



HIOKI

2000

8720 VISUAL HiCORDER

Recorders



Memory Recorder to Replace Pen Recorders! Continually record or analyze while comparing previous data

The 8720 VISUAL HiCORDER is designed specifically as an enhanced replacement for pen recorders, based on popular user recommendations. Functionality and appearance follow the highly regarded 8841 MEMORY HiCORDER, while performance specifications emphasize long-term recording and the capability to display previously recorded data on the screen. Operating functions are designed to be simple, allowing easy use of the superb large-capacity memory. Those who have used pen recorders before will find this recorder particularly attractive and easy to operate.



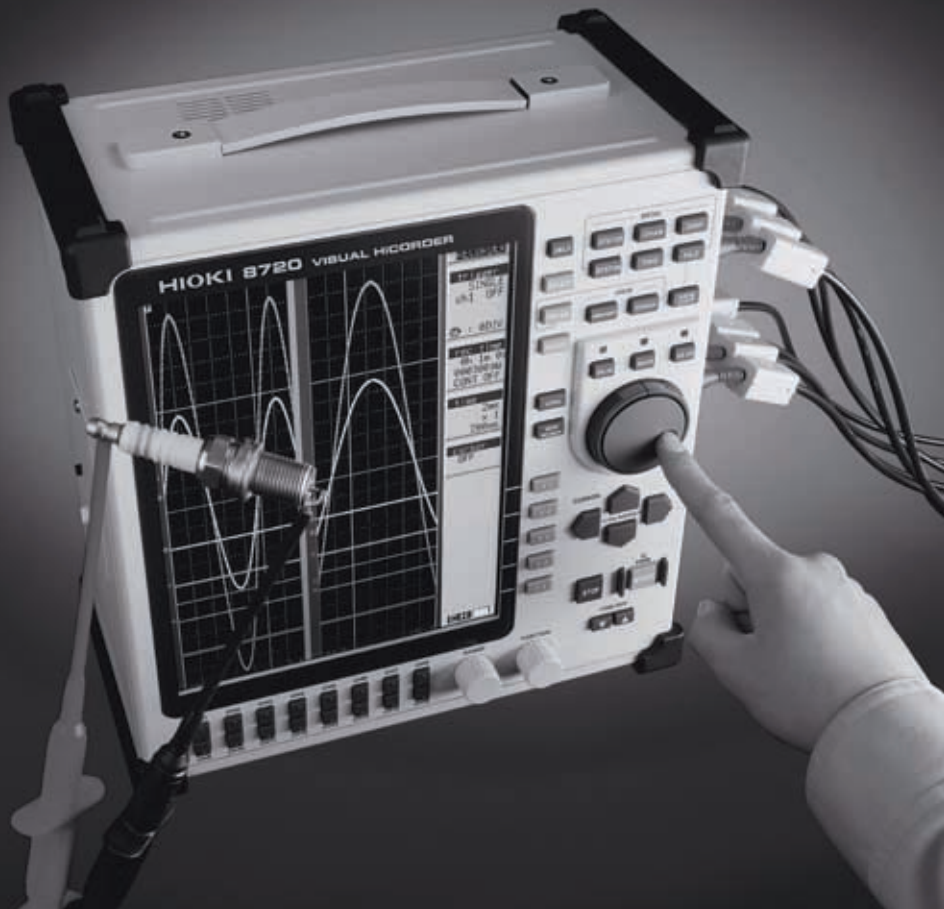
ISO14001
JQA-E-90091



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

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

1 *Fast Scrolling Display View Any Desired Waveform Quickly*



Possible only by recording in solid-state memory!

1. Ideal for mobile applications.
2. Screen display allows high-speed analysis.
3. Waveforms can be compared with previous data.
4. Data can be analyzed on a PC.
5. Solid-state memory eliminates recording paper.

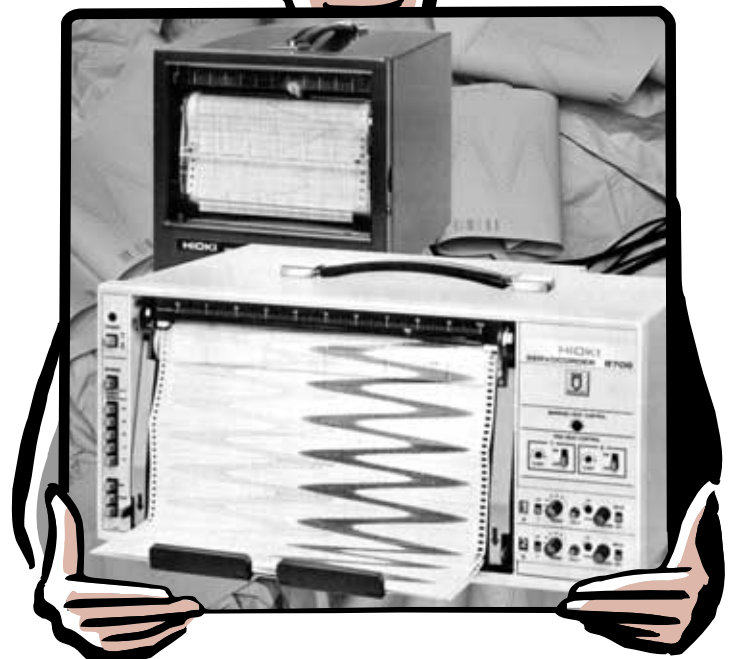
A LAN-Connectable Recorder! Digitally Process Test Data



Have you ever noticed that although a pen recorder records all test data on paper, only a certain portion of that data is useful, so you end up scrolling through a lot of paper to find that useful part?

With the 8720 VISUAL HiCORDER, test data can be reviewed using the fast-scroll function on the large color screen, so finding the important parts is easy.

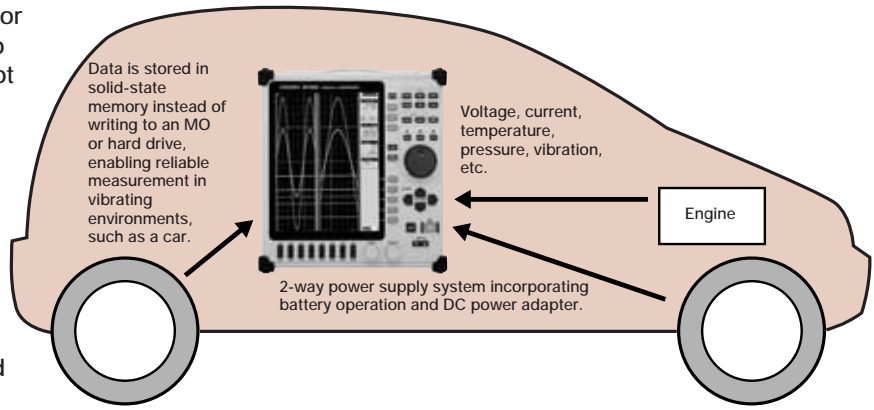
All data is stored and managed electronically, and can be output to a network printer using a LAN card and the 9333 LAN COMMUNICATOR software.



- Features -

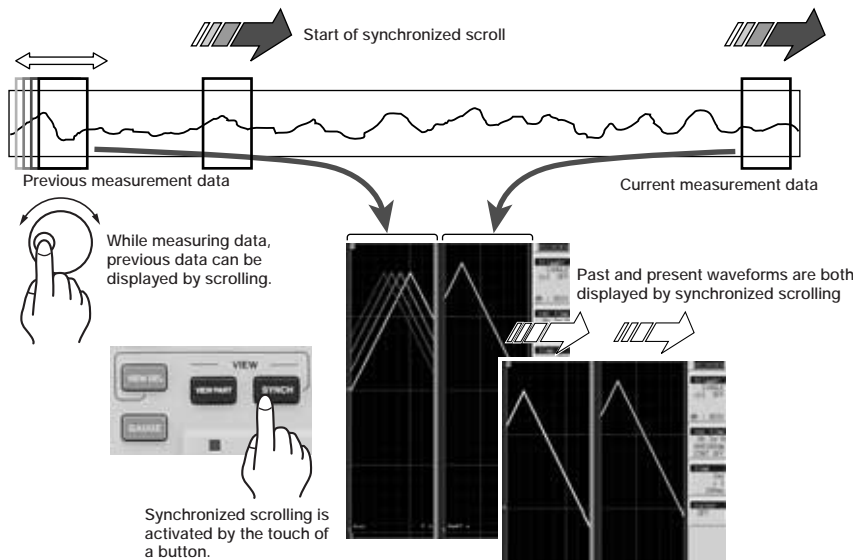
Is reliability compromised in recording systems using MO or hard drive data storage?

Disk storage devices such as MO or hard disk drives are susceptible to shock and vibration, and so are not as ideal for automobile measurement applications. Because the 8720 stores data in solid-state memory having no moving parts, it is ideal for such mobile measurements. The memory has a battery backup, so measurement data is preserved even when power is lost. The stored data is transferred to magnetic media when measurement is finished.

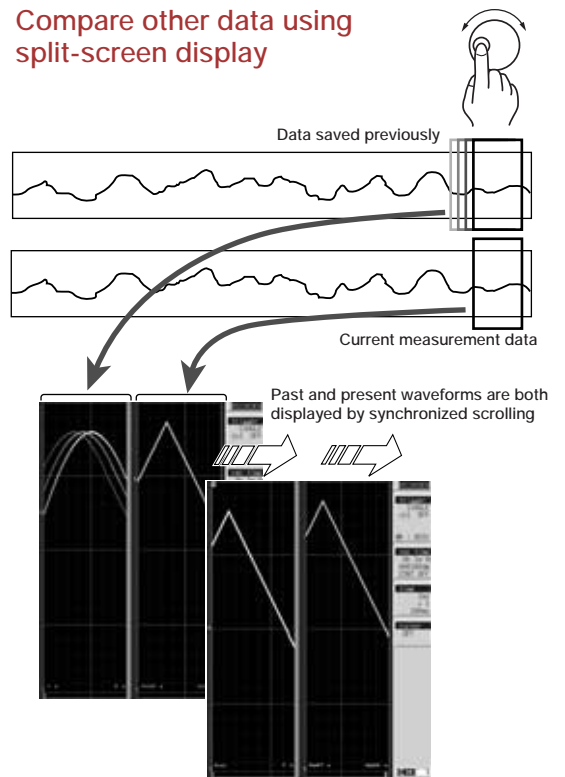


- Split-screen display shows current and past data, with synchronized scrolling function.
- Supports fast sampling even of distant phenomena, while long-duration data can be compressed to a convenient size.
- Supports continuous X-Y recording with unlimited recording time. Apply input voltages for the horizontal and vertical axes, and the X-Y locus is drawn on the screen.
- Measurement data is displayed on the screen and stored in memory without using paper.
- Fast scroll function means being able to capture any phenomena.
- Up to 16 analog channels with isolated inputs.
- Seven types of input modules support a wide variety of data collection applications.
- Recorded data can be stored in CSV format to be easily read on a PC.
- Recorded waveforms are backed up even during power loss (for up to three days when fully charged).
- Variable-level controls allow fine adjustment of displayed waveform size, and of course, scaling is fully supported.
- Small size, low price with color LCD and easy operation.

Check previous events on split-screen display

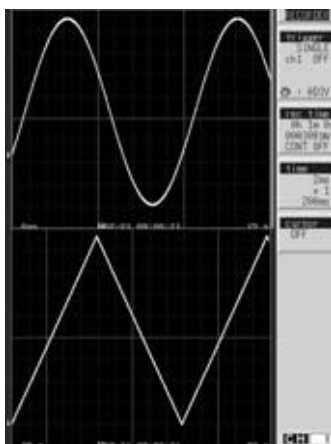


Compare other data using split-screen display



Compare other data using split-screen display

Both horizontal and vertical split-screen formats are available.



Synchronized scrolling is activated by the touch of a button.

Analyze Digital Samples on a PC!

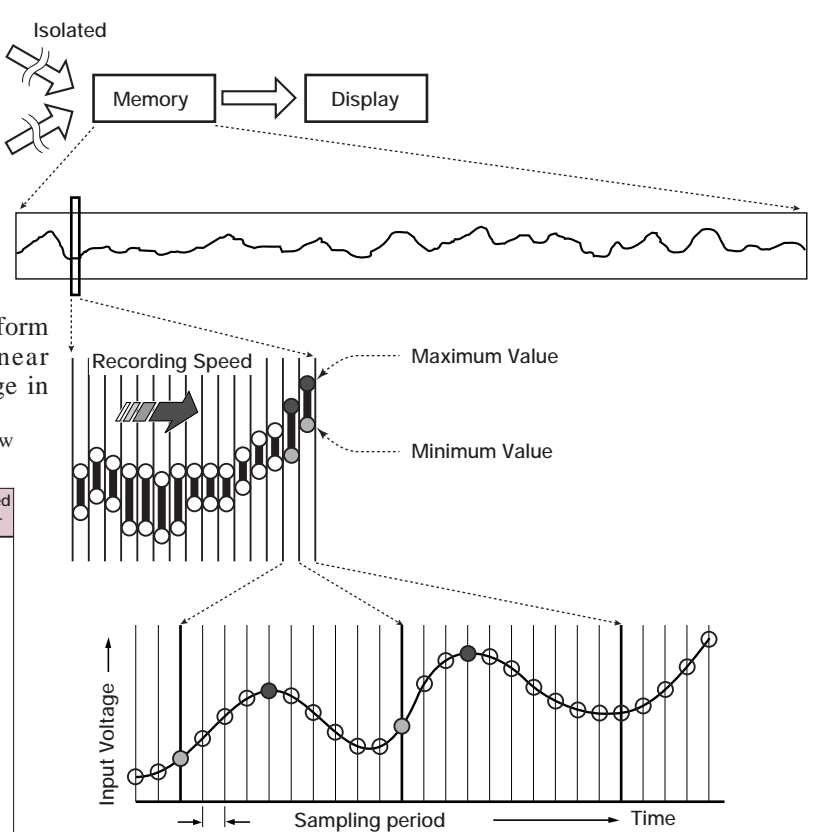
- Function Details -

Data Recording Principles

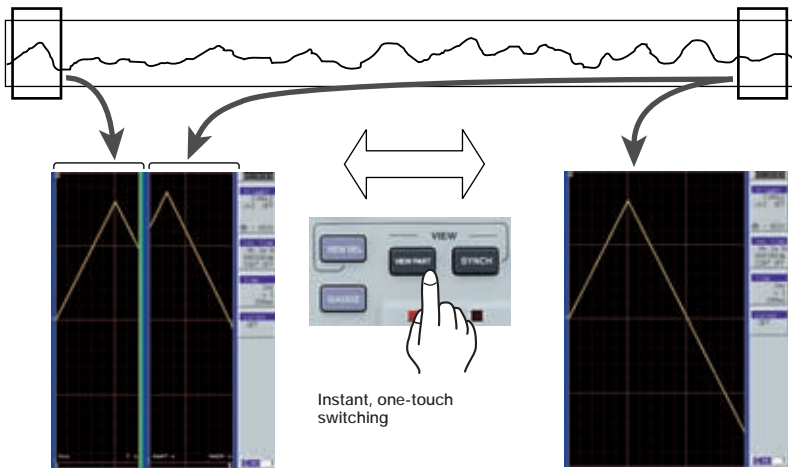
Input voltage at each channel is sampled* by an independent A/D converter, which converts the signal to a series of digital values of instantaneous voltage. The minimum and maximum values of the many data samples taken within the selected recording interval (e.g., 10 ms) are recorded in memory. One data-recording element consists of a minimum/maximum pair of values, and 100 of such pairs constitute the waveform across one division of the time axis (for linear measurement). Therefore, even after a rapid change in input voltage, the data quantities are compressed.

* Sampling period can be selected from either Fast (10 μ s) or Slow (1/10th of the Recording interval).

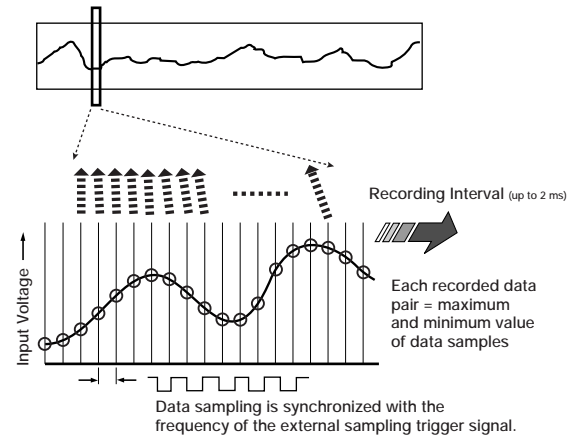
Recording interval (per line)	Sampling period	2000 division when 12 or 16 channels selected	Paper feed speed of pen recorder
2 ms	10 μ s, 200 μ s	6m 40s	5 cm/s
5 ms	10 μ s, 500 μ s	16m 40s	2 cm/s
10 ms	10 μ s, 1 ms	33m 20s	1 cm/s
20 ms	10 μ s, 2 ms	1h 6m 40s	0.5 cm/s
50 ms	10 μ s, 5 ms	2h 46m 40s	0.2 cm/s
100 ms	10 μ s, 10 ms	5h 33m 20s	0.1 cm/s
300 ms	10 μ s, 30 ms	16h 40m	2 cm/m
600 ms	10 μ s, 60 ms	1d 9h 20m	1 cm/m
1200 ms	10 μ s, 120 ms	2d 18h 40m	0.5 cm/m
3 s	10 μ s, 300 ms	6d 22h 40m	0.2 cm/m
6 s	10 μ s, 600 ms	13d 21h 20m	0.1 cm/m
18 s	10 μ s, 1.8 s	41d 16h	2 cm/h
36 s	10 μ s, 3.6 s	83d 8h	1 cm/h
72 s	10 μ s, 7.2 s	166d 16h	0.5 cm/h
3 min	10 μ s, 1.8 s	416d 16h	0.2 cm/h



Split-/Single-Screen Display

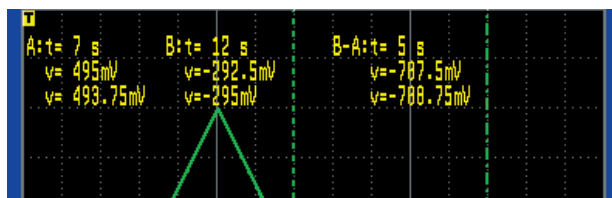


External Sampling Trigger (available by special order)



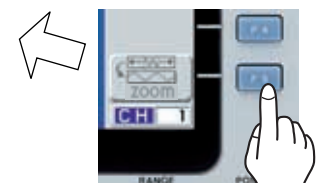
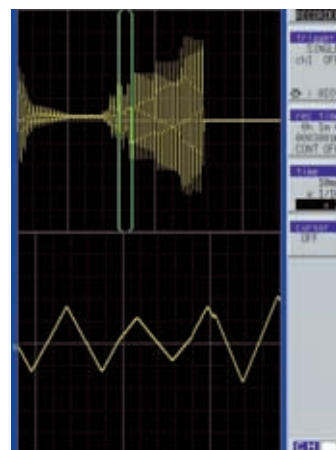
Cursor Measurement and Parameter Calculation Functions

Time and amplitude differences can be read using the screen cursors. In addition, five types of parameters, such as maxima, minima and peak-to-peak waveform data values can be detected and numerically displayed.



Zoom Function

Recorded waveforms can be expanded to view desired details.

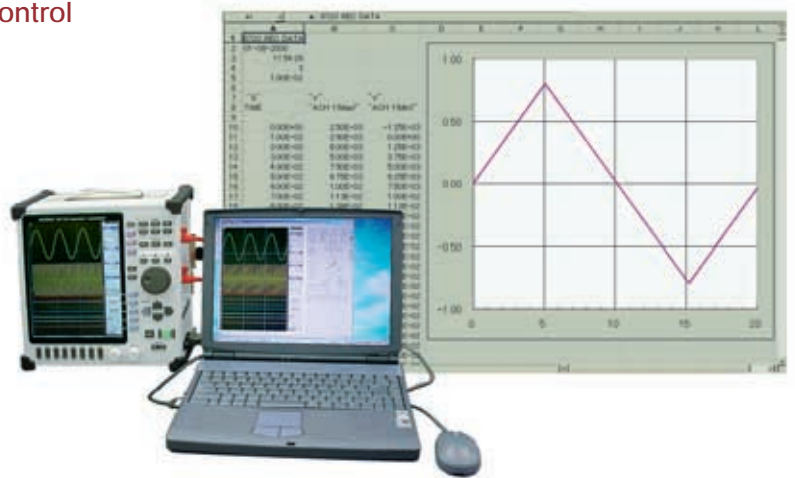


Remote Control via LAN Connection!

New standard for data transfer and remote control

Via a LAN connection, the screen of the 8720 VISUAL HiCORDER can be monitored in real time on a PC running the 9333 LAN COMMUNICATOR program. Additionally, the HiCORDER can be operated remotely from the PC screen (requires 8720 version 2.00 or later).

- The measurement screen is duplicated on the PC screen via the LAN.
- Measurement data from the 8720 can be copied from a LAN-equipped laboratory to a PC.
- Measurement waveforms can be printed on a network printer via the LAN.



Support for Data Analysis on the PC

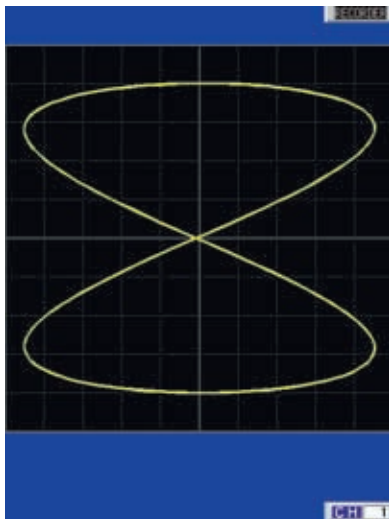
Recorded waveforms can be saved in CSV format to an optional MO drive (128 to 640 MB), or the installed floppy drive (720 KB, 1.2 and 1.44 MB) or a PC Card in the standard slot provided (32 MB SRAM, or 528 MB ATA hard drive). Besides the optional MO drive, an external MO drive can be connected via the provided SCSI interface. Data analysis can be performed using common spreadsheet software.



Floppy Disk

PC Card

Optional MO Drive



Advantages of Ethernet and TCP/IP Connected Systems

- Data transfer speed is faster than MO write speed.
- Cable length may be up to 100 meters using 10Base-T.
- Data can be used immediately by an application program on the PC (9333 LAN COMMUNICATOR).
- Less susceptible to errors compared with RS-232C communications, and faulty data is automatically resent.
- Installation costs at the PC side are lower than GP-IB.

Disadvantages of Ethernet and TCP/IP Connected Systems

- Transfer time depends on network usage, because the network is shared with other LAN devices.
- Transfer time between other devices on the LAN may be affected, depending on the amount of data transferred from the recorder.



9578 10BASE-T LAN CARD
required for LAN connection
of the 8720



9333 LAN COMMUNICATOR
software required for LAN
connection at the PC side

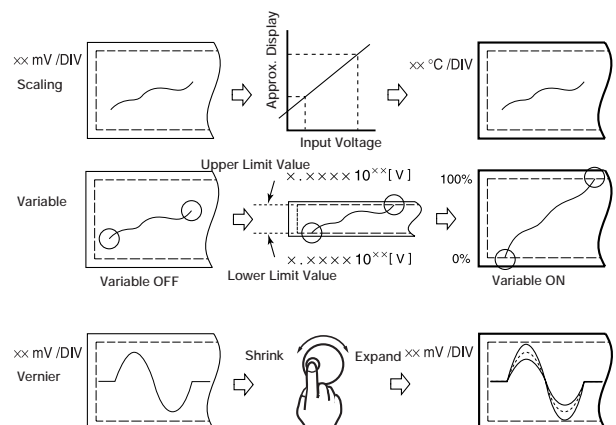
Large-Screen X-Y Recorder Functions Provided

Applying input signals to both vertical and horizontal axes generates an X-Y waveform that can be viewed on the large screen and recorded. The same kinds of X-Y recording are provided as have been previously available, but without requiring any paper.

Scaling Functions

Actual measurements usually involve parameters other than voltage. Various physical parameters such as speed, vibration and temperature commonly need to be recorded, and this signal data should be directly readable, without having to be manually converted. In such measurement conditions, the scaling function can be used to automatically convert to the desired parameter value. Additionally, waveform amplitude can be adjusted using the Variable Gain function.

In addition, if accurate input voltage amplitude measurement is not required, the amplitude can be intentionally modified with the Vernier Adjustment function.



Select the Input Module for Your Application

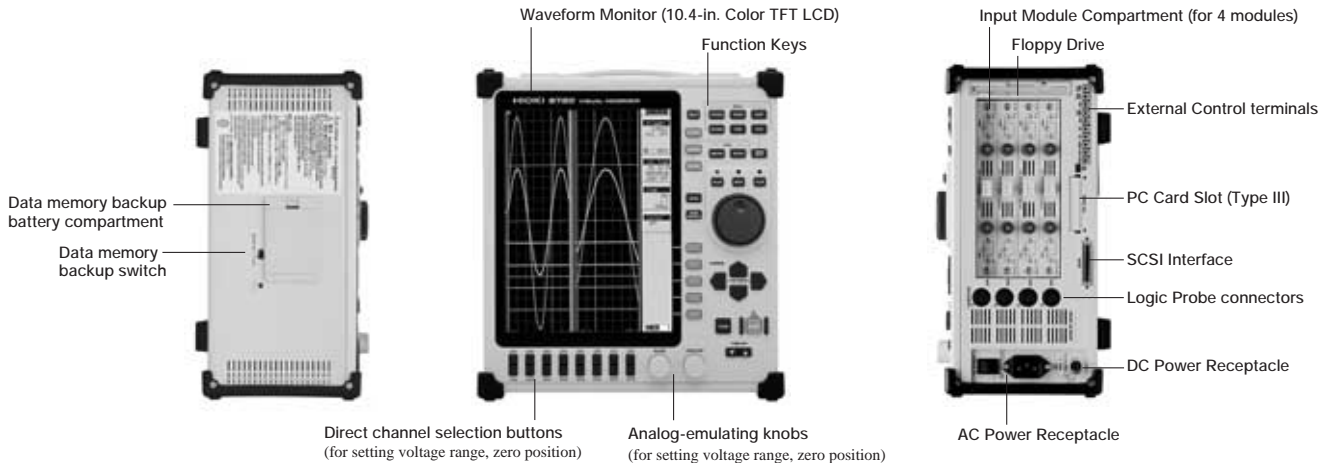
- Product Specifications -

External dimensions:

Approx. 280 (11.02") W x 300 (11.81") H x 140 (5.51") D mm (MO unit not attached)
 280 (11.02") W x 300 (11.81") H x 167 (6.57") D mm (MO unit attached)

Mass:

Approx. 5.5 kg/ 194.0 oz (main unit only) 6.1 kg/ 215.2 oz (with MO unit attached)



8720 Key Specifications

Measurement functions	(1) Recorder, (2) X-Y Recorder
Display	10.4-inch Color TFT LCD, Japanese/English selectable display, 480 × 640 dots, switchable backlight (Auto Off)
Input types/Channels	Plug-in input modules: 8 analog + 16 logic channels, or 16 analog + 16 logic channels when using 4-channel analog module (analog channel inputs and outputs are isolated, logic channels share common ground)
Maximum sampling rate	100 ks/s (10 µs period) All analog and logic channels sample simultaneously. External sampling trigger - at least 2 ms (by special order)
Memory capacity	8 M words standard, expandable to 32 M words
External memory * with optional 9670 MO DRIVE installed	One standard 3.5-in. floppy drive (720 KB, or 1.2/1.44 MB, MS-DOS format) One standard Type III PC Card slot (for up to 32-MB SRAM or up to 528-MB ATA hard disk, MS-DOS format) One 3.5-in. MO drive* (128, 230, 540 or 640 MB, supports media overwriting) Settings and Measurement Data: binary or text
Backup function	Time and settings: for at least 10 years (at 25°C) Recorded data: for up to 3 days (with fully charged battery)
External control terminals	External trigger in/out, external start/stop
SCSI Interface (built in)	External MO drives can be connected (inquire for compatible models) Connector: shielded 50-pin half-pitch D-Sub
Optional interfaces (sold separately) One can be installed in the PC Card slot	GP-IB: the IEEE 4882-1987 compatible Model 9558 GP-IB CARD supports remote control, including the input module RS-232C: the EIA RS-232C compatible Model 9557 RS-232C CARD supports remote control, including the input module LAN: the Ethernet TCP/IP compatible Model 9578 10BASE-T LAN CARD supports remote control, including the input module (8720 version 2.0 or later) External Printer: the PC-AT Centronics compatible Model 9559 PRINTER CARD supports color printer on an external printer, including ESC/P and ESC/P rasterizing support
Environmental conditions (non-condensing)	Operating temperature and humidity: 5 to 40°C, 35 to 80% rh Storage temperature and humidity: -10 to 50°C, 35 to 90% rh
Power requirements	100 to 240 VAC (auto selecting), 50/60 Hz or 10 to 28 VDC using Model 9433 DC ADAPTER (AC priority)
Power consumption	Max. 100 VA (with 8946 fully loaded)
Supplied accessories	One each Protective Cover, Power Cord, PC Card Protector, Input Cord Label

Trigger Functions

Trigger source	For analog input channels 1 to 16, On/Off according to each source at the corresponding external input, AND/OR between sources
Type of trigger (analog)	Level: Digital setting by voltage between scales Triggers when set value is exceeded positively or negatively Window: Set by upper and lower trigger levels Triggers when entering or exiting the window
Trigger level resolution	0.25% f.s. (f.s. = 20 divisions)
Trigger filter	On/Off (fixed at 10 ms)
Pre-trigger	0, 5 or 10 divisions (to be recorded before a trigger event)

Recorder Functions

Recording speed	Once every 2, 5, 10, 20, 50, 100, 300, 600 or 1200 ms, and 3, 6, 18, 36, 72 s, or 3 min. (time axis: 15 ranges from 200 ms to 5 h per division), 100 points/div resolution, with 8 time axis compression levels from 1/2 to 1/500, and two expansion levels (2× and 4×)
Sampling period	Fast (10 µs), and Slow (1/10 recording speed: 0.2 ms to 18 s)
Recording length	Settable by hours, minutes and seconds, or continuous. Limited according to recording speed. Maximum 2000 divisions, or 1000 divisions when using comparison function with another file. With expanded memory, up to 10,000 divisions, or 5000 divisions when using comparison function with another file.
Display formats	Single, or split into 2, 4 or 8 screens, and X-Y plot
Waveform storage	The most recent 2000 divisions of data are stored in memory. Reverse scrolling is supported.
Waveform scrolling	Left-right scrolling is supported by a Jog/Shuttle knob
Other	Zoom function, Roll Display function (scroll to always display new recording data), magnify voltage axis 2× to 10× (in 3 steps), compress voltage axis by 1/2, append recording function (restart recording from the end of previous data, without erasing)

X-Y Recorder Functions

X-Y sampling period	Fast: 1 ms fixed (for dots), 1 ms or greater (for lines) Slow: 10 ms fixed (for dots), 10 ms or greater (for lines)
X- and Y-axis resolution	32 dots/division (normal), or 48 dots/division (wide)
Recording length	Unlimited

Additional Functions

Measurement cursors	A-B cursors can be set to measure differences in time, voltage and frequency, as well as voltage at each cursor and time from trigger events
Scaling	Scaling: converts amplitude graduations only Variable: arbitrarily sets upper and lower limits of waveform display range
Split-Screen Display	The waveform display can be split vertically or horizontally, with data currently being measured scrolling at the left side. Previously recorded data can be compared and scrolled synchronously with data currently being measured.
Waveform parameter calculation (Recorder function)	Calculates maximum and minimum amplitudes, times to maxima and minima, and peak-to-peak amplitudes (max - min).
General	One-Touch save, retain startup conditions, automatic setup, remote control, on-line help, key lock, level monitor function (numeric display of over-range values), grid display on/off.
External sampling trigger (Recorder function)	Records one sample for each input pulse. (Maximum and minimum values are stored with each data sample.) External sampling is supplied only by special request: please contact your supplier.

CE mark compliance

Applicable standards	Safety: EN61010 EMC: EN55011, EN50082
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Options (sold separately)

Dimensions and mass:

Approx. 170 (6.69) W × 20 (0.79) H × 148 (5.83) D mm (inch),
approx. 290 g (10.2 oz)



8936, 8938

8936 ANALOG UNIT (accuracy at 23 ±5°C/73 ±9°F after 30 min of warm-up time; accuracy guaranteed for 1 year)	
Input	Number of channels: 2, Connector: Insulated BNC * Input isolated from output, inter-channel isolation
Measurement range	5 mV to 20 V/division, 12 ranges, full-scale (f.s.) = 20 divisions, Low-pass filter: 5/ 500/ 5 k/ 100 kHz, the measurement resolution is 1/80 of range * When used with 8720
Maximum sampling rate	100 kS/s (simultaneous sampling of two channels) * When used with 8720
Accuracy	DC amplitude: ±0.4 % f.s. Zero-position: ±0.1 % f.s.
Zero-position	-50% to 150%, 1% step * With zero-adjustment function
Frequency characteristics	DC to 400 kHz ±3 dB, with AC coupling: 7 Hz to 400 kHz ±3 dB
Input resistance and capacitance	1 MΩ, 30 pF approx. (at C 100 kHz)
Input coupling	DC, GND, AC
Max. allowable input	400 V DC (upper voltage which when applied to between input pins does not damage them)
Max. grounding voltage	400 V AC, DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional

Dimensions and mass:

Approx. 170 (6.69) W × 20 (0.79) H × 148 (5.83) D mm (inch),
approx. 300 g (10.6 oz)



8937

8937 VOLTAGE/TEMPERATURE UNIT (accuracy at 23 ±5°C/73 ±9°F, 60 minutes after power-on; accuracy guaranteed for 1 year)	
Inputs	Number of channels: 2 each for voltage and temperature * Input isolated from output, inter-channel isolation Voltage input: isolated BNC, thermocouple input: plug-in terminal
Voltage measurement range	500 μV to 2 V/division; 12 settings, full-scale (f.s.) = 20 divisions, low-pass filter: 5/ 500/ 5 k/ 100 kHz, the measurement resolution is 1/80 of range * When used with 8720
Temperature measurement range	10°C to 100°C/division; 4 settings, full-scale (f.s.) = 20 divisions, low-pass filter: 5/ 500 Hz, measurement resolution: 1/80 of range * When used with 8720
Thermocouple range	K: -200 to 1350°C, E: -200 to 800°C, J: -200 to 1100°C, T: -200 to 400°C, N: -200 to 1300°C, R: 0 to 1700°C, S: 0 to 1700°C, B: 300 to 1800°C, Reference junction compensation: internal/ external (switchable)
Max. sampling rate	Voltage input: 100 kS/s, Temperature measurement: 4 kS/s (2-channel simultaneous sampling) * When used with 8720
Accuracy	Voltage input: DC amplitude ±0.4% of f.s. Zero-position ±0.15% of f.s. Temperature measurement (K, E, J, T, N): ±0.1% of f.s. ±1°C, ±0.1% of f.s. ±2°C (-200 to 0°C), (R, S): ±0.1% of f.s. ±3°C, (B): ±0.1% of f.s. ±4°C (400 to 1800°C) Reference junction compensation accuracy: ±0.1 % f.s. ±1.5 °C (internal compensation)
Zero position	Voltage input: -50% to 150%, 1% steps * With zero-adjust function Temperature measurement: -100% to 100%, 1% steps
Frequency characteristics	Voltage input: DC to 400 kHz + 1/-3 dB Temperature measurement: DC to 1 kHz + 1/-3 dB
Input resistance and capacitance	Voltage input: 1 MΩ, 50 pF approx. (at C 100 kHz) Temperature measurement: 5.1 MΩ
Input coupling	DC, GND, AC
Max. allowable input	30 V rms or 60 V DC (upper voltage which when applied to between input pins does not damage them)
Max. grounding voltage	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional

*8946 is for use with 8841 only. It cannot be used with 8842

Dimensions and mass:

Approx. 170 (6.69) W × 20 (0.79) H × 148 (5.83) D mm (inch),
approx. 310 g (10.9 oz)



8946

8946 4ch ANALOG UNIT (accuracy at 23 ±5°C/73 ±9°F after 30 minutes warm-up time; accuracy guaranteed for 1 year)	
Inputs	Number of channels: 4, Terminal: Metallic BNC * Input isolated from output, inter-channel isolation
Measurement range	10 mV to 2 V/division, 8 ranges, full-scale (f.s.) = 20 divisions, low-pass filter, 5/ 500/ 5 k/ 50 kHz; the measurement resolution is 1/80 of range * When used with 8720
Maximum sampling rate	100 kS/s (simultaneous sampling of four channels) * When used with 8720
Accuracy	DC amplitude: ±0.5 % f.s. Zero-position: ±0.15 % f.s.
Zero-position	-50% to 150%, 1% step * With zero-adjustment function
Frequency characteristics	DC to 100 kHz ±3 dB
Input resistance and capacitance	1 MΩ, 15 pF approx. (at C 100 kHz)
Input coupling	DC, GND
Max. allowable input	30 V rms or 60 V DC (upper voltage which when applied to between input pins does not damage them)
Max. grounding voltage	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional

Dimensions and mass:

Approx. 170 (6.69) W × 20 (0.79) H × 148 (5.83) D mm (inch),
approx. 250 g (8.8 oz)



8939

8939 STRAIN UNIT (accuracy at 23±5°C/73±9°F, 60 minutes after power-on; accuracy guaranteed for 1 year)	
Inputs	Number of channels: 2, Connector: Adapter cable connector * Input isolated from output, inter-channel isolation
Converter connector	Via adapter cable, TAJIMI PRC03-32A10-7F10.5
Suitable converter	Strain gage converter, bridge impedance: 120 Ω to 1 kΩ, gage factor 2.00, bridge voltage 2 ±0.05 V
Measurement range	20 με to 1000 με/division; 6 settings, full-scale (f.s.) = 20 divisions, low-pass filter: 10 Hz, 30 Hz, 300 Hz, 3 kHz, OFF the measurement resolution is 1/80 of range * Using 8841, 8842
Maximum sampling rate	100 kS/s (simultaneous sampling for 2 channels) * When used with 8720
Accuracy (after auto-balancing)	DC amplitude: ±(0.5 % f.s. + 2 με) Zero-position: ±0.5 % f.s.
Balancing	Electronic auto-balancing, max. adjustment range ±10000 με
Zero position	-50 % to 150 %; in 1 % steps * With auto-balancing
Frequency characteristics	DC to 20 kHz +1/-3 dB
Max. allowable input	10 V (DC + AC peak) (upper voltage which when applied to between input pins does not damage them)
Max. grounding voltage	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	Conversion cable (2)



Dimensions and mass:

Approx. 170 (6.69) W × 20 (0.79) H × 148 (5.83) D mm (inch),
approx. 300 g (10.6 oz)



8940

8940 F/V UNIT (accuracy at 23 ±5°C/73 ±9°F after 30 min of warm-up time; accuracy guaranteed for 1 year)	
Input	Number of channels: 2*1, Voltage input: BNC terminal *1 Input isolated from output, inter-channel isolation
Sensor connector terminal	Number of channels: 2 (for current measurement)*2 *2 Models that allow unit insertion up to a total of 4 channels: 8841, 8842, 8720
Compatible current sensors	9270, 9271, 9272, 9277, 9278, 9279, 3273, *3274 *1 Support to be available soon. Upgrade to 8720 is required
Measurement range	Frequency: 0.05 Hz to 5 kHz/division, 11 ranges, 5 (r/min) to 500 (r/min)/ division, 5 ranges, P50 Hz (40 to 60 Hz), P60 Hz (50 to 70 Hz) Integration: 5 counts to 500 k counts/division, Pulse duty ratio: 100 % f.s. Current: 5 mA to 100 A/division, 10 ranges, linked to use with type of the clamp-on sensor, Voltage: 0.5 mV to 2 V/division, 12 ranges, Max. allowable input: 30 V rms or 60 V DC, full-scale (f.s.) = 20 divisions, low-pass filter, 5/ 500/ 5 k/ 100 kHz or OFF, the measurement resolution is 1/80*3 of range *3 When used with 8720, and when used with 9279 CLAMP ON SENSOR, the resolution is 1/64 of range
Max. sampling period	10 μs (voltage, current, integration), 1.125 μs (frequency, pulse duty ratio) * When used with 8720
Other functions	Voltage input pull-up: ON (10 kΩ)/OFF Input coupling: DC, GND, AC (voltage, current), DC (others)
Max. grounding voltage	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord and conversion cable are optional

Dimensions and mass:


Approx. 170 (6.69) W × 20 (0.79) H × 148 (5.83) D mm (inch),
approx. 310 g (10.9 oz)



8947

8947 CHARGE UNIT (accuracy at 23 ±5°C/73 ±9°F after 60 min of warm-up time; accuracy guaranteed for 1 year)	
Input	Number of channels: 2 Measurement objects can be selected individually for each channel. Full isolation between inputs, and between inputs and recorder. Common GND for voltage input and charge input channels. Voltage and pre-amplifier internal inputs: BNC terminals (With voltage input: input resistance, 1 MΩ; input capacitance, less than 200 pF) Charge input: miniature connector (#10-32 UNF)
Suitable converters	Charge input: piezoelectric charge output acceleration pickup sensors, Internal pre-amplifier input: acceleration pickup sensors with built-in pre-amplifier
Measurement ranges	50 m (m/s²)/DIV to 10 k (m/s²)/DIV, 12 ranges × 6 types, the measurement resolution is 1/80 to 1/32 of range (changes according to measurement sensitivity) Measurement sensitivity: 0.1 to 10 pC/ (m/s²), Pre-amplifier internal input measurement sensitivity: 0.1 to 10 mV/ (m/s²), Amplitude accuracy: ±2 % f.s., Frequency characteristics: 1 to 50 kHz +1/-3 dB, Low-pass filter: 500 / 5 kHz, Pre-amplifier driving power supply: 2 mA ±20%, +15 V ±5%, Highest input charge: ±500 pC (high sensitivity side 6 ranges), ±50000 pC (low sensitivity side 6 ranges)
Measurement ranges	500 μV to 2 V/DIV, 12 ranges, the measurement resolution is 1/80 to 1/32 of range (changes according to measurement sensitivity) DC amplitude accuracy: ±0.4 % f.s., Frequency characteristics: DC to 400 kHz +1/-3 dB, Low-pass filter: 5/ 500/ 5 k/ 100 kHz, Input coupling: DC, AC, GND, Max. allowable input: 30 V rms or 60 V DC
Maximum sampling rate	100 kS/s (simultaneous sampling of two channels) * When used with 8720
Max. grounding voltage	30 V rms or 60 V DC (upper voltage which when applied to input channel casing or between input channels does not damage them)
Accessories	None * The input cord is optional


Logic Signal Measurement



9321 LOGIC PROBE
4-channel isolated, on/off detection of AC/DC voltage

9320 LOGIC PROBE
4-channels, on/off detection of voltage/contact signal

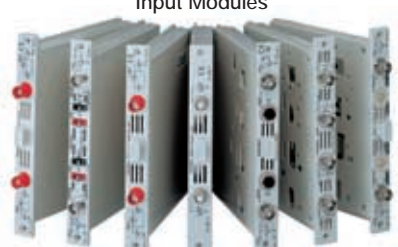
Instrument



9608 MEMORY BOARD
Expands instrument memory by 4x
Must specify when ordering: not user installable.

9607 MO UNIT
Installs on the bottom of the instrument. Must specify when ordering: not user installable.


Input Modules



Various input modules
Install by inserting into the instrument
Can be replaced by user


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

Case



9397 CARRYING CASE
with casters for convenient transportation. Plastic compartment for storing options.


Storage Media



9596 RAM CARD
PCMCIA-compatible 1-MB SRAM

9597 RAM CARD
(compliance with the PCMCIA Standard: 4-MB SRAM)

High-voltage input




9322 DIFFERENTIAL PROBE
for up to 2kV DC, 1 kV AC

9324 POWER CORD
for logic terminal


9325 POWER CORD
for 8940 sensor terminal

DC Power Supply



9433 DC POWER ADAPTER
Supplies operating power in the range 10 to 28 V DC.

PC communication



9557 RS-232C CARD
(compliance with the PCMCIA Standard)

9558 GP-IB CARD
(compliance with the PCMCIA Standard) * With a GP-IB cable, cord length : 2m (6.6 feet)

9559 PRINTER CARD
(compliance with the PCMCIA Standard) * With a printer cable, cord length : 1.5m (4.9 feet)

9578 10BASE-T LAN CARD
(compliance with the PCMCIA Standard) * With a LAN cable, cord length : 1.5m (4.9 feet)

9333 LAN COMMUNICATOR
software required to use LAN connection with Windows 95/ 98/ NT 4.0

Current Measurement, other options

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

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

9270 CLAMP ON SENSOR
Enables observation of distorted AC current waveforms. Input: up to 20 A, 5 to 50 kHz for 2 VAC out

***9271 CLAMP ON SENSOR**
Enables observation of distorted AC current waveforms. Input: up to 200 A, 5 to 50 kHz for 2 VAC out

***9272 CLAMP ON SENSOR**
Enables observation of distorted AC current waveforms. Input selectable 20/200 A, 5 to 10 kHz for 2 VAC out

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

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

***9279 UNIVERSAL CLAMP ON CT**
Observe waveforms from DC to distorted AC. Input up to 500 A, DC to 20 kHz for 2 VAC out

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

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

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

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

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

9318 ADAPTER CABLE
Connects 9270 to 9272, 9277 to 9279 clamp-on sensors to 8940 F/V UNIT.

3272 POWER SUPPLY For 3273, 3274

9319 ADAPTER CABLE
Connects 3273, 3274 to 8940 F/V UNIT.

3273 CLAMP ON PROBE
Wide (DC to 50 MHz) range, mA-level to 15 A peak current. Requires power from 3272 or 8940 F/V UNIT.

3274 CLAMP ON PROBE
Wide (DC to 10 MHz) range, mA-level to 150 A rms current. Requires power from 3272 or 8940 F/V UNIT. Support to be available soon. Upgrade to 8720 is required.

Ordering information

8720 VISUAL HiCORDER (main unit only)

- The 8720 VISUAL HiCORDER is not usable by itself : an optional input module must be installed.
- Measurement cables are not supplied with input modules. Please purchase the optional 9197 or 9198 CONNECTION CORD together with the input module.

8720 + 8936	1 unit of 8936 (2ch)	2 unit of 8936 (4ch)	3 unit of 8936 (6ch)	4 unit of 8936 (8ch)
Example of combination				
8720 + 8946	1 unit of 8946 (4ch)	2 unit of 8946 (8ch)	3 unit of 8946 (12ch)	4 unit of 8946 (16ch)
Example of combination				

HIOKI

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