HIOKI

MEMORY HiCORDER 8807-01, 8808-01

Recorders



** Photo shows the **8808-01** with optional **printer unit** installed.*

New Concept with Detachable Printer

Compact Size Recorder with Color Display

The **MEMORY HiCORDER**s **8807-01/8808-01**, housed in a B5 book-sized, compact, and thin body weighing in at under 1.2 kg, are handy high-speed recorders equipped with features such as analog 4-channel (**8807-01**: 2-channel) isolated inputs, PC card slot, RS-232C communication, 3-way power supply, and powerful trigger functions. One unit is capable of covering a variety of usages, ranging from low-speed/long-term continuous recording to recording of high-speed transients.

Enhanced Model with Harmonic Analysis Function ... 8807-51/8808-51



To the **MEMORY HiCORDER**s **8807-01/8808-01** with their popular detachable printers, **HIOKI** has added the **MEMORY HiCORDER**s **8807-51/8808-51** with harmonic analysis function. Capable of both instantaneous analysis and time series analysis of harmonics, these units can measure and analyze harmonic current flowing into and out of a commercial power system, as well as harmonic components piggybacking on power line voltage.

Note) *The waveform recording functions of the **MEMORY HiCORDER**s **8807-51** and **8808-51** are identical to those of the ******-01 models**. For details on specifications those concerning the harmonic wave analysis functions, refer to the catalog for the **MEMORY HiCORDER**s **8807-51** and **8808-51**.*

ISO 9001 JMI-0216

ISO14001 JQA-E-90091

INTERNET HIOKI Website

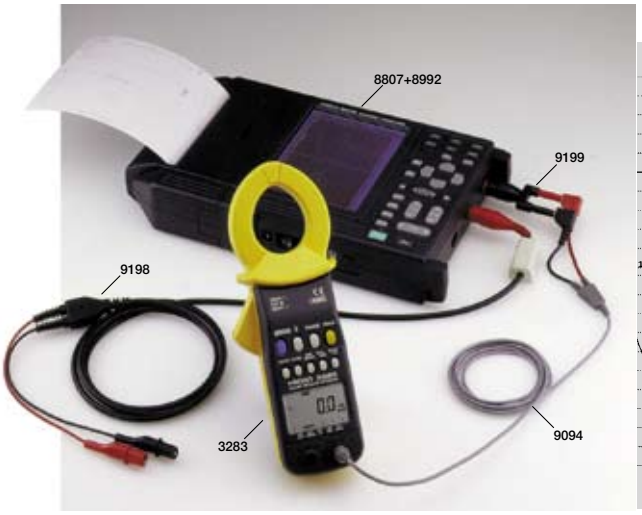
www.hioki.com

HIOKI company overview, new products, environmental considerations and other information are available on our website.

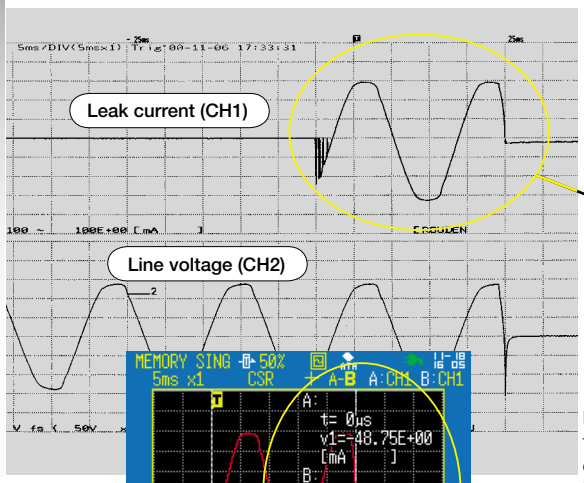
Recording Intermittent Leakage, Engine Performance and Relay Timing

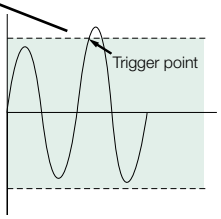
-Application Examples-

Unpredictable intermittent leakage is monitored unattended by recording instantaneous waveforms of the leakage current and line voltage

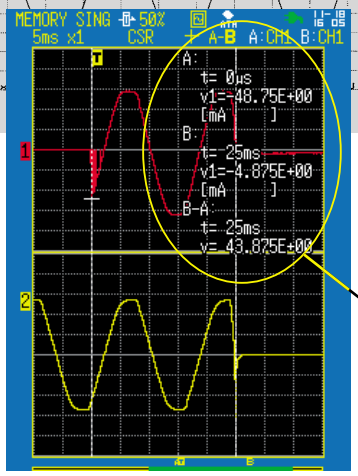


For long-term monitoring, use the **AC ADAPTER 9418-15** for the **MEMORY HiCORDER 8807-01** and the **AC ADAPTER 9445-02/-03** for the **CLAMP ON LEAK HiTESTER 3283**



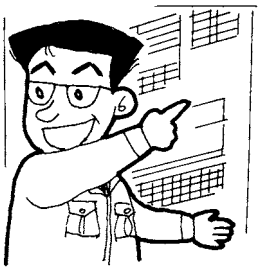


Recording of leakage is triggered when the input exceeds preset upper or lower limits.



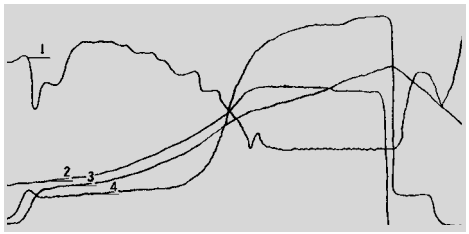
Every time a leakage phenomenon occurs, the waveforms can be printed out or the data saved on an ATA card.

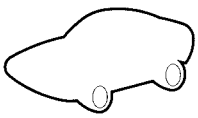
Data saved on a flash ATA card can be read back by the 8807-01 for analysis of peak current values at breaker trip time using the cursor function.



Monitor power line anomalities !

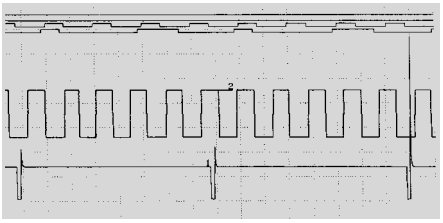
Analysis of engine characteristics





Allows the balance between boost, oil pressure, air fuel ratio, ignition timing, engine speed, injector aperture, etc., to be observed and recorded as waveforms.

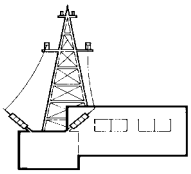
Analysis of Sequence Control Device Faults



Abnormal halts and warnings issued by sequence control devices in manufacturing production and testing lines can be caused by AC power hits or low voltage. Such anomalous behavior can best be analyzed by setting the sequence relay signal as a trigger to record the abnormal AC power waveforms and DC voltage systems.

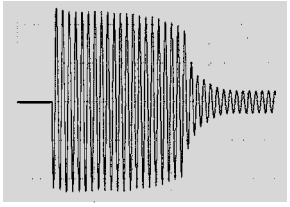
Circuit breaker timing measurement





Circuit breaker cut-off in a power circuit can be investigated by analyzing the relationship of multi-point logic signals to the analog waveform. Up to eight channels are provided for recording relay operation using logic probes.
Use the model **9320-01** for non-voltage contact signals, and the **LOGIC PROBE 9321-01** with isolated inputs for powered AC relay signals.

Recording of motor rush current



Motor power-on inrush current waveforms can be precisely recorded. The **CLAMP ON PROBE**s model **9018-10** and **9132-10** are available for current measurement, as is the **CLAMP ON LEAK HiTESTER 3283**.
In addition, to measure direct current waveforms, a variety of sensors such as the **UNIVERSAL CLAMP ON CT**s model **9277**, **9278** and **9279** are available upon request.

High-Speed Response for Capturing Transient Events

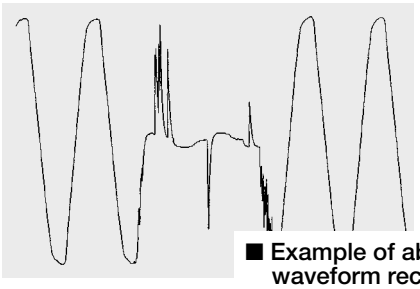
- Memory recorder function -

Operation of the memory recorder functions

The input signal is converted*1 to digital data that are stored in the internal memory. The data can then be displayed on the screen or printed out on paper*2. Once recorded, data are backed up for five years by the internal battery, provided that the start button is not pressed a second time (trigger mode: one-shot). The necessary parts can be searched out on the screen so that only the required waveforms are printed out*2.

*1 The data sampling speed (sampling rate) is automatically set at 1/80 of the time axis range. E.g., at 200 µs/division the sampling rate is 2.5 µs, at 5 minutes/division, the sampling rate becomes 3.75 sec.

*2 The optional **PRINTER UNIT 8992** is required.



■ Example of abnormal waveform recording

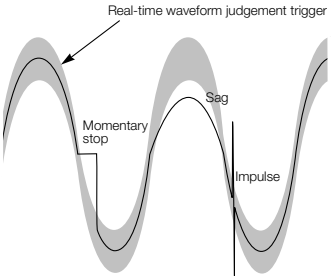
Waveform captured using the voltage-drop detection trigger. This allows recording of the waveforms of momentary voltage drops in power lines.

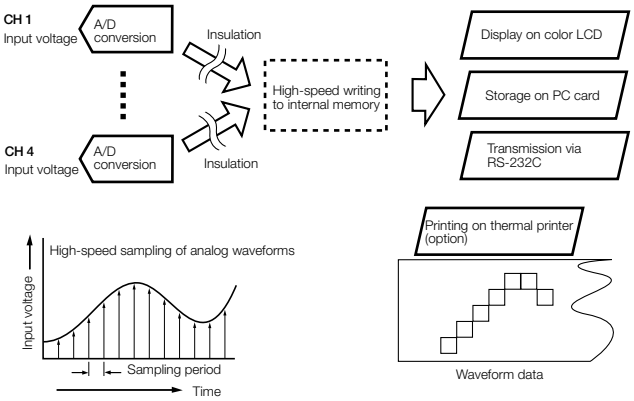
Trigger functions capable of monitoring all 4 channels*3

For all of the measurement functions, including recorder and memory recorder, triggers can be set on all 4 analog input channels and the 8 logic input channels. In addition to a simple level trigger based on comparison with a single voltage value, the following trigger conditions are also available:

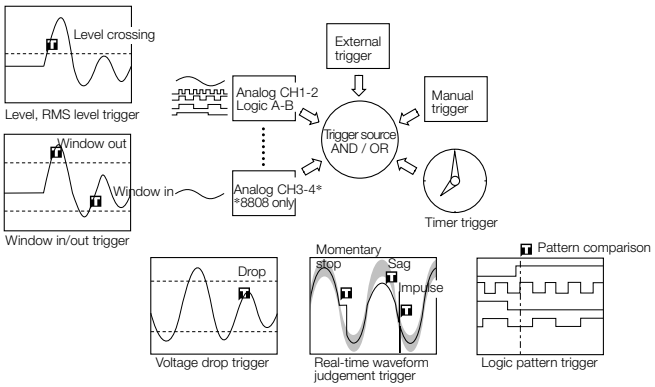
- Window in/out trigger based on comparison of 2 voltage values
- Voltage drop trigger for AC power lines*4
- RMS level trigger based on rms values*5
- Waveform judgment trigger*4 monitoring the waveforms of AC power lines in real-time
- Pattern trigger monitoring the ON/OFF condition of a logic signal

*3 **MEMORY HiCORDER 8808-01**. 2 channels in the case of the **MEMORY HiCORDER 8807-01**.
*4 Memory recorder function only. For 50/60 Hz only.
*5 RMS recorder function only. For 50/60 Hz only.





Time axis	Sampling period	1-channel setting 256 kW/ch 3200 divisions	4-channel setting 64 kW/ch 800 divisions
200µs/DIV	2.5 µs	640 ms	160 ms
400µs/DIV	5 µs	1.28 s	320 ms
1ms/DIV	12.5 µs	3.2 s	800 ms
2ms/DIV	25 µs	6.4 s	1.6 s
5ms/DIV	62.5 µs	16 s	4 s
10ms/DIV	125 µs	32 s	8 s
20ms/DIV	250 µs	1 m 4 s	16 s
50ms/DIV	625 µs	2 m 40 s	40 s
100ms/DIV	1.25 ms	5 m 20 s	1 m 20 s
200ms/DIV	2.5 ms	10 m 40 s	2 m 40 s
500ms/DIV	6.25 ms	26 m 40 s	6 m 40 s
1s/DIV	12.5 ms	53 m 20 s	13 m 20 s
2s/DIV	25 ms	1 h 46 m 40 s	26 m 40 s
5s/DIV	62.5 ms	4 h 26 m 40 s	1 h 6 m 40 s
10s/DIV	125 ms	8 h 53 m 20 s	2 h 13 m 20 s
30s/DIV	375 ms	1 day 2 h 40 m	6 h 40 m
1min/DIV	750 ms	2 days 5 h 20 m	13 h 20 m
2min/DIV	1.5 s	4 days 10 h 40 m	1 day 2 h 40 m
5min/DIV	3.75 s	11 days 2 h 40 m	2 days 18 h 40 m



■ Real-time waveform judgement trigger with constant monitoring of the voltage waveforms of AC power lines

(Memory recorder function only)*6

The waveform judgement trigger constantly monitors the AC power line for irregular waveforms. There are two ways to use this trigger. One cycle of measured waveforms is observed with the judgement area automatically created from the immediately preceding cycle waveform, or the judgement area can be automatically created from the ideal sine wave. In both cases, the trigger activates when the signal is detected to move outside the reference area. This allows real-time monitoring of phenomena in AC power lines that existing level triggers have not been able to capture, such as momentary stops, sags, and impulses.
The level trigger can be set separately for each analog channel.
Also, when the printer is connected, the judgment area automatically generated from the ideal sine wave can be printed as an overlay with the measurement waveform.

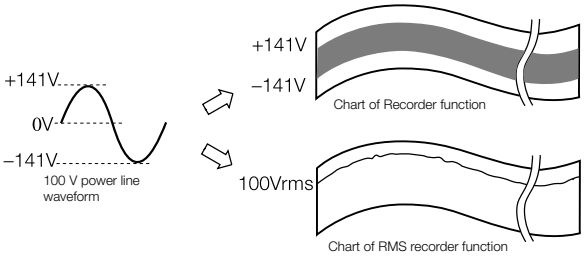
*6 The time axis can be used for all ranges above 10 ms/DIV (version 2.20 or later).

- RMS Recorder, Recorder functions -

RMS recorder function

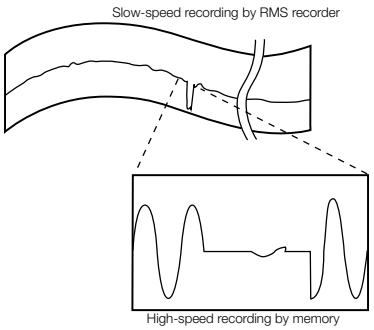
This function is exclusively for use on 50/60 Hz power-supply lines and DC. High-speed sampling is applied to calculate the rms value from the waveform data*1, and the result is recorded as a graph.

*1 Using 250 µs high-speed sampling, data for three waveforms are captured for calculating the rms value. This process is repeated 800 times per second using the moving average method, resulting in high-speed response.



■ RMS Recorder & Memory function

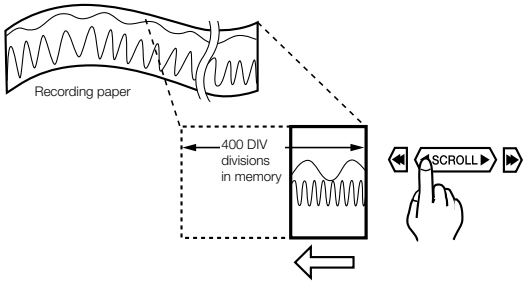
If an abnormal event is detected by triggers during real-time recording of signals using the RMS recorder, it is stored in memory by the high-speed sampling memory recorder. The RMS recorder function works independently and never stops. This function is highly convenient when it is desirable to record both abnormal phenomena and normal level fluctuations.



Recorder function operation

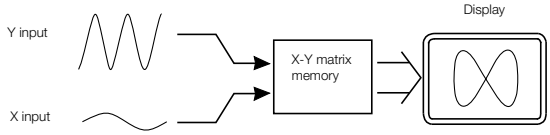
The input signal is converted to digital form and displayed or printed*2 in real-time. The chart speed is maximum 10 mm/s (in the 1s/division range)*3. Even with the real-time recording, the last 400 divisions of the waveform can be observed by scrolling or reprinting the data*2.

*2 The optional **8992 PRINTER UNIT** is required.
*3 Only when using the AC Adapter. When using batteries, the maximum speed is 5 mm/s (2 s/division range).



■ X-Y Recorder format

This function allows two signals converted to digital form to be combined in an x-y plot and stored in memory. Any of the four analog channels can be used for an x-y plot, but only one plot can be combined. The X-Y plot can be viewed in real-time on the display, and there is no limit on the recording time. The waveforms can also be printed out as many times as desired.



X-Y recorder diagram

Recorder recording time

Actual operation conditions are assumed, and it is assumed that 30 cm of the length of the recording paper is not used, for a total of 1770 divisions

Time axis	Chart speed	Sampling period	Approximate recording time with one roll of recording paper (18 m)
100 ms/DIV	Printer not required	2.5 µs	Stored in memory only : 40 s
200 ms/DIV			Stored in memory only : 1 m 20 s
500 ms/DIV			Stored in memory only : 3 m 20 s
1 s/DIV	AC Adapter used 10 mm/s	2.5 µs	AC Adapter used : 29 m 30 s
2 s/DIV	5 mm/s	2.5 µs	59 m
5 s/DIV	2 mm/s	2.5 µs	2 h 27 m 30 s
10 s/DIV	1 mm/s	2.5 µs	4 h 55 m
30 s/DIV	20 mm/s	2.5 µs	14 h 45 m
1 min/DIV	10 mm/s	2.5 µs	1 day 5 h 30 m
2 min/DIV	5 mm/s	2.5 µs	2 days 11 h
5 min/DIV	2 mm/s	2.5 µs	6 days 3 h 30 m
10 min/DIV	1 mm/s	2.5 µs	12 days 7 h
30 min/DIV	20 mm/h	2.5 µs	36 days 21 h
1 h/DIV	10 mm/h	2.5 µs	73 days 18 h

- Data Communication with PC, other functions -

Off-Line Data Exchange with a PC

Waveforms acquired by the memory recorder can be stored on flash ATA-PC cards. Stored waveform data can be converted to text (CSV) format files by the supplied **Wv** Waveform Viewer PC application program.

■ Waveform Viewer software

Measurement data can be saved in binary format. Also, can be converted to text format for numerical analysis in a PC spreadsheet program.

Data can be saved in binary or text formats. The binary format is for data to be used in the **MEMORY HiCORDER**s **8807-01** and **8808-01**. Data saved to the PC in binary format can be converted to text format using the supplied **Wv** (Waveform Viewer program), for loading into a spreadsheet program such as Excel.

■ Display copy in BMP format

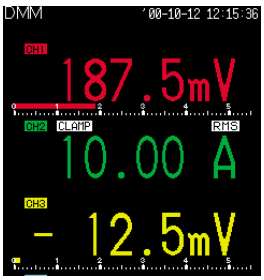
Displayed images can be saved in BMP format to easily create and print color reports from the PC's word processor.



Example showing measurement data imported to Excel.

Convenient features for ease of operation

Convenient features such as the DMM function, special range for a clamp probe, numerical value calculation, scaling, A/B cursor measurement, free comment input, and automatic restart after power outage make the measurement work quick and simple.



■ DMM Function

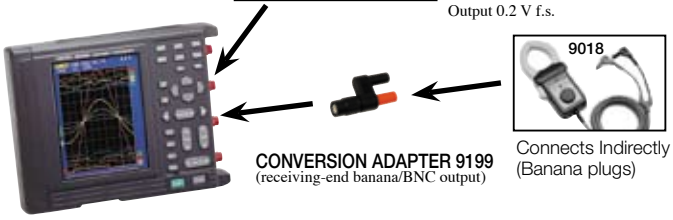
Digital Multi Meter functions are provided for simple input voltage checking. Selectable modes are Effective value mode (AC+DC), and Instantaneous value mode (DC), each displaying four numeric digits. When the scaling function is enabled, the specified scaling value is incorporated.

Note: Convenient for checking waveform recordings of power lines. RMS display is for 50/60 Hz or DC only.

■ Special range for clamp probe enables easy current measurement *1

Using the **CLAMP ON PROBE 9018-10**, current waveforms can be captured on live lines. Voltage range settings and scale settings are performed with a one-touch operation thanks to the special clamp probe range provided.

*1 Only compatible with the **CLAMP ON PROBE**s model **9018-10** and **9132-10**.
The **CLAMP ON PROBE**s model **9018** and **9132** can be connected using the **CONVERSION ADAPTER 9199.**



CLAMP ON PROBE 9018-10
10 – 500 A f.s.
40 Hz – 3 kHz
Output 0.2 V f.s.

CLAMP ON PROBE 9132-10
20 – 1000 A f.s.
40 Hz – 1 kHz
Output 0.2 V f.s.

■ RS-232C connection to PC

The PC and HiCORDER can be directly connected serially for transferring recorded data and remote settings. The software created by the user may be used on the PC.

-Specifications-

Basic specifications (MEMORY HiCORDER 8807-01, 8808-01)

Measurement functions	(1) Memory recorder, (2) Recorder, (3) RMS recorder & memory (50/60 Hz/ or DC only)
Input type and number of channels	**8807-01:** fixed input section, 2 analog + 8 logic, **8808-01:** fixed input section 4 analog + 8 logic Isolated analog channels, isolated input and outputs, logic has common GND.
Maximum sampling rate	400 k sample/s (2.5 µs cycle) Simultaneous sampling for 2/4 analog + 8 logic channels
Memory capacity	**8807-01:** (analog 12 bits + logic 4 bits) × 256 kilo-words/channel (CH1) to (analog 12 bits + logic 4 bits) × 128 kilo-words/channel (CH1, CH2) **8808-01:** (analog 12 bits + logic 4 bits) × 256 kilo-words/channel (CH1) to (analog 12 bits + logic 4 bits) × 64 kilo-words/channel (CH1 - CH4)
External memory	PC card TYPE II slot × 1: flash ATA card (max. 1GB), MS-DOS format Memory contents: Setting conditions, measurement data (binary, text), image data (BMP), calculation results (figures)
Battery backup	Clock, waveform data, settings, battery life approx. 5 years (at 25 °C/ 77 °F)
External control	Terminal block: trigger input/output
Interface	**RS-232C interface:** 9-pin round connector terminal (the optional **RS-232C CABLE 9612** is required for connection to PC) **Printer interface: PRINTER UNIT 8992** can be connected (option)
Environment (no condensation)	Operation: +5 °C/41 °F to +40 °C/104 °F, 35% to 80% relative humidity. Storage: -10 °C/14 °F to +50 °C/122 °F, 35% to 80% relative humidity.
Applicable standards	**Safety:** EN61010 **EMC:** EN61326, EN61000-3-2, EN61000-3-3
Power supplies *1 ***Note:*** *These LR6/AA alkaline batteries cannot be used with the PRINTER UNIT 8992.*	(1) **AC Adapter** model **9418-15** or **9418-10** (DC 12V ±10%) (2) *1**LR6/AA alkaline batteries** × 6 (AC adapter has priority when used in combination with battery pack) (3) **BATTERY PACK 9447** (AC adapter has priority when used in combination with battery pack, fast recharge possible with AC adapter) (4) 12 V **Car battery** (*Please contact HIOKI for connection cord).*
Power consumption	**8807-01**, **8808-01:** 15 VA max. (when using optional printer)
Continuous operation time	Approx. 3 hours (when using **BATTERY PACK 9447**) Approx. 1 hours (when using *1 alkaline batteries)
Charge time	With power switch OFF, approx. 2 hours fast charge (at 23 °C/ 73 °F)
Dimensions and mass	**8807-01, 8808-01:** approx. 203 (7.99) W × 170 (6.69) H × 52 (2.05) D mm (inch) (printer detached) **8807-01, 8808-01:** approx. 280 (11.02) W × 170 (6.69) H × 52 (2.05) D mm (inch) (printer attached) **8807-01:** approx. 1.1 kg/ 38.80 oz (printer detached) 1.5 kg/ 52.91 oz (printer attached) **8808-01:** approx. 1.2 kg/ 42.33 oz (printer detached) 1.6 kg/ 56.44 oz (printer attached)
Supplied accessories	LR6/AA alkaline batteries ×6, alkaline battery box ×1, strap ×1, Application disk ×1

Recording and display *2 Waveform printing when the optional **PRINTER UNIT 8992** is used.

Display method	5.7-inch STN color LCD, with Japanese/English selector 240 × 320 dots
*2Printer paper	112 mm (4.4 in) × 18 m (59.06 ft), thermal paper roll
*2Recording width	10 divisions in full scale, 1 division = 10mm (0.39in) (80pixels)
*2Paper feed density	8 rows/mm (203 rows/in) 16 rows/mm (406 rows/in) using the memory recorder's smooth print function.
*2Recording speed	Max. 10 mm/s (0.39 inch/s) (when using AC Adapter), max. 5 mm/s (0.2 inch/s) (when using batteries)

Trigger function

Trigger source	Analog input CH1 - CH4 (**8807-01:** CH1 - CH2), logic input A - B, external, timer, manual (either ON or OFF for each source), logical AND/OR of sources
Trigger types (Analog)	**Level:** Triggered when set voltage value is exceeded in UP or DOWN direction. **Window in/out:** When entering or exiting a level range defined by upper or lower limit **Voltage drop:** Only for AC 50/60 Hz power lines. Triggered when the peak voltage falls below setting value **RMS level:** Only for DC and AC 50/60 Hz power lines. Triggered when rms value crosses set value in UP or DOWN direction (RMS recorder function only) **Real-time waveform judgment:** Only for AC 50/60 Hz power lines. Trigger function that monitors when a signal exceeds the evaluation area (Memory recorder function only)
Level setting resolution	0.25% f.s., waveform judgment trigger only: 0.1% f.s. (f.s.=10 divisions)
Trigger types (Logic)	Pattern trigger: 1, 0, or × (disregard), logical product (AND) or logical sum (OR) set for 4 channels
Trigger filter (analog/logic)	9 settings from 0.1 to 10.0 divisions or OFF (memory recorder) ON/OFF (recorder)

Memory function

Time axis	200 µs to 5 minutes/division, 19 settings, time axis zoom ×2 to ×10; 3 settings, compression 1/2 to 1/500; 8 settings
Sampling period	1/80 of time axis ranges (minimum sampling period 2.5 µs)
Recording length	20 to 3200*3 divisions *3 Depending on the number of channels in use.
Pre-trigger	Can record data from before the trigger point, 0 to 100 % or -95 % of recording length; 15 settings
Other functions	Numerical calculations, logging (numerical printout), X-Y waveform plot (one plot on the **8807-01**, up to three plots on the **8808-01**), voltage axis zoom ×2 to ×10; 3 settings, compression 1/2

Recorder function

Time axis	100 ms*4 to 1 hr/division; 14 settings, 1 division = 80 samples, time axis compression 1/2 to 1/50; 5 settings *4 100 ms to 500 ms/division ranges shown only on display when using AC Adapter. 100 ms to 1 s/division ranges shown only on display when using batteries
Sampling period	2.5 µs fixed
Recording length	20 to 400 divisions, "continuous"*5 *5 only "continuous" for X-Y plotting
X-Y sampling period	250 µs; fixed (dot), 500 µs to 10 ms (line)
X-Y axis resolution	20 pixel/DIV (display), 80 pixels/DIV × 80 pixels/DIV (optional printer)
Other functions	Back-scroll of memory data (max. last 400 divisions) and reprinting of stored data (with/ optional printer), logging (numerical printout) (with/ optional printer), voltage axis magnification ×2 to ×10; 3 settings, compression 1/2; 1 setting. X-Y waveform plot (one plot on the **8807-01**, up to three plots on the **8808-01**)

RMS Recorder & Memory function (for 50/60 Hz and DC)

Time axis	**RMS recorder:** 100 ms to 1 hr/division; 14 settings **Memory recorder:** 200 µs to 20 ms/division; 7 settings 1 division = 80 samples, time axis compression 1/2 to 1/50; 5 settings
Sampling period	**RMS recorder:** 250 µs fixed (800 RMS data/second) **Memory recorder:** 1/80 of time axis range
RMS calculation accuracy	±3% f.s.
Recording length	**RMS recorder:** 20 to 200 divisions, continuous **Memory recorder:** 20 to 400 divisions, OFF (only RMS recorder when OFF)
Other functions	Back-scroll of memory data (max. last 200 divisions) and reprinting of stored data (with/ optional printer), for memory recorder: back-scroll of memory data (max. last 400 divisions) and reprinting of stored data (with/ optional printer), logging (numerical printout) (w/ optional printer), voltage axis magnification ×2 to ×10; 3 settings, compression 1/2; 1 setting.

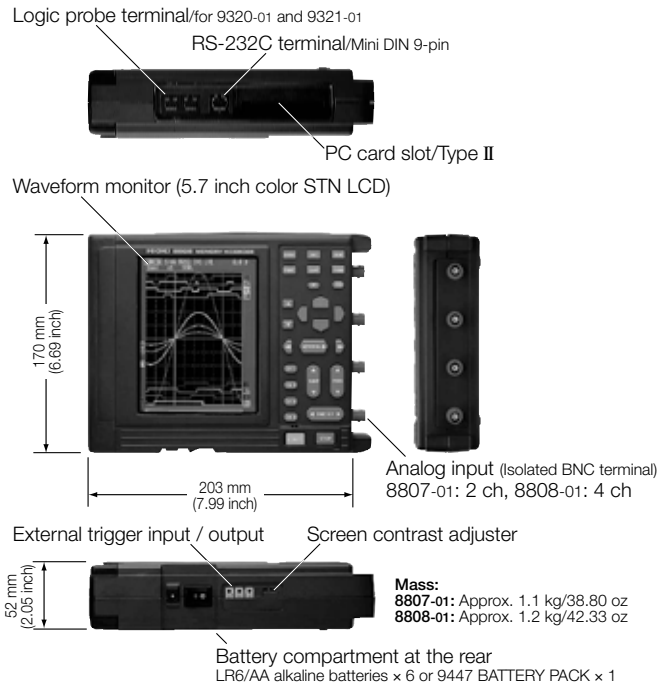
Auxiliary function

General	Printing of settings including input range, trigger time, etc., cursor measurement, scaling, comment input, screen hard copy, start condition retention, auto setup, auto saving, remote control, auto-range setting, list & gauge printing (with/ optional printer), DMM function (voltage shown as numerals on the display).
Calculation functions (Memory recorder)	Up to four arithmetic operations simultaneously Average value, effective (RMS) value, peak to peak value, maximum value, time to maximum value, minimum value, time to minimum value, period, and frequency, area, X-Y area.
DMM function	**Display update rate:** 1 s, display contents: **AC+DC** rms (measurement signal is DC, 50/60Hz only), or **DC** instantaneous value **Display digits:** 4 digits (last digit 0 to 4 is rounded zero, 5 to 9 is rounded five) **Voltage range:** Auto only (10 mV to 100 V/division, 5 settings) **Accuracy:** ±3% rdg. ±5dgt.

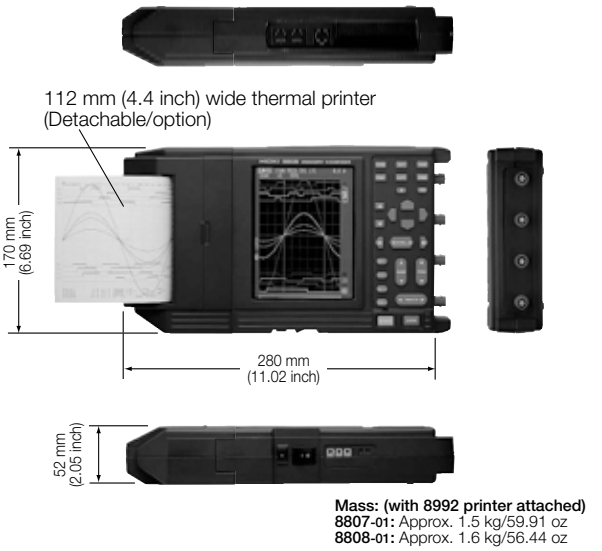
Analog input (accuracy at 23 ±5 °C/73 ±9 °F after 30 minutes warm-up time; accuracy guaranteed for 1 year)

Input	**Terminal:** isolated BNC Inter-channel and input-frame isolation
Measurement range	**MEM or REC function:** 10mV to 100V/DIV, 13 settings **RMS recorder function:** 5mV to 50V/DIV, 13 settings full-scale (f.s.) = 10 divisions, **AC voltage for possible measurement / display using the memory function:** 450 V AC rms, **low-pass filter:** 5/500 Hz, the measurement resolution is 1/160 of range
Maximum sampling rate	400 kS/s (simultaneous sampling of all channels)
Accuracy, frequency characteristics	±0.5% f.s., DC to 50 kHz ±3 dB
Input resistance and capacitance	1 MΩ, 7 pF approx. (at 100 kHz)
Input coupling	DC, GND
Max. allowable input	450 V AC rms, DC (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	450 V AC, DC (upper voltage which when applied to input channel casing or between input channels does not damage them)

■ Appearance and Dimensions (8807-01 and 8808-01 Instrument-only)



■ Appearance and Dimensions (8807-01 and 8808-01 with printer attached)



■ Supplied accessory PC Software Specifications

Wave Viewer (Wv) Software (Application disk CD-R, bundled accessory)

Functions	• Quick display of waveform files • Text conversion: Conversion of binary data files to text format, with storage in either CSV or space/tab delimited format. Span specification and data culling available. • Display format settings: scroll function, enlarge/reduce display, display CH settings. • Other: Voltage trace function, jump to cursor/trigger position function, etc.
Compatible operating systems	Windows 95/98/Me or Windows NT 4.0 (SP3 or later), 2000, XP

■ Specifications of Options (sold separately)

Cable length and mass: Main unit cable 1.5 m (4.92 ft), input section cable 30 cm (0.98 ft), approx. 150 g (5.3 oz)
Note: *The unit-side plug of the* ***9320-01*** *is different from the* ***9320****.*



LOGIC PROBE 9320-01 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80% rh; accuracy guaranteed for 1 year)

Function	Detection of voltage signal or relay contact signal for High/Low state recording
Input	4 channels (common ground between unit and channels), digital/contact input, switchable (contact input can detect open-collector signals), **input impedance:** 1MΩ (with digital input, 0 to +5V), 500kΩ or more (with digital input, +5 to +50V), **pull-up resistance:** 2kΩ (contact input: internally pulled up to +5V)
Digital input threshold	1.4V/2.5V/4.0V
Contact input detection resistance	1.5kΩ or higher (open) and 500Ω or lower (short), 3.5kΩ or higher (open) and 1.5kΩ or lower (short), 25kΩ or higher (open) and 8kΩ or lower (short)
Response speed	**9320-01:** 500ns or lower
Max. allowable input	0 to +50V DC (the maximum voltage that can be applied across input pins without damage)

Cable length and mass: Main unit cable 1.3 m (4.27 ft), input section cable 46 cm (1.51 ft), approx. 350 g (12.3 oz)



DIFFERENTIAL PROBE 9322 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80% rh, after 30 minutes of warm-up time; accuracy guaranteed for 1 year)

Function	For high-voltage floating measurement, power line surge noise detection, RMS rectified output measurement
DC mode	For waveform monitor output, frequency characteristics: DC to 10MHz (±3dB), **amplitude accuracy:** ±1% of full scale (at max. 1000V DC), ±3% of full scale (at max. 2000V DC) (full scale: 2000V DC)
AC mode	For detection of power line surge noise, frequency characteristics: 1kHz to 10MHz ±3dB
RMS mode	DC/AC voltage RMS output detection, frequency characteristics: DC, 40Hz to 100k Hz, **response speed:** 200ms or less (400V AC), **accuracy:** ±1% of full scale (DC, 40Hz to 1kHz), ±4% of full scale (1kHz to 100kHz) (full scale: 1000V AC)
Input	**Input type:** balanced differential input, **input impedance/capacitance:** H-L 9MΩ/10pF, H/L-unit 4.5MΩ/20pF, **Max. rated voltage to earth:** when using grabber clip 1500V AC/DC (CAT Ⅱ), 600V AC/DC (CAT Ⅲ), when using alligator clip: 1000V AC/DC (CAT Ⅱ), 600V AC/DC (CAT Ⅲ)
Maximum allowable input voltage	2000V DC, 1000V AC (CAT Ⅱ), 600V AC/DC (CAT Ⅲ)
Output	Voltage divider for 1/1000 of input, BNC connectors (output switchable for 3 modes DC, AC, RMS)
Power source	Power terminal of the input units, or use with **AC ADAPTER 9418-15** (DC 12V)

Cable length and mass: Main unit cable 1.5 m (4.92 ft), input section cable 1 m (3.28 ft), approx. 320 g (11.3 oz) ***Note:*** *The unit-side plug of the* ***9321-01*** *is different from the* ***9321****.*



LOGIC PROBE 9321-01 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80% rh; accuracy guaranteed for 1 year)

Function	Detection of AC or DC relay drive signal for High/Low state recording Can also be used for power line interruption detection
Input	4 channels (isolated between unit and channels), HIGH/LOW range switching **Input impedance:** 100kΩ or higher (HIGH range), 30kΩ or higher (LOW range)
Output (H) detection	170 to 250V AC, ±DC (70 to 250V) (HIGH range) 60 to 150V AC, ±DC (20 to 150V) (LOW range)
Output (L) detection	0 to 30V AC, ±DC (0 to 43V) (HIGH range) 0 to 10V AC, ±DC (0 to 15V) (LOW range)
Response time	Rising edge 1ms max., falling edge 3ms max. (with HIGH range at 200V DC, LOW range at 100V DC)
Maximum allowable input voltage	250Vrms (HIGH range), 150Vrms (LOW range) (the maximum voltage that can be applied across input pins without damage)



WAVE PROCESSOR 9335

Distribution media	One CD-R
Operating environment	Computer equipped with Pentium (133 MHz) or better CPU and at least 32 MB of memory, and running under Windows 95/98/Me, Windows NT 4.0/2000/XP, or Windows Vista 32-bit type (recommended system: Pentium (200 MHz) or better with at least 64 MB of memory)
Display functions	Waveform display/X-Y display/digital value display/cursor function/scroll function/maximum number of channels (32 channels analog, 32 channels logic)/gauge display (time, voltage axes)/graphical display
File loading	Readable data formats (.MEM, .REC, .RMS, .POW) Maximum loadable file size: Maximum file size that can be saved by a given device (file size may be limited depending on the computer configuration)
Data conversion	Conversion to CSV format, tab delimited, space delimited/data culling (simple)/convert for specified channel/batch conversion of multiple files
Print functions	Print formatting (1 up, 2-to-16 up, 2-to-16 rows, X-Y 1-to-4 up) /preview/hard copy functions usable on any printer supported by operating system
Other	Parameter calculation/search/clipboard copy/launching of other applications

Composition of options

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



CARRYING CASE 9648
Hard case type, for storing options



CARRYING CASE 9391
Soft case type, for storing options
Holds more options than the **9648** hard case



LOGIC PROBE 9320-01
4-channel type, for voltage/contact signal ON/OFF detection
(miniature terminal for use with the **8861/8860, 8855, 8807-01/8808-01, 8807-51/8808-51**)



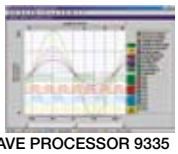
LOGIC PROBE 9321-01
4 isolated channels, ON/OFF detection of AC/DC voltage
(miniature terminal for use with the **8861/8860, 8855, 8807-01/8808-01, 8807-51/8808-51**)



CONVERSION CABLE 9323
Used for connecting the **9320/9321** and **8807** series MEMORY HiCORDERs, because the terminal shapes are different.
* This cable is not required for the small-terminal types **9320-01** and **9321-01**.



RS-232C CABLE 9612
Mini DIN 9-pin - Dsub 9-pin, Cable length 1.5m



WAVE PROCESSOR 9335
Data conversion, print functions, waveform display, compatible with Windows 95/98/Me, Windows NT 4.0/2000/XP, and Windows Vista 32-bit type.



Supplied with PC Card adapter

PC CARD 128M 9726 (128MB capacity)
PC CARD 256M 9727 (256MB capacity)
PC CARD 512M 9728 (512MB capacity)
PC CARD 1G 9729 (1GB capacity)

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





4ch (8808-01)

MEMORY HiCORDER 8807-01 (2ch model)

MEMORY HiCORDER 8808-01 (4ch model)

Included accessories: LR6/AA Alkaline batteries ×6, Alkaline battery box ×1, Shoulder belt ×1, Application disk ×1

Current Measurement

Voltage



CONNECTION CORD 9197
For up to 500V, 1.5 m length



DIFFERENTIAL PROBE 9322
For inputs up to 2kV DC or 1kV AC, the **9322** requires the **AC ADAPTER 9418-15**



CONNECTION CORD 9198
For up to 300 V, 1.5 m length



CONNECTION CORD 9217
Insulation BNC-to-insulation BNC, use to connect to insulation-BNC terminal on Input Module

• An input cord for measurement use is not provided. Please purchase the optional **CONNECTION CORD 9197** or **9198** together with the recorder.



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



Not CE certified

CLAMP ON PROBE 9132-10
Input from 20 to 1000A
40Hz to 1kHz for 0.2V AC output.
BNC terminal



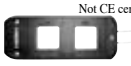
Not CE certified



OUTPUT CORD 9094
Required along with the **9199** adapter to connect Model **3283** to the **8807-01** or **8808-01**

CLAMP ON LEAK HiTESTER 3283
For leakage current measurement, includes 10mA to 200A ranges, with analog output of 1V f.s. DC, and waveform monitor output of 1V f.s. AC at 40Hz to 2kHz. Requires the **AC ADAPTER 9445-02/-03**

Not CE certified



LINE SPLITTER CT101A
For 100V/ 15A, convenient for measuring 100V AC line current with clamp-on probe



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



PRINTER UNIT 8992
Printing width 100 mm, used together with the **8807-01**, **8808-01** main body



RECORDING PAPER 9234
18 m/ 59.06 feet length, 10 rolls/ 1 set



Not CE certified

PAPER WINDER 220H
Paper width: 70 to 220 mm, using special-purpose AC adapter



BATTERY PACK 9447
7.2V, 2400mAh



CHARGE STAND 9643
Independent of main unit the **8714-01/8715-01**, use with the **AC ADAPTER 9418-15** to charge one Model **BATTERY PACK 9447.**



AC ADAPTER 9418-15
Universal 100 to 240 V AC, 12 V DC/ 2.5 A output

• The units can be operated using the supplied LR6/AA alkaline batteries but use of the optional **AC ADAPTER 9418-15** or **BATTERY PACK 9447** (the **AC ADAPTER 9418-15** is necessary for recharging) is recommended. Manganese batteries cannot be used. Use of commercially available rechargeable batteries instead of the original battery pack may result in damage to the unit.

■ Combination example: 2-channels, with printer

	Main unit	Printer	Paper	AC Adapter	Battery pack	Input cord
Model number × quantity	8807-01×1	8992×1	9234×1 (10 rolls)	9418-15×1	9447×1	9198×2

■ Combination example: 4-channels, with printer

	Main unit	Printer	Paper	AC Adapter	Battery pack	Input cord
Model number × quantity	8808-01×1	8992×1	9234×1 (10 rolls)	9418-15×1	9447×1	9198×4

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All information correct as of Sep. 6, 2007. All specifications are subject to change without notice.

8807-01E10-79B-00P Printed in Japan

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