HIOKI

New
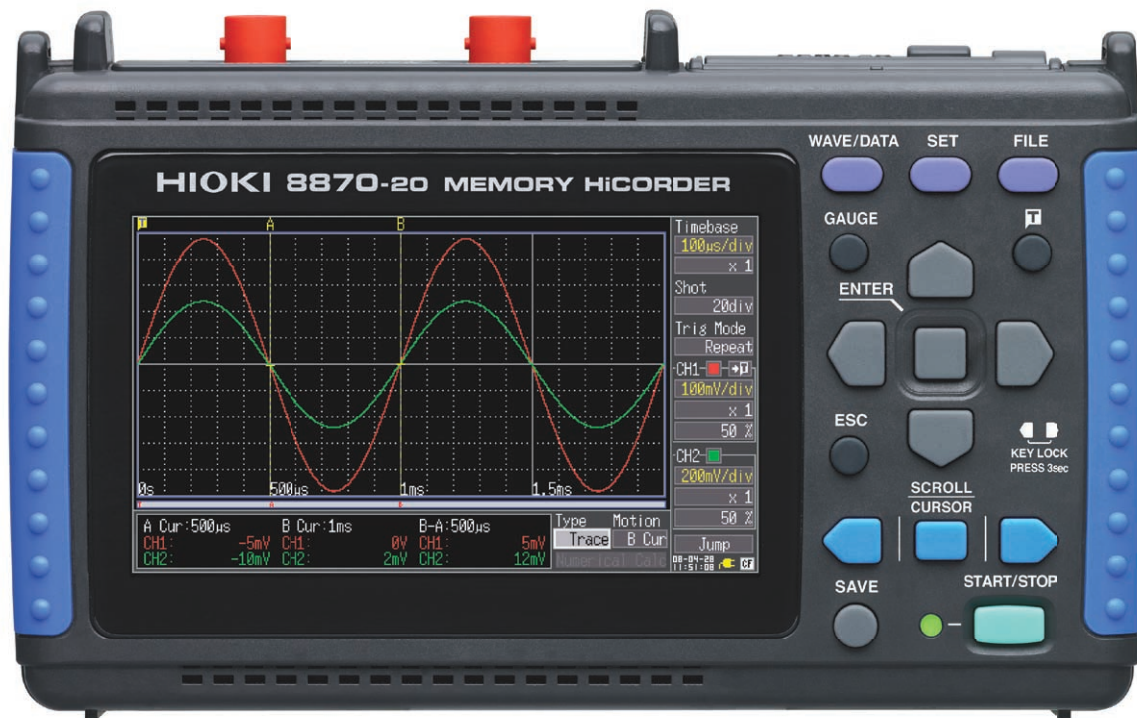
MEMORY HiCORDER 8870-20

Recorders

Palm-size but Powerful

Easy recording anytime, anywhere!

Hioki's traditional MEMORY HiCORDER functions are now condensed into a low-profile, turn-key device. The compact design includes a beautiful wide-screen QVGA-TFT LCD. Easy to use, with great functionality and performance, you will want to keep this extraordinarily compact MEMORY HiCORDER close to hand.

■ Compact and easy to carry
■ Easy, intuitive operation
■ Simple PC connection
■ Fast, 1MS/second performance despite the compact size
■ Built-in, compact-yet-sharp QVGA-TFT wide LCD

CE

ISO 9001
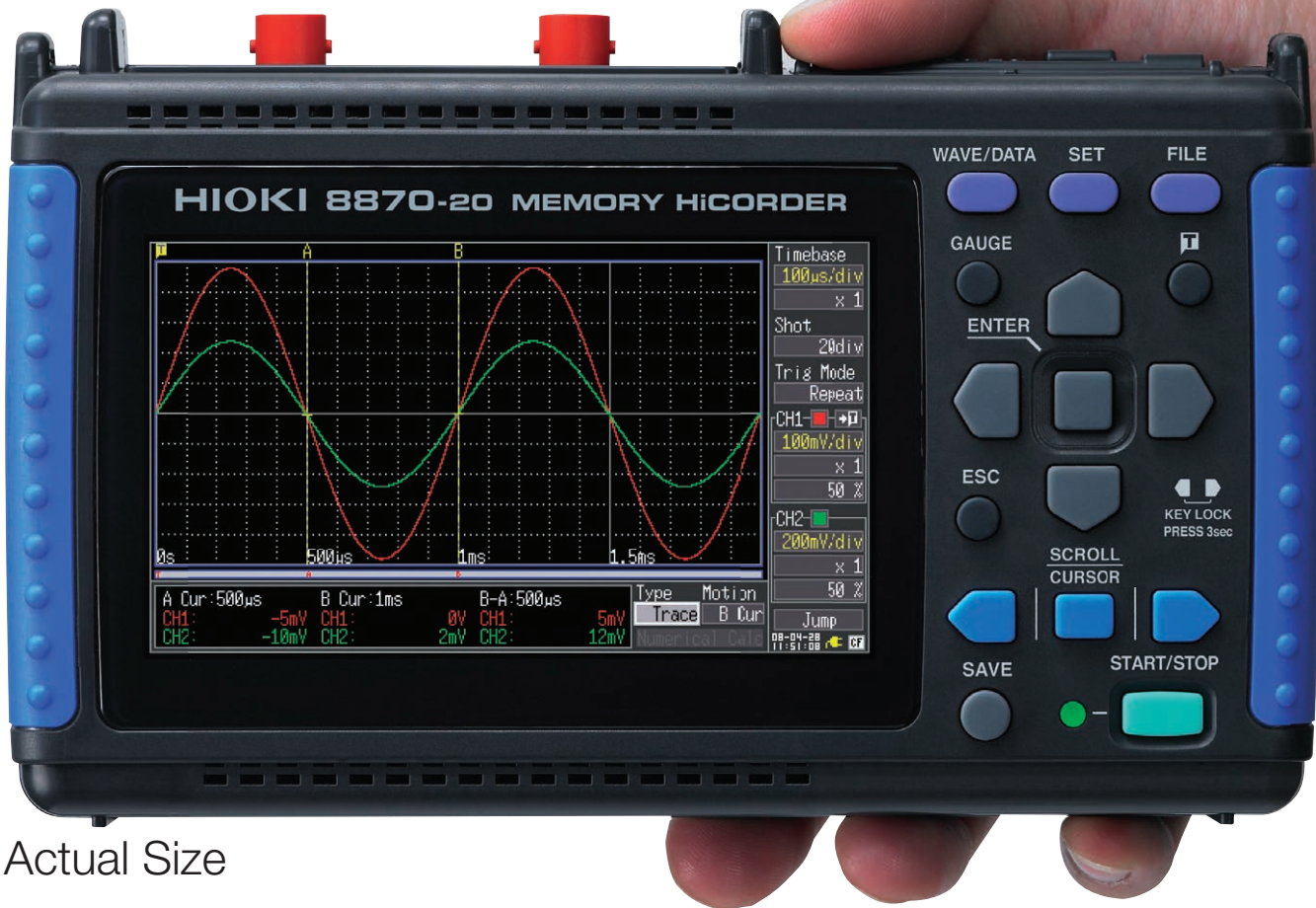JMI-0216

ISO14001
JQA-E-90091

QUALITY SYSTEM

ENVIRONMENTAL SYSTEM

INTERNET HIOKI Website
www.hioki.com

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

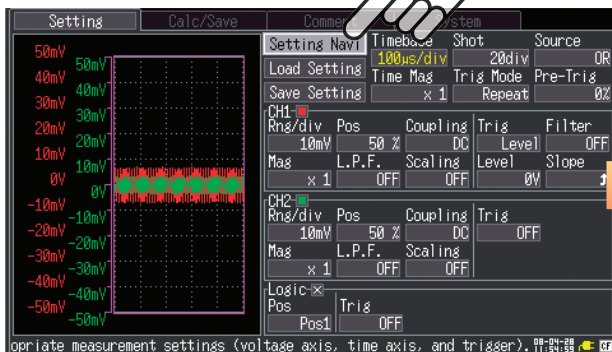# High performance instrument that fits in your hand

Ultra compact, yet easy to use

Actual Size

The "Settings Navigator" function guides operations

Activate the Settings Navigator

When powered on, the Settings screen appears along with the waveform monitor, and the new Settings Navigator blinks. By activating the Settings Navigator, you can easily navigate by following the simple instructions. Soon you will be operating the device like a seasoned professional.

Real-Time waveform monitoring

The help text crawls along the bottom of the screen, describing the function of the setting at the blinking cursor.

The enhanced "Waveform Monitor" window with level meter display facilitates changes to settings by simultaneously displaying real-time input waveforms.

Acquire and store data on a CompactFlash card for analysis on a personal computer

Simple, intuitive operation

The 8870-20 feels like a hand-held tester, yet takes waveform snapshots. It has no complicated functions - allowing you to observe waveforms quickly and increasing your work efficiency.

■ Easily make settings while viewing levels on the Settings screen.

■ Observe waveforms using only simple memory recorder functions.
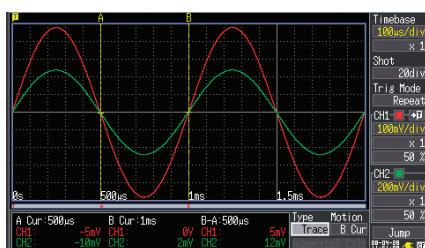
Easy connection to a PC

Connect to a PC with the supplied USB cable to easily download data that has been automatically saved to a CF card. Use the supplied dedicated application program to display and print waveforms on the PC.

■ Easy USB 2.0 data transfer

■ Dedicated application program for displaying and printing waveforms

Note: The CF card installed in the HiCORDER appears as a removable disk on the PC, but communication functions such as the capability to change HiCORDER settings from the PC are not available.

Isolated inputs for safe measurements

Isolated analog channel inputs provide CAT II overvoltage protection safety for measurements of up to 300 V AC and DC (maximum terminal-to-ground rating). This capability enables safe simultaneous voltage measurements of inverter primary and secondary and stacked battery cells without damaging the instrument.

■ 300 V isolation between measurement terminals and HiCORDER chassis

■ 300 V isolation between measurement terminals
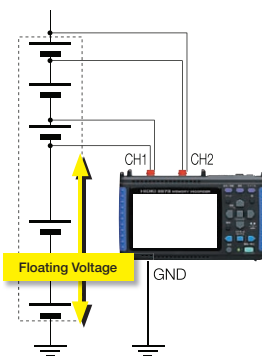
Compact, easy-to-carry design

Volume and weight have both been reduced by 60% from HIOKI's previously most compact MEMORY HiCORDER, the 8807-01, to just 40% the volume and 55% the weight. Easily pack it in your briefcase to accompany you wherever you go.

■ Only 176 mm wide, 101 mm high and 41 mm thick

■ Weighs only 600 g even with the battery pack installed

## Waveform display and printing, and CSV conversion with PC

Data is simply saved to a CF card. When the HiCORDER is connected to a PC via USB 2.0, the data is quickly copied from the installed card to the PC: 20,000 waveform screen divisions transfer in about 20 seconds.

Either off-line, or via USB 2.0, easily copy data to a PC.

Open a data file with the dedicated Wave Processor (PC application program) for the 8870-20, to import and print waveforms with your own arrow and figure annotations. Of course, screen data can be copied and pasted into common Word and Excel documents to easily create reports.
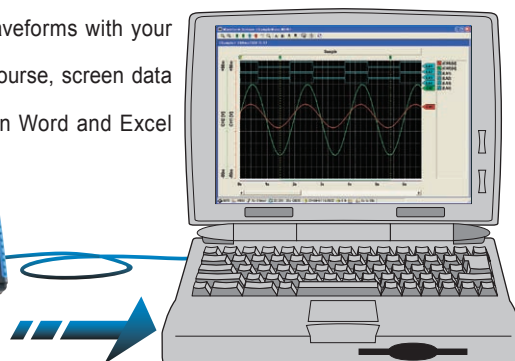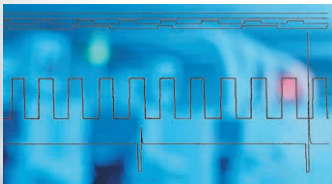
Portable size for on-site jobs

Catering to a multitude of applications

Sequential control fault analysis

Momentary supply dropouts and low AC voltage are often found to be causes of abnormal interruptions and warnings from sequentially controlled devices in factory production and testing lines. For optimal operational analysis, specify an abnormal power event as a trigger and simultaneously record waveforms of associated sequential relay signals, AC power and DC voltage systems.

CB timing measurements

Analyze the relationships of multi-point logic signals and analog waveforms to detect timing issues that can affect power supply circuit breakers. Use logic probes to record relay operations on up to four channels, or use Differential Probe 9322 for 440-volt power measurements and for support of CAT III and CAT IV overvoltage measurement categories.

When facility troubles require waveforms right away!

Battery operation is especially convenient in those situations where no power outlet is available. Just plug in the supplied AC adapter to recharge the battery, regardless of whether the HiCORDER is on or off. The battery pack is automatically quick charged (auto-recharging function) whenever its capacity is depleted. A full charge provides about two hours of operation.

Synchronize two HiCORDERs together for four-channel recording!

For those times when two channels are just not enough, synchronize two 8870-20's using the external trigger I/O terminals (apply the trigger output from one to the external trigger input of the other). Then use synchronous start to automatically record four channels of measurement data to a CF card.
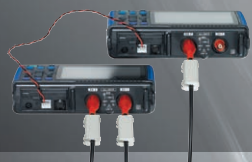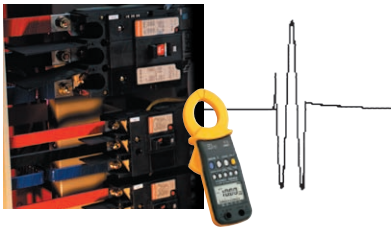
Have you ever had an experience like these?

"There's a problem with the facility, so you need to see waveforms without full measurement instrumentation…"

"You often have to visit worksites to set up plants and facilities, but typical measurement instruments are too bulky…"

Fast, 1MS/second performance despite its compact size.

Isolated inputs ensure safe commercial power measurements. Waveform details can be easily observed.

Unattended monitoring for unpredictably intermittent leakage phenomena

Record instantaneous waveforms of leakage current and line voltage. Use "Out-of-Window" triggering to detect leakage events only when the input is outside of specified upper and lower limits. Measurement data is saved to CF card whenever leakage phenomena occur. Later, reload the data into the 8870-20 and use the cursor functions to analyze peak current values or breaker tripping events.

Record motor inrush current waveforms

Reliably record waveforms of motor startup current. Measure current signals preferably using the 9018-10 Clamp-On Probe, or with the 3283 CLAMP ON LEAK HiTESTER. Models 3284 and 3285 CLAMP ON AC/DC HiTESTERs are also ideal for DC waveform measurements.
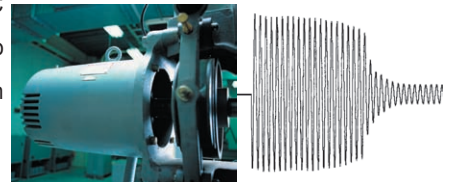
Confirm inverter output waveforms

Inverter performance analysis requires simultaneous observation of the high frequency carrier signal and the low frequency fundamental waveform being switched. The combination of high-speed sampling capability and high-capacity memory make these observations possible. For current waveform observations, use HIOKI clamp sensors capable of high-frequency measurements without direct electrical contact.
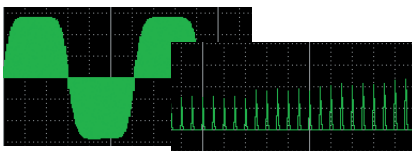
In the automobile servicing industry

Analyze phenomena in ways that are just not possible with dedicated fault diagnostic instruments. The high-speed sampling capability of the 8870-20 as a compact hand-held oscilloscope provides mobility in situations that call for delicate testing, such as when performing high-level analysis or measuring specifiable phenomena.

Capture momentary commercial power outages

Easily monitor the instantaneous waveform of 50/60 Hz commercial power. Use triggering to record unexpected waveform anomalies. Capture momentary commercial power outages and voltage dips.
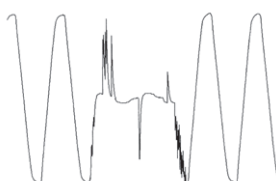
Long-period recording like a pen recorder

Record dual-level DC voltage systems as you would with a pen recorder. Use the 10 ms sampling rate to record momentary voltage fluctuations.The internal two-Megaword memory offers about five hours of recording with a 10 ms sampling interval.

■ Main unit Specifications (Accuracy at 23 ±5°C/73 ±9°F, 80 % rh or less, after 30 minutes of warm-up time; accuracy guaranteed for 1 year)

Basic specifications

No. of channels	2 analog and 4 logic channels (standard configuration, logic grounds are common with instrument ground)
Measurement functions	MEM (high-speed recording)
Fastest sampling rate	1 MS/s (1 ms, all channels simultaneously)
Memory capacity	12 bits × 2 MWords/ch
Removable storage	**CF card Type I slot** (standard equipment) × 1: Up to 1 GB (Flash ATA), supports FAT16 and FAT32 formats
Backup function	**Clock and settings:** 5 years or more (@25°C 77°F) **Waveform backup function:** available when BATTERY PACK 9780 is installed with charge remaining or AC adapter is connected (up to 100 hours with fully charged battery pack).
External interface	**USB:** 1 port USB 2.0 High Speed mini-B receptacle, transfers files from the installed CF card to a PC when connected (mass storage class device) *Note: The CF card installed in the HiCORDER appears as a removable disk on the PC, but communication functions such as the capability to change HiCORDER settings from the PC are not provided.*
External control terminals	Terminal block: External trigger input, trigger output
Display type	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Display resolution	Waveform section: 20 × 10 divisions (time axis × voltage axis), each division is 20 × 20 dots
Environmental conditions (no condensation)	**Temperature and humidity range for use:** 0°C (32°F) to 40°C (104°F), 80% rh or less **Temperature and humidity range for storage:** -10°C (14°F) to 50°C (122°F), 80% rh or less
Compliance standard	**Safety:** EN61010, **EMC:** EN61326, EN61000-3-2, EN61000-3-3
Power requirements	**AC ADAPTER 9786:** 100 to 240 V AC (50/60 Hz) **BATTERY PACK 9780:** About 2h continuous operation (AC adapter has priority when both are used) 12 V DC supply: 10 to 16 V (cable available by special order)
Charging functions	The installed battery pack charges when the AC adapter is connected. Charging time is about 200 minutes at 25°C (77°F). *Notes: Charging time depends on battery condition. Charging is disabled to protect the battery at ambient temperatures out of 5°C (41°F) to 30°C (86°F).*
Power consumption	30 VA max. (charging with the AC adapter) 10 VA max. (charging with a 12 V supply)
Dimensions and mass	Approx. 176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 600 g (21.2 oz) (with the BATTERY PACK 9780 installed)
Supplied accessories	Instruction Manual × 1, Measurement Guide × 1, AC ADAPTER 9786 × 1, Strap × 1, USB cable × 1, Application Disk (dedicated program for the 8870-20) × 1, PROTECTION SHEET 9809 × 1

Trigger functions

Trigger modes	Single or continuous
Trigger sources	Two analog and four logic channels, external trigger (falls below 2.5 V, or shorted terminals), ON/OFF switching of each source, AND/OR between sources, manual triggering
Trigger types (analog)	**Level trigger:** Triggering occurs when the signal rises or falls through a specified voltage level. **Window trigger:** Triggering occurs when the signal level rises above or falls below specified upper and lower limits. **Voltage drop trigger:** Intended particularly for 50/60 Hz commercial power, triggering occurs when the peak voltage is below the specified value.
Level setting	Resolution : 0.5% of full scale (full scale = 10 divisions)
Logic Trigger	1, 0, ×, or specified pattern
Trigger filter	Set by the number of samples, from 0 to 100, in five steps
Other functions	Pre-trigger recording to capture waveforms before and after triggering, trigger output (terminal block, 5-volt open-collector active low with at least 1 ms pulse width)

Analog Input (Accuracy at 23 ±5°C/73 ±9°F, 80 % rh or less, after 30 minutes of warm-up time; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 7 pF) **Max. rated voltage to earth:** 300 V AC, DC, CAT II (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	10 mV to 50 V/div, 12 ranges, full scale: 10 div, AC voltage for possible measurement/display using voltage axis × 1/2: 280 Vrms, Low-pass filter: 5 Hz/50 Hz/500 Hz/5 kHz
Measurement resolution	1/100 of measurement range (using 12-bit A/D conversion, measurement range is ±10 times per-division range value)
Highest sampling rate	1 MS/s (simultaneous sampling in 2 channels)
Accuracy	**DC amplitude:** ±0.5 % of full scale (after zero-adjust, f.s. = 10 div of per-division measurement range)
Frequency characteristics	DC to 50kHz −3dB
Input coupling	DC/GND
Max. allowable input	400 V DC (the maximum voltage that can be applied across input pins without damage)

Memory recorder functions

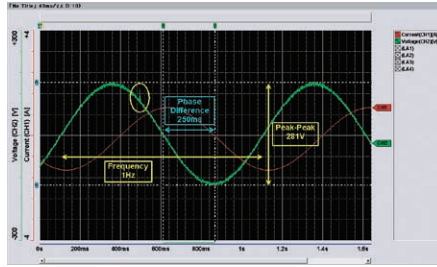|	
Time axis	100 µs to 5 min/div, 20 ranges, time axis resolution 100 points/div, time axis zoom: ×2 to ×10 in 3 stages, compression: 1/2 to 1/1,000 in 9 stages, Auto roll mode display at 50 ms/div or slowely range
Sampling speed	1/100th of time axis range, (1 µs period maximum, simultaneous sampling in all channels)
Recording length	Ten settings from 20 to 20,000 div, or continuous (limited by timebase, only the last 20,000 div are saved)
Pre-trigger	Records waveforms prior to trigger events, from 0 to 100% of the specified recording length
Screen types	Split screen (none, only 1 screen), X-Y screen (none, but possible at use with the supplied PC software), Waveform or numerical logging (switched), Voltage axis zoom (×2 to ×10), compression (×1/2 to ×1/5)
Numerical display	Instantaneous value or RMS value display (only DC and 50/60 Hz) Reflesh rate: 0.5 sec, Sampling speed: 10 kS/sec, 4 digits: (the lowest digit displays as 0 for values 0 to 4, and 5 for values 5 to 9) Voltage axis range: 10 mV, 50 mV, 100 mV, 500 mV, 1 V, 5 V, 10 V, 50 V/div, auto ranging, Accuracy : ±2.5 % of reading ±5 digits
Numerical calculation	Up to four simultaneous calculations (common to all channels), calculation results are saved to CF card, Calculation contents: average, peak, maximum and minimum values, RMS, period and frequency Calculation range: specified by A/B cursors or whole recording length
Saving function	Setting configurations, measurement data (binary and text), screen data (compressed bitmap format), numerical calculation results, thinned data saving (text)
Cursor readout	Trace, vertical and horizontal
Scaling function	Selectable by model (clamp or Differential Probe 9322), specified conversion ratio (output ratio, division ratio), 2-point setting method
Comment entry	Title comments can be entered for each channel (including logic)
Screen capture	The displayed screen is saved to CF card as a compressed bitmap
Gauges	Vertical axis gauges can be displayed for two channels on the waveform screen
Preserve starting conditions	If power fails while measuring, measurement can be automatically resumed when power is restored
Auto save	Included
Scroll bar	To jump to a specific waveform location
Waveform monitor	Setting is possible while monitoring waveforms on the Settings screen
Logic signal view	In 4-bit units, four selectable display positions

■ Maximum Recording Time for the Memory Function

- Because data is not recorded directly to the CF card, maximum recording time is independent of CF card capacity. Maximum recording time is determined only by internal memory capacity.
- Operation cannot be guaranteed when recording continuously for more than one year (with a slow timebase).
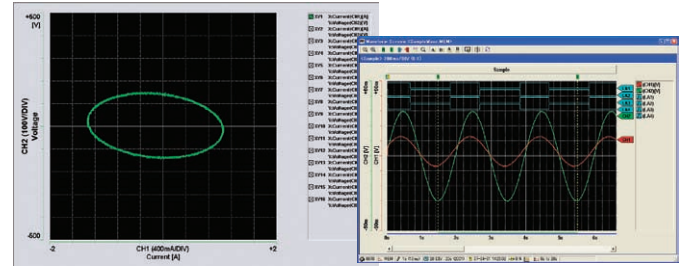- Maximum recording length is the same whether using one or two channels.

Time axis	Sampling period	2M-Word (=4MB) 20,000 div Max.
100 µs/div	1 µs	2 s
200 µs/div	2 µs	4 s
500 µs/div	5 µs	10 s
1 ms/div	10 µs	20 s
2 ms/div	20 µs	40 s
5 ms/div	50 µs	1 min 40 s
10 ms/div	100 µs	3 min 20 s
20 ms/div	200 µs	6 min 40 s
50 ms/div	500 µs	16 min 40 s
100 ms/div	1 ms	33 min 20 s
200 ms/div	2 ms	1 h 06 min 40 s
500 ms/div	5 ms	2 h 46 min 40 s
1 s/div	10 ms	5 h 33 min 20 s
2 s/div	20 ms	11 h 06 min 40 s
5 s/div	50 ms	1 d 03 h 46 min 40 s
10 s/div	100 ms	2 d 07 h 33 min 20 s
30 s/div	300 ms	6 d 22 h 40 min 00 s
1 min/div	600 ms	13 d 21 h 20 min 00 s
2 min/div	1.2 s	27 d 18 h 40 min 00 s
5 min/div	3.0 s	69 d 10 h 40 min 00 s

■ Features of the Dedicated Wave Processor Program (supplied accessory)

- Designed especially for MEMORY HiCORDER 8870-20
  Application program displays and prints waveforms, and converts measurement data to CSV text files on a Windows PC.
- Provides X-Y display capability not available on the HiCORDER
- Generate reports using templates, with figure annotations and entered comments

- Multiple files can be batch-converted to CSV data

Wave Processor Program for the 8870-20

Supported measurement instruments	MEMORY HiCORDER 8870-20 only
Operating environment	PC running Windows 2000, XP, or Vista (32-bit versions)
File loading	Loadable data format: Memory function data (MEM extension) Max. loadable file size: The maximum size that can be stored by the 8870-20 (subject to the capacity of the PC's operating environment)
Overwriting save	Overwrites saved scaling and title/channel comments
Slideshow display	Sequentially displays waveform files in the same folder
Text conversion	Data conversion format: Select from CSV, tab-separated or space-separated Object data range: Whole range, or between cursors Data thinning: Available by specifying interval Conversion methods: Analog waveform data to voltage values, logic data is converted to ones and zeros Conversion channels: selectable Header contents: Title, trigger date, timebase, comments, per-channel setting conditions Batch conversion: specify multiple files for batch conversion
Displaying	Display language: English or Japanese (select during installation) Waveform display: Scroll and magnify/reduce the time axis of the displayed waveform data image, move the zero position of each channel, zoom and set the vertical axis of each channel independently (variable gain) Numerical value display: included Cursor functions: Manipulate A and B cursors independently, and display time and voltage numerically. Max. displayable channels: two analog and four logic channels Gauge display: Time gauge (absolute or relative time, seconds, data points), voltage gauge (for each channel) Figure annotations: Text boxes, straight lines, arrows, circles and rectangles at any location Screen capture: Extended meta format, bitmap format Search functions: Date, maximum, minimum, level and window search Template function: Save and reload waveform file display configurations
Printing	Printer support: Color and monochrome printing on printers supported by the operating system Printable ranges: All data, screen capture and specifiable areas Print formats: Undivided, two divisions, 2, 4, 8 or 16 traces, single XY screen, gauges, channel comments, zero-position comments, and A/B cursor values Print preview and waveform screen hard copy/logging print functions are included

■ Options specifications (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:** 1 MΩ (with digital input, 0 to +5 V), 500 kΩ or more (with digital input, +5 to +50 V), **pull-up resistance:** 2 kΩ (contact input: internally pulled up to +5 V)
Digital input threshold	1.4 V/2.5 V/4.0 V
Contact input detection resistance	1.5 kΩ or higher (open) and 500 Ω or lower (short), 3.5 kΩ or higher (open) and 1.5 kΩ or lower (short), 25 kΩ or higher (open) and 8 kΩ or lower (short)
Response speed	500 ns or lower
Max. allowable input	0 to +50 V DC (the maximum voltage that can be applied across input pins without damage)

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:** 100 kΩ or higher (HIGH range), 30 kΩ or higher (LOW range)
Output (H) detection	170 to 250 V AC, ±DC (70 to 250 V) (HIGH range) 60 to 150 V AC, ±DC (20 to 150 V) (LOW range)
Output (L) detection	0 to 30 V AC, ±DC (0 to 43 V) (HIGH range) 0 to 10 V AC, ±DC (0 to 15 V) (LOW range)
Response time	Rising edge 1 ms max., falling edge 3 ms max. (with HIGH range at 200 V DC, LOW range at 100 V DC)
Maximum allowable input voltage	250 Vrms (HIGH range), 150 Vrms (LOW range) (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 10 MHz (±3 dB), **amplitude accuracy:** ±1 % of full scale (at max. 1000 V DC), ±3 % of full scale (at max. 2000 V DC) (full scale: 2000 V DC)
AC mode	For detection of power line surge noise, frequency characteristics: 1 kHz to 10 MHz ±3 dB
RMS mode	DC/AC voltage RMS output detection, frequency characteristics: DC, 40 Hz to 100 kHz, **response speed:** 200 ms or less (400 V AC), **accuracy:** ±1 % of full scale (DC, 40 Hz to 1 kHz), ±4 % of full scale (1 kHz to 100 kHz) (full scale: 1000 V AC)
Input	**Input type:** balanced differential input, **input impedance/capacitance:** H-L 9 MΩ/10 pF, H/L-unit 4.5 MΩ/20 pF, **Max. rated voltage to earth:** when using grabber clip 1500 V AC/DC (CAT Ⅱ), 600 V AC/DC (CAT Ⅲ), when using alligator clip: 1000 V AC/DC (CAT Ⅱ), 600 V AC/DC (CAT Ⅲ)
Maximum allowable input	2000 V DC, 1000 V AC (CAT Ⅱ), 600 V AC/DC (CAT Ⅲ)
Output	Voltage divider for 1/1000 of input, BNC connectors (output switchable for 3 modes DC, AC, RMS)
Power source	Connect the AC ADAPTER 9418-15, (power cannot be supplied from the logic terminals of the 8870-20)

Supplied AC Adapter

Battery Pack

BATTERY PACK 9780
NiMH, Charges while installed
Charges while installed in the HiCORDER

Options for Voltage measurement (Not supplied. Purchase together with attachment clips appropriate for your application.)

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

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)

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

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

Voltage measurement (Requiring power for probe)

DIFFERENTIAL PROBE 9322
2 kV DC for input up to 1 kV AC, CAT III-600 V and CAT II-1000 V maximum terminal-to-ground rating

AC ADAPTER 9418-15
For powering Differential probe 9322, 100 to 240 V AC, 12 V/2.5 A

Voltage measurement

CONNECTION CORD 9198
CAT II-300 V, 5-mm (0.20 in) dia. cable, 1.5 m (4.92 ft) length

CONNECTION CORD 9197
CAT II-500 V, 5-mm (0.20 in) dia. cable, 1.5 m (4.92 ft) length

Removable storage

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.

Case

SOFT CASE 9812
Includes space for small items, Neoprene rubber

MEMORY HiCORDER 8870-20 (English model, instrument only)

Note: Test leads are not included. Purchase the leads appropriate for your application separately. AC Adapter 9786 is the only supplied accessory.

Logic signal measurement (One probe can be installed to provide four channels)

LOGIC PROBE 9320-01
4-channel type, for voltage/contact signal ON/OFF detection (miniature terminal type)

LOGIC PROBE 9321-01
4 isolated channels, ON/OFF detection of AC/DC voltage (miniature terminal type)

CONVERSION CABLE 9323
Used for connecting the 9320/9321 and 8870 series MEMORY HiCORDERs, because the terminal shapes are different.

* This cable is not required for the smallterminal types 9320-01 and 9321-01.

Supplied Accessories

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets can be purchased separately.

AC ADAPTER 9786
100 to 240 V AC

Case

CARRYING CASE 9782
Includes compartment for options, Resin coated

Current measurement

CLAMP ON PROBE 9018-50
10 A to 500 A

CLAMP ON PROBE 9132-10
20 A to 1000 A
Not CE marked

CLAMP ON LEAK HiTESTER 3283
10 mA to 200 AAC

CLAMP ON AC/DC HiTESTER 3284
20 A to 200 A AC/DC

CLAMP ON AC/DC HiTESTER 3285
200 A to 2000 A AC/DC

AC ADAPTER 9445-02/-03
for the 3283/3284/3285, 9V/1A

OUTPUT CORD 9094
3.5-mm mini plug, and banana plugs, 1.5 m (4.92 ft) length
Not CE marked

CONVERSION ADAPTER 9199
Female banana terminals to BNC plug (output)

Clamp tester connection requires OUTPUT CORD 9094 and Conversion Adapter 9199.

HIOKI
HIOKI E. E. CORPORATION

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).