chart may differ from the naming used in each product's TRACEABILITY CHART.

Accuracy can be regarded as the heart of a measuring instrument. To maintain accuracy, traceability and accountability in the form of a coherent and comprehensive management system that reaches to the national standards are indispensable.

Traceability allows us to manage and maintain instrument accuracy characteristics that are tied to recognized national and international standards. How they are managed and maintained are dependent on the measurement facilities that offer accuracy testing at the various levels, skilled technicians, as well as a strong link between national standards, manufacturer reference equipment, field measuring instruments, and basic measuring instruments.

The HIOKI Traceability System as indicated by the chart on the left is strictly managed by accounting for each individual instrument - from reference instruments to field equipment - and their constant accuracy. As scientific techniques and manufacturing technology continue to expand and develop, we will strive to meet new demands by not only providing the appropriate measuring instruments for our users, but also enhancing the accuracy in our test instruments and maintaining our Traceability System so that they are constantly on par with global standards.

HIOKI's Calibration System

By regularly calibrating HIOKI instruments using reference calibrating equipment traceable to national standards while complying with the reference equipment organizational chart, customers are guaranteed complete accuracy. After purchase, it is highly recommended that customers regularly re-calibrate their HIOKI instruments to maintain their accuracy. Depending on your needs, calibration and adjustment can be conducted at HIOKI in one of 3 ways as illustrated on the right.

Types of Calibration

Type	Action	Price
Type 1	<p>The relationship between the measurement values of the instrument being serviced and those of the reference and testing instruments placed in the higher order in the calibration flow are observed and the results are recorded in a data sheet. (If the measurement values fall outside of the specifications for accuracy, these values are not indicated.)</p>	Calibration + Data Sheet
Type 2	<p>The relationship between the measurement values of the instrument being serviced and those of the reference and testing instruments placed in the higher order in the calibration flow are observed and the results are recorded in a data sheet. The instrument is then adjusted, and once again compared to the same reference and testing instruments, and the results are recorded in a separate data sheet.</p>	Calibration + Adjustment + 2 Data Sheet
Type 3	<p>The relationship between the measurement values of the instrument being serviced and those of the reference and testing instruments placed in the higher order in the calibration flow are observed and the results are recorded in a data sheet. If the values are within the specifications for accuracy, calibration is completed. If the values fall outside of the specifications, the instrument is then adjusted, compared again to the same reference and testing instruments, and the results are recorded in a separate data sheet.</p>	Calibration + Data Sheet + Calibration + Adjustment + 2 Data Sheet

About our Company



Established in 1935, HIOKI E. E. CORPORATION has grown to be a leading developer and manufacturer of advanced test and measurement technologies for use both in the field and leading edge facilities around the world. Our goal is simple: contribute to the advancement of society, while making sure the natural environment is not compromised. As a reliable producer and member of society, we pledge to continue to actively contribute to the cultural and educational development of the local community through activities such as greening efforts, scholarship programs and sponsoring children's sports teams. With the support of our customers and worldwide network, we are confident that our values and beliefs, and products and services, will be brought forth through the 21st century and beyond.



Reforestation program in Kenya (2007)

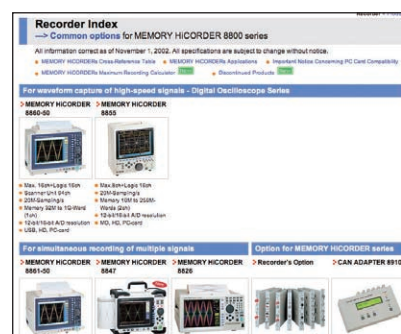


Local children also contribute to the tree planting.

Corporate History

- 1935 HIOKI starts manufacturing electrical measuring instruments in Tokyo
- 1945 Move to Nagano Prefecture due to war
- 1946 Tester No.1 put to market
- 1952 HIOKI E.E. CORPORATION established
Designated as the manufacturer of MULTITESTER (MIL Standard) for the U.S. Far East Air Forces
- 1965 Mass production of VU instruments for recording level adjustments to tape recorders
- 1975 Independent development and sale of instruments with internal magnetic taut bands
- 1983 Multiple awards received for innovative clamp-style instruments
- 1990 Move to HIOKI Forest Hills
- 1991 Registered on the over-the-counter market
- 1992 Awarded the Afforestation Center Presidential Award for positively promoting afforestation
- 1993 ISO9001 certified
- 1997 ISO14001 certified
- 1998 HIOKI USA CORPORATION established
- 2001 HIOKI Shanghai Representative Office established
Listed on the Second Section of the Tokyo Stock Exchange
- 2003 Listed on the First Section of the Tokyo Stock Exchange
- 2005 "Solution Fair" - 70th Anniversary Celebration
- 2006 THT Technology Joint Venture in Taiwan established
HIOKI Tianjin Representative Office established
"Solution Factory" Building B Completed
Electronic Measuring Instruments Business Segment of DKK-TOA Corporation acquired
HiNTEC Corporation established
- 2007 HIOKI (Shanghai) Sales & Trading Co., Ltd. established
- 2010 HIOKI India Private Limited and HIOKI Singapore Pte. Ltd. established
- 2011 HIOKI Korea Representative Office established

Internet website



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