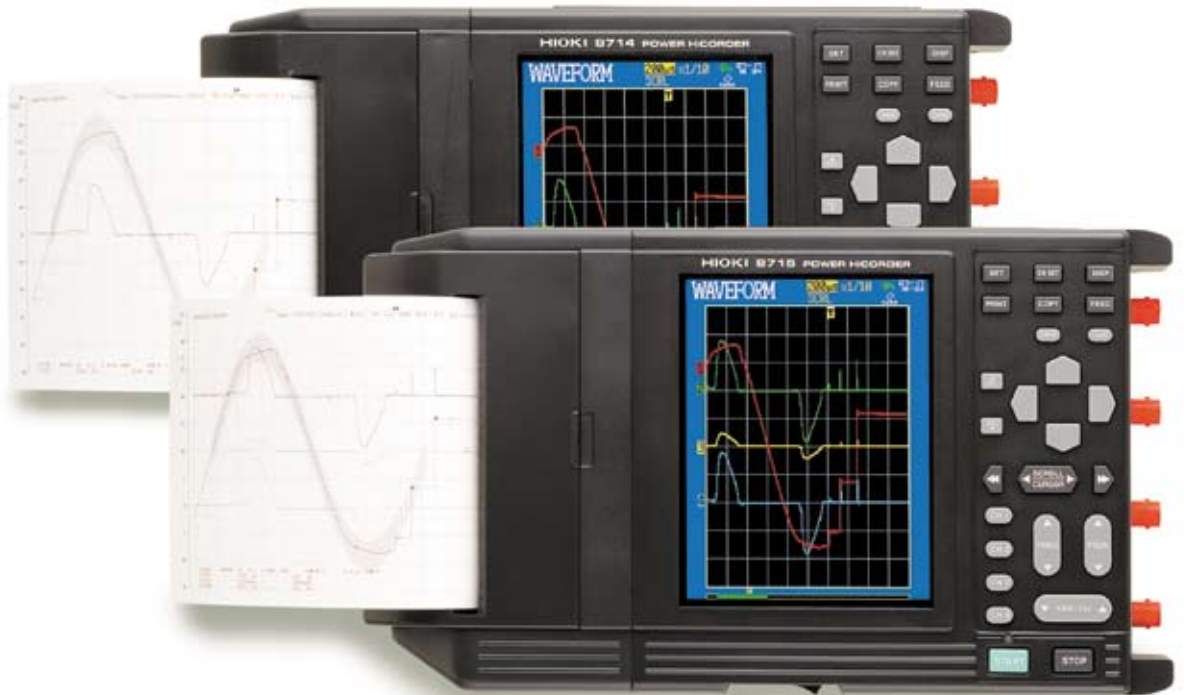


# HIOKI

Do you ever worry about power failure?

## POWER HiCORDER 8714-01, 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 $\mu$ sec Transient Waveform Capture



ISO 9001  
JMI-0216



ISO 14001  
JQA-E-90091



<http://www.hioki.co.jp/>

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

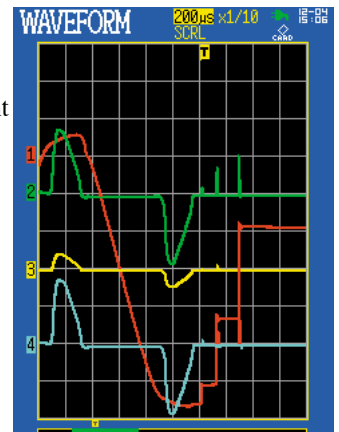
There are many power-quality concerns in today's PC-based businesses, and detecting power anomalies is important for maintaining factory facilities and equipment. The **POWER HiCORDERs 8714-01** and **8715-01** are monitoring recorders that can capture instantaneous power drop-outs, brown-outs, spikes and

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

The compact B5 size and 1.5kg (52.9oz.) weight provide excellent portability among worksites. (8714-01)

### 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.

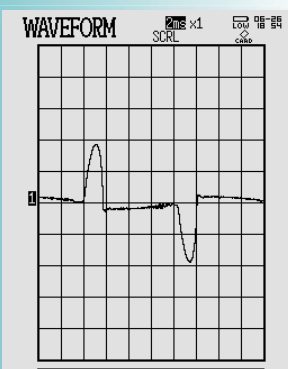
#### [ Starting Measurement ]

Clamp the probe around the conductor to be measured.

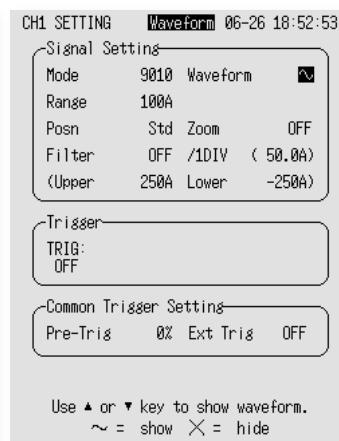
Press the START button.

The current waveform is displayed on the screen.

To stop measuring, press the STOP button.



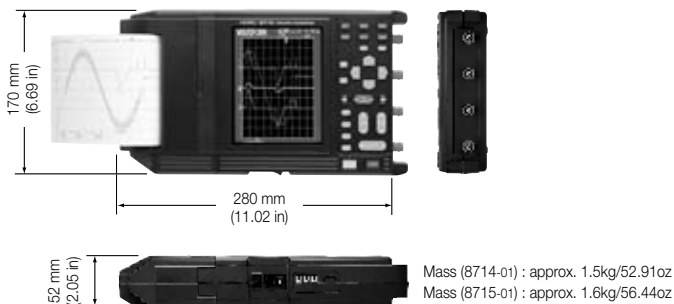
Current Waveform Example



# Two models: the two-channel (8714-01) and four-channel (8715-01)

## - Specifications -

Basic Specifications	8714-01	8715-01
Measurement Mode	Waveform Measurement mode (Power Waveform Observation), RMS Trend Measurement mode (RMS Observation)	
Input types and number of channels	Input channels fixed, Analog 2 channels Inter-channels and input-frame isolation	Input channels fixed, Analog 4 channels Inter-channels and input-frame isolation
Maximum sampling rate	400k sample/s (2.5μs period) Simultaneous sampling for 2 or 4 analog channels	
Memory capacity	continuous 2-channels measurement (12-bit analog) × 64 kilo-words/ ch	continuous 4-channels measurement (12-bit analog) × 64 kilo-words/ ch
External memory	PC Card TYPE II slot × 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 <b>9418-15</b> or <b>9418-10</b> (DC 12V ±10%) (2) BATTERY PACK <b>9447</b> (AC adapter has priority when used in combination with battery pack, fast recharge possible with AC adapter)	
Power consumption	15VA max.	
Continuous operation time	Approx. 3 hours (with BATTERY PACK <b>9447</b> , 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 (11.02) W × 170 (6.69) H × 52 (2.05) Dmm (inch), 1.5kg/ 52.91oz (without batteries)	approx. 280 (11.02) W × 170 (6.69) H × 52 (2.05) Dmm (inch), 1.6kg/ 56.44oz (without batteries)
Supplied accessories	Instruction manual ×1, Measurement guide ×1, Recording paper ×1, Paper attachment ×2, Blank box ×1, Strap ×1, AC ADAPTER <b>9418-15</b> ×1, CONNECTION CORD <b>9197</b> ×2 ( <b>8714-01</b> ), ×4 ( <b>8715-01</b> ), Application disk ×1	




Recording and Display Section	
Display	5.7-inch STN color LCD, with English/Japanese language selector 240 × 320 dots
Recording paper	112mm (4.41in) × 18m (59.06ft), thermal paper roll
Recording area	100mm in full scale (10 divisions), 1 division = 10mm (0.39in)
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 ( <b>8714-01</b> : 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 50/60Hz 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 400μs, 1, 2, 5, 10, and 20ms/division, time axis zoom ×2 to ×10; 3 settings, compression 1/2 to 1/50; 5 settings
Sampling period	1/80 of time axis ranges (minimum sampling period 2.5μs)
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 (×1/2), magnified (×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	250μs fixed (RMS value 800 data/second)
Recording length	Continuous measurement only (up to 200 division of data are stored internally)
RMS accuracy	±3 % f.s.
Waveform display area	100V Line: 75 to 125V rms (standard) 200V Line: 150 to 250V rms (standard) 400V Line: 275 to 525V rms (standard) Clamp: 0A rms to f.s.value on clamp-on probe (rms) <b>9322</b> Differential probe: 400V Line: 275 to 525V rms (standard) <b>9322</b> Differential probe: 600V Line: 475 to 725V rms (standard)
Other functions	Voltage axis normal (×1/2), magnified (×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 Measurement) Mode	
Time axis	200 and 400μs, 1, 2, 5, 10, and 20ms/division, time axis zoom ×2 to ×10; 3 settings, compression 1/2 to 1/50; 5 settings
Sampling period	1/80 of time axis ranges (minimum sampling period 2.5μs)
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 (×1/2), magnified (×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: ±3% rdg. ±5dgt.
Input section (accuracy at 23 ±5 °C/73 ±9 °F after 30 minutes warm-up time; accuracy guaranteed for 1 year)	
Input	Isolated BNC terminal, Input item: Voltage, <b>9010</b> , <b>9018</b> , <b>9132</b> , <b>3283</b> , <b>3284</b> , <b>3285</b> , <b>9322</b> (selectable)
Measurement range	<b>Voltage</b> : 100, 200, 400V line, or 100V DC <b>9010</b> : 10, 20, 50, 100, 200, or 500A <b>9018</b> : 10, 20, 50, 100, 200, or 500A <b>9132</b> : 20, 50, 100, 200, 500, or 1000A <b>3283</b> : 10mA, 100mA, 1, 10, or 200A <b>3284</b> : 20 or 200A <b>3285</b> : 200 or 2000A <b>9322</b> : 400 or 600V line
Max. sampling rate	400kS/s (simultaneous sampling of all channels)
Accuracy, frequency characteristics	±0.5% f.s. (applied accuracy of clamp-on probe), DC to 50kHz ±3dB
Low-pass filter	OFF, 500Hz, 5kHz
Input resistance and capacitance	1MΩ, 7pF approx. (at 100kHz)
Input coupling	DC (fixed)
Max. allowable input	450V AC rms, DC CAT II (upper voltage which when applied to between input pins does not damage them)
Max. rated voltage to earth	450V AC rms, DC (upper voltage which when applied to input channel casing or between input channels does not damage them)

# 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

Supplied with PC Card adapter

**PC Card Precaution**

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

**PC CARD 128M 9726**  
(128MB capacity)

**PC CARD 256M 9727**  
(256MB capacity)

**PC CARD 512M 9728**  
(512MB capacity)

**PC CARD 1G 9729**  
(1GB capacity)



**WAVE PROCESSOR 9335**  
Data conversion, print functions, waveform display, compatible with Windows 95/98/Me, Windows NT 4.0/2000/XP

**Record Current Waveform**



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



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

Not CE certified

**Record Current Waveform**



**CLAMP ON AC/DC HITESTER 3285**  
200A or 2000A AC/DC, with analog output of 1V f.s. DC, and waveform monitor output of 1V f.s. AC at 10Hz to 1kHz, or DC.  
Requires the AC ADAPTER 9445-02/-03



**CLAMP ON AC/DC HITESTER 3284**  
20A or 200A AC/DC, with analog output of 1V f.s. DC, and waveform monitor output of 1V f.s. AC at 10Hz to 2kHz, or DC.  
Requires the AC ADAPTER 9445-02/-03



**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



**AC ADAPTER 9445-02/-03**  
Use for the 3283, 3284, 3285, for USA/CSA 9445-02, for EU 9445-03

Not CE certified



**OUTPUT CORD 9094**  
Required along with the 9199 adapter to connect the 3283/3284/3285 to the 8714-01 or 8715-01



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



**POWER HiCORDER 8714-01** (2ch model)


**POWER HiCORDER 8715-01** (4ch model)

**Included accessories:** AC ADAPTER 9418-15 x1, Recording paper x1, Blank box x1, Strap x1, CONNECTION CORD 9197 (8714-01: x2, 8715-01: x4), Application disk x1

**Input from power-concent**




**CONCENT INPUT CORD 9448**  
Use for 100V commercial line, 2m length




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

**1kV AC, 2kV DC input**




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



**AC ADAPTER 9418-15**  
Use for the 9322, 100 to 240 V AC

**Up to 450V AC input**



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



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



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

Not CE certified



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

Not CE certified



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



**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

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

■ Combination example: 2-channels, with current measurement

	Main unit	Paper	Battery pack	Current up to 500A	Carrying case
Model number x quantity	8714-01x1	9234x1 (10 rolls)	9447x1	9018-10x2	9391x1

■ Combination example: 4-channels, with current measurement

	Main unit	Paper	Battery pack	Current up to 500A	Carrying case
Model number x quantity	8715-01x1	9234x1 (10 rolls)	9447x1	9018-10x4	9391x1

# HIOKI

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