

HIOKI

Do you ever worry about power failure?

POWER HiCORDER 8715-01

Recorders 



CE

Introducing easy-to-use power monitoring recorders!

See what you've been missing !

- ★ Capture Spikes, Sags, and Surges
- ★ Monitor and record power anomalies and fluctuations easily, even unattended
- ★ Analyze Leakage Currents as well as AC/DC Current up to 2000 amps
- ★ True-RMS with Trigger Function
- ★ 250 μ sec Transient Waveform Capture



www.hioki.com

ISO 9001 JMI-0216
ISO 14001 JQA-E-90091

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



Record power anomalies accurately with simple operation !

- Applications -

What a Power Recorder Does

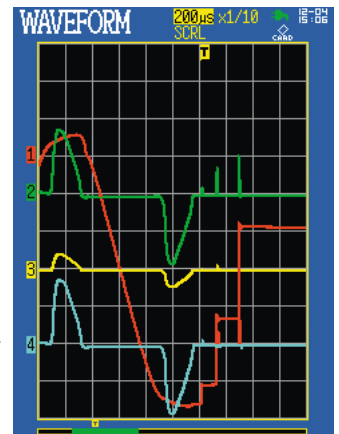
There are many power-quality concerns in today's PC-based businesses, and detecting power anomalies is important for maintaining factory facilities and equipment. The **POWER HiCORDER 8715-01** is monitoring recorders that can capture instantaneous power drop-outs, brown-outs, spikes and sags, and

record voltage changes with simple operation, and even monitor and record while totally unattended.

The compact B5 size and 1.6 kg (56.44 oz.) weight provide excellent portability among worksites.

Simple Setup

1. Simple setup. No worries about operability.
2. Accepts direct input of line voltages up to 400 V, and up to 1000 V AC/ 2000 V DC with the use of the **DIFFERENTIAL PROBE 9322** accessory.
3. Voltage and current can be simultaneously measured on four isolated channels.
4. Data immediately before an anomaly occurs can be stored and recorded.
5. High quality data printouts on site.
6. High-speed A/D converter stores data in memory, providing simple recording of events that cannot be recorded by a pen recorder.
7. Two measurement functions are available: Waveform Measurement Mode (memory mode), and RMS Trend Measurement Mode (RMS recorder & memory).
8. **HIOKI** clamp-on probes (voltage-output type) can be directly connected.



Example

To monitor the current waveform on a 220 V power line.

[Setup]

Measurement mode is set to Waveform, time axis to 2ms. Recording length is set to 20 division.

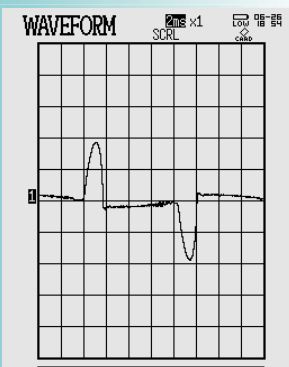
[Channel setup]

For current waveforms, after selecting a clamp-on probe for the input type from Mode, select the range of the clamp. Here, we select 9010 and 100A. Set the range of the clamp-on probe in the same way.

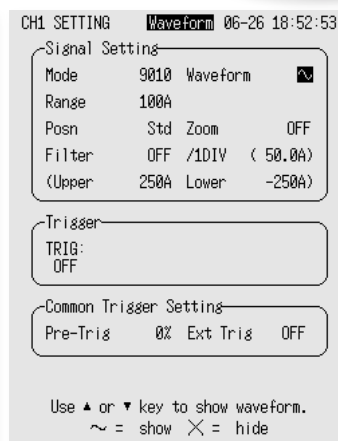
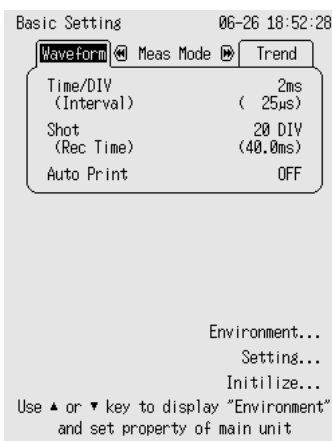
[Starting Measurement]

Clamp the probe around the conductor to be measured.

Press the START button. The current waveform is displayed on the screen. To stop measuring, press the STOP button.

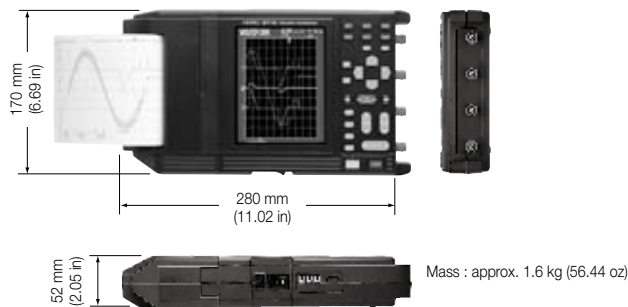


Current Waveform Example



- Specifications -

Basic Specifications	
Measurement Mode	Waveform Measurement mode (Power Waveform Observation), RMS Trend Measurement mode (RMS Observation)
Input types and number of channels	Input channels fixed, Analog 4 channels Inter-channels and input-frame isolation
Maximum sampling rate	400 k sample/s (2.5 μ s period) Simultaneous sampling for 2 or 4 analog channels
Memory capacity	continuous 4-channels measurement (12-bit analog) \times 64 kilowords/ ch
External memory	PC Card TYPE II slot \times 1 : Flash ATA card (max.1 GB), MS-DOS format. Memory contents : Settings data, Measurement data (binary or text format), Screen data (BMP)
Backup function	Clock, waveform data and settings, Battery life approx. 5 years (at 25°C/77°F).
External control	Terminal block : trigger input/output
Environment conditions (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) AC Adapter model 9418-15 or 9418-10 (DC 12V \pm 10%) (2) BATTERY PACK 9447 (AC adapter has priority when used in combination with battery pack, fast recharge possible with AC adapter)
Power consumption	15 VA max.
Continuous operation time	Approx. 3 hours (with BATTERY PACK 9447 , trigger standby at 23°C/73°F)
Charge time	Approx. 2 hours fast charge with power switch OFF (at 23°C/73°F)
Dimensions and mass	approx. 280 mm (11.02 in) W \times 170 mm (6.69 in) H \times 52 mm (2.05 in) D, 1.6kg (56.44 oz) (without batteries)
Supplied accessories	Instruction manual \times 1, Measurement guide \times 1, Recording paper \times 1, Paper attachment \times 2, Blank box \times 1, Strap \times 1, AC ADAPTER 9418-15 \times 1, CONNECTION CORD 9197 \times 4, Application disk \times 1



Recording and Display Section	
Display	5.7-inch STN color LCD, with English/Japanese language selector 240 \times 320 dots
Recording paper	112 mm (4.41 in) \times 18 m (59.06 ft), thermal paper roll
Recording area	100 mm in full scale (10 divisions), 1 division = 10 mm (0.39 in)
Recording speed	Max. 1sec/division (with AC adapter use)
Trigger Function (only for anomalous waveform measurement and instantaneous power fluctuation recording)	
Trigger source	Analog input CH1 - CH4 (8714-01 : CH1 - CH2), external (either ON or OFF for each source), logical AND/OR of sources
Anomalous waveform triggers	Level trigger: At preset voltage level, on either rising or falling edge Window trigger: At entry or exit from preset upper and lower limits Voltage drop trigger: Especially for 50/60 Hz commercial power, when peak voltage falls below preset value Period trigger: When period of rising or falling edge of measured signal exceeds preset period Waveform judgment trigger: Especially for 50/60Hz commercial power, to monitor signals outside of judgment range in real time (when time axis range 20ms/division is not applicable)
	Power fluctuation measurement triggers (valid only when instantaneous waveform measurement is enabled)
	Voltage drop trigger: Especially for 50/60Hz commercial power, when peak voltage falls below preset value RMS level trigger: At preset effective value, on either rising or falling edge RMS window trigger: At entry or exit from preset upper and lower limit levels
Pre-Trigger	0, 10, 20, 50, 100% (for anomalous waveform measurement, instantaneous power fluctuation recording)
Level setting resolution	0.25% f.s. (f.s.=10 divisions, 0.1% f.s. for use with waveform judgment trigger)
Trigger filter	Off/On (0.5 divisions fixed filter width)

Waveform Measurement (Power Waveform Observation) Mode	
Time axis	200 and 400 μ s, 1, 2, 5, 10, and 20ms/division, time axis zoom \times 2 to \times 10; 3 settings, compression 1/2 to 1/50; 5 settings
Sampling period	1/80 of time axis ranges (minimum sampling period 2.5 μ s)
Recording length	20, 50, 100, 200, or 400 division (800 division at sequential save OFF)
Pre-trigger	Can record data from before the trigger point, 0/10/20/50, or 100% of recording length
Other functions	Voltage axis normal (\times 1/2), magnified (\times 1), Left-right waveform scrolling, Automatic, manual and partial (between A-B cursors) printing

RMS Trend Measurement (RMS Fluctuation Measurement) Mode	
Measurement objective	Commercial mains power (50/60Hz)
Time axis	1/2/5 seconds/DIV (cannot realtime print); 10/30 seconds; 1/2/5/10/30 minutes; or 1hour/DIV, time axis compression 1/2 to 1/50; 5 settings
Sampling period	250 μ s fixed (RMS value 800 data/second)
Recording length	Continuous measurement only (up to 200 division of data are stored internally)
RMS accuracy	\pm 3 % f.s.
Waveform display area	100 V Line: 75 to 125 V rms (standard) 200 V Line: 150 to 250 V rms (standard) 400 V Line: 275 to 525 V rms (standard) Clamp: 0 A rms to f.s.value on clamp-on probe (rms) 9322 Differential probe: 400 V Line; 275 to 525 V rms (standard) 9322 Differential probe: 600 V Line; 475 to 725 V rms (standard)
Other functions	Voltage axis normal (\times 1/2), magnified (\times 5), Left-right waveform scroll, Automatic, manual and partial (between A-B cursors) printing, Hybrid recording: prints logging data for each division together with waveform

RMS Trend Measurement (Instantaneous Waveform Measurement) Mode	
Time axis	200 and 400 μ s, 1, 2, 5, 10, and 20 ms/division, time axis zoom \times 2 to \times 10; 3 settings, compression 1/2 to 1/50; 5 settings
Sampling period	1/80 of time axis ranges (minimum sampling period 2.5 μ s)
Recording length	20, 50, 100, or 200 division (400 division at sequential save OFF)
Pre-trigger	Can record data from before the trigger point, 0/10/20/50, or 100% of recording length
Other functions	Voltage axis normal (\times 1/2), magnified (\times 1), Left-right waveform scroll

Other Functions	
General	Printing of settings including input range, trigger time, etc., cursor measurement, start condition retention, auto setup, list & gauge printing, power-save function, DMM function (voltage shown as numerals on the display), auto saving, partial saving (between A-B cursors or all data), sequential save.
DMM Function	Display update rate: 1 second Display contents: RMS value (only measuring DC and 50/60Hz) Display digit: 4 (last digit 0 to 4 is rounded zero, 5 to 9 is rounded five) Voltage ranges: Auto-select only (five ranges from 10 mV to 100 V div.) Accuracy: \pm 3 % rdg. \pm 5 dgt.

Input section (accuracy at 23 \pm 5 °C/73 \pm 9 °F after 30 minutes warm-up time; accuracy guaranteed for 1 year)	
Input	Isolated BNC terminal, Input item: Voltage, 9010 , 9018 , 9132 , 3283 , 3284 , 3285 , 9322 (selectable)
Measurement range	Voltage : 100, 200, 400 V line, or 100 V DC 9010 : 10, 20, 50, 100, 200, or 500 A 9018 : 10, 20, 50, 100, 200, or 500 A 9132 : 20, 50, 100, 200, 500, or 1000 A 3283 : 10 mA, 100 mA, 1, 10, or 200 A 3284 : 20 or 200 A 3285 : 200 or 2000 A 9322 : 400 or 600 V line
Max. sampling rate	400 kS/s (simultaneous sampling of all channels)
Accuracy, frequency characteristics	\pm 0.5 % f.s. (applied accuracy of clamp-on probe), DC to 50 kHz \pm 3 dB
Low-pass filter	OFF, 500 Hz, 5 kHz
Input resistance and capacitance	1 M Ω , 7 pF approx. (at 100 kHz)
Input coupling	DC (fixed)
Max. allowable input	450 V AC rms, DC CAT II (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	450 V AC rms, DC (upper voltage which when applied to input channel casing or between input channels does not damage them)

Configuration of options Note: Product names appearing in this catalog are trademarks or registered trademarks of various companies.

Voltage measurement *Up to 100/200 VAC (Input cable 9197 is supplied)

ALLIGATOR CLIP 9790-01
Red/black set attaches to the ends of test leads (9790)

GRABBER CLIP 9790-02
Red/black set attaches to the ends of test leads (9790)

CONTACT PIN 9790-03
Red/black set attaches to the ends of test leads (9790)

CONNECTION CORD 9790
(Thin Type) CAT II 300 V, ultra-flexible 2.8 mm (0.11 in) diameter test lead cable, 1.5 m (4.92 ft) length
Note: Attachment clips sold separately.

Tip Expanders 9790-01
Tip Expanders 9790-03
Tip Expanders 9790-02

Attachment clips are sold separately from CONNECTION CORD 9790. Purchase the appropriate attachment clips for your application separately.

CONNECTION CORD 9198 For up to 200 VAC, 1 : 1 probe, 1.7 m (5.58 ft) length

CONNECTION CORD 9197 For up to 200 VAC, 1 : 1 probe, 1.8 m (5.91 ft) length

Voltage measurement *Up to 200/400 VAC

DIFFERENTIAL PROBE 9322
For up to 200 V, 400 VAC. Use with the AC Adapter 9418-15, for power supply, 1000 : 1 probe

AC ADAPTER 9418-15
For powering Differential probe 9322, 100 to 240 V AC.

Voltage measurement *Input from 100 V power-concent

CONCENT INPUT CORD 9448
Use for 100 V commercial line, 2m (6.56 ft) length

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

Carrying case

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

Printer options

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

PAPER WINDER 220H
Paper width: 70 to 220 mm (2.76 to 8.66 in), using special-purpose AC adapter

POWER HiCORDER 8715-01 (4 ch)
AC ADAPTER 9418-15 ×1, CONNECTION CORD 9197 ×4, Recording paper ×1, Application disk, or other accessories are included

PC Software

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.

Power Supply (Sold separately)

BATTERY PACK 9447
7.2 V, 2400 mAh

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

Other options

CONNECTION CORD 9217
Cord has insulated BNC connectors at both ends, and connects to insulated BNC connectors on input terminal. 1.7 m (5.58 ft) length.

CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, and connects to metallic BNC connectors. 1.5 m (4.92 ft) length.

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

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

Current measurement *50/60 Hz line use

CLAMP ON PROBE 9018-50
Enables observation of AC current waveforms. Input: 40 Hz to 3 kHz, selectable 10 to 500 A ranges, Output: 0.2 V AC/ range

CLAMP ON PROBE 9132-50
Enables observation of AC current waveforms. Input: 40 Hz to 1 kHz, selectable 20 to 1000 A ranges, Output: 0.2 V AC/ range

Current measurement *50/60 Hz line use

CLAMP ON AC/DC HITESTER 3285
200 A or 2000 A AC/DC, DC analog output, waveform monitor output, 10 Hz to 1 kHz response.

CLAMP ON AC/DC HITESTER 3284
20 A or 200 A AC/DC, DC analog output, waveform monitor output, 10 Hz to 2 kHz response.

CLAMP ON LEAK HITESTER 3283
For leakage current measurement, 10 mA to 200 AAC ranges, DC analog output, waveform monitor output, 40 Hz to 2 kHz response.

OUTPUT CORD 9094
Required along with the 9199 adapter to connect the model 3283, 3284, 3285 to the 8715-01.

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

AC ADAPTER 9445-02/-03
With the model 3283, 3284, 3285 continuous use.
For USA, Canada: 9445-02,
For EU: 9445-03.

Input cords of included accessories are the 9197 only. For current measurement, please purchase the optional clamp-on probe, or clamp-on tester.

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

Removable storage (CF card)

Supplied with PC Card adapter

PC CARD 256M 9727
(256 MB capacity)

PC CARD 512M 9728
(512 MB capacity)

PC CARD 1G 9729
(1 GB 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.

Combination example (1)	Main unit with memory 64 kW/ch	Recording Paper	Battery pack	Current probe	Carrying case
4-channels, with current measurement	8715-01 × 1	9234 × 1 (10 rolls)	9447 × 1	9018-50 × 4	9391 × 1

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