HIOKI

MEMORY HiCORDER 8835-01

Recorders

High-visibility display, Compact body, Multi-channeled inputs

Field Measurement has never been easier

The **MEMORY HiCORDER 8835-01** is a high-speed waveform recorder with the special features of advanced performance of the basic "wave recording" function for easy field measurement, easy-to-see color display, compact dimensions of an A4-sized paper, and 4/8* channels for measurement. The **MEMORY HiCORDER 8835-01** inherits all the functions of the **MEMORY HiCORDER 8835** and accommodates a total of 8* channels when used with the input unit group to support a wide range of signals. The **8835-01** also comes standardly equipped with 8x the memory of the previous unit, making long-term recording possible.

* When using the **4ch ANALOG UNIT 8946**, maximum input is 30V rms or 60V DC.

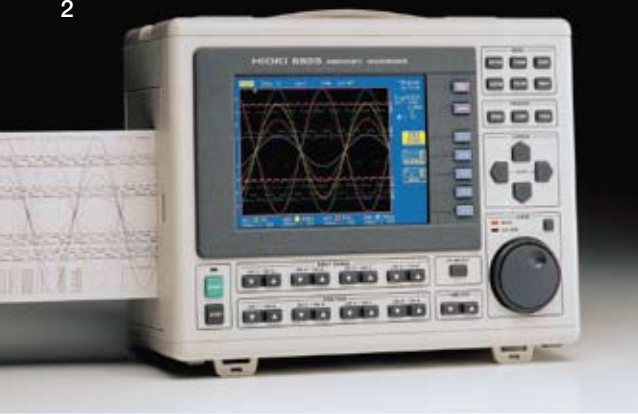# Compact 4ch/8ch*¹ recorder saves space with slim profile

*¹ When using the **4ch ANALOG UNIT 8946**, maximum input is 30V rms or 60V DC

- Features -

● **Conversion According to the Measurement, Plug-in Input Function for a Maximum of 8 Channels*¹**

The **8835-01** employs a plug-in unit system that can change the measurement channels according to the measurement use. Directly inputting physical signals through inserted conversion amplifiers is also possible. A maximum of 8 channels*¹ can be used for measurement by mounting a 4-channel analog unit on the recorder.

● **High-visibility waveforms displayed on a 6.4-inch color TFT liquid crystal display**

The color display makes it easier to identify waveforms and install the device. It enhances visibility and facilitates operations.

● **Compact and thin, occupying a space equivalent to 60% of an A4-size sheet of paper**

Occupying desktop space equivalent to 60% of an A4-size sheet of paper, the MEMORY HiCORDER **8835-01** is functionally designed so as to permit operation on a flat bed.

● **Highly Improved Basic Performance with 1MS/s, 12bit-A/D, 4MW**

The **8835-01** employs a sampling rate of 1MS/s (1μs cycle) and 12-bit voltage-axis resolution for the A/D converter unit, which digitizes measurement signals, enabling accurate detection of signal waveforms.
With the **8835-01**, the standard memory capacity is 4MW.

● **Converts to text file used with a Wave viewer** (supplied accessories, PC application software)

To open measurement data in PC applications such as Excel, the data must be converted to text data in the CSV format. The PC application software which comes standard in the package enables easy operation.

● **Connects to PCs and printers on a LAN network**

Its use with PCs can be selected according to the usage. It allows remote operation and data transfer via LAN connection, GP-IB connection, or RS-232C connection.

● **Function upgrade system to meet varied needs**

The basic model provides several standard functions for users who don't require functional complexity. Users requiring a wider range of measurement functions can add functions through the use of a function upgrade disk.

● **On-screen help**

To help the user get started or clarify operating steps, the **8835-01** can display tips on-screen for many basic operations, including key-button operations.

● **CE Mark compliant**

Complies with the EC directive determining safety standards in Europe (within the EU).

A LAN-Connectable Recorder! Digitally Process Test Data

With a conventional pen recorder, even if all test data is written on the paper, usually only a small portion of the data is needed. However, to look for just a small important part requires very extensive search of the recording paper.

The MEMORY HiCORDER **8835-01** stores and manages all waveform measurement data electronically. Furthermore, use of a LAN card and the LAN COMMUNICATOR **9333** enables high-speed data file transfer to PCs on a network.
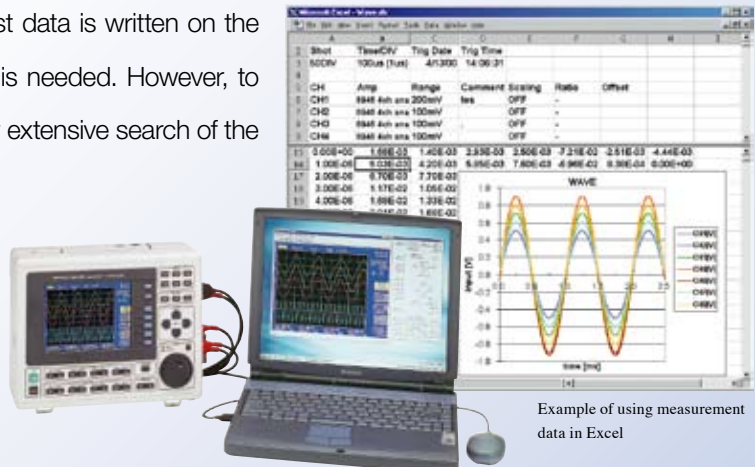
Example of using measurement data in Excel

# High-Speed Response for Capturing Transient Events

- Function Details -

Large memory capacity allows long-term recording of high- speed data

The **8835-01** can store a total of 4 mega-words, using internal solid-state memory. This provides ample capacity to store data for all 8 channels. The table at right shows possible recording times, according to the time axis setting and the number of channels in use. A reduction in the number of channels prolongs the recording time.

Function outline of memory recorder
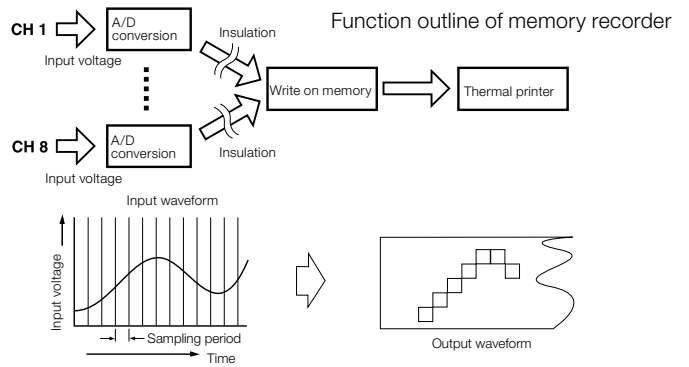
■ Memory segmentation function
### (an optional FUNCTION UP DISK 9540-01 is needed)

When using the memory recorder function, the data memory can be divided into a maximum of 255 blocks. Data can be written sequentially to the memory blocks, and the waveform in a reference block and any other block can be superimposed and compared.
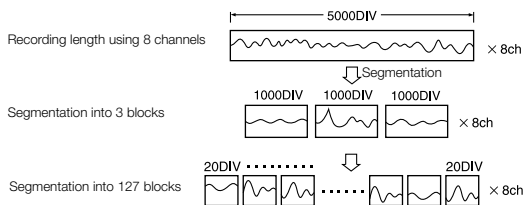
Time axis	Sampling period	1-channel setting 4 MW/channel, 40000 DIV	8-channel setting 500 kW/channel, 5000 DIV
100μs/DIV	1μs	4 s	0.5 s
200μs/DIV	2μs	8 s	1 s
500μs/DIV	5μs	20 s	2.5 s
1ms/DIV	10μs	40 s	5 s
2ms/DIV	20μs	1 m 20 s	10 s
5ms/DIV	50μs	3 m 20 s	25 s
10ms/DIV	100μs	6 m 40 s	50 s
20ms/DIV	200μs	13 m 20 s	1 m 40 s
50ms/DIV	500μs	33 m 20 s	4 m 10 s
100ms/DIV	1ms	1 h 6 m 40 s	8 m 20 s
200ms/DIV	2ms	2 h 13 m 20 s	16 m 40 s
500ms/DIV	5ms	5 h 33 m 20 s	41 m 40 s
1s/DIV	10ms	11 h 6 m 40 s	1 h 23 m 20 s
2s/DIV	20ms	22 h 13 m 20 s	2 h 46 m 40 s
5s/DIV	50ms	2 days 7 h 33 m 20 s	6 h 56 m 40 s
10s/DIV	100ms	4 days 15 h 6 m 40 s	13 h 53 m 20 s
30s/DIV	300ms	13 days 21 h 20 m	1 day 17 h 40 m
1min/DIV	0.6s	27 days 18 h 40 m	3 days 11 h 20 m
2min/DIV	1.2s	55 days 13 h 20 m	6 days 22 h 40 m
5min/DIV	3.0s	138 days 21 h 20 m	17 days 8 h 40 m

Recording length using 8 channels
5000DIV
×8ch
↓Segmentation

Segmentation into 3 blocks
1000DIV 1000DIV 1000DIV
×8ch

Segmentation into 127 blocks
20DIV 20DIV
×8ch

■ Zoom function *In memory recorder function

To make the most of the large-capacity memory, it is possible to display a compressed waveform simultaneously with a magnified waveform. Since the **8835-01** is capable of storing a large amount of data, high-speed sampling is also possible for waveforms with a long duration. Accordingly, while observing the compressed image of the entire waveform, it is also possible to observe the magnified details of desired parts. Compressed display of a part of the entire waveform is also possible.
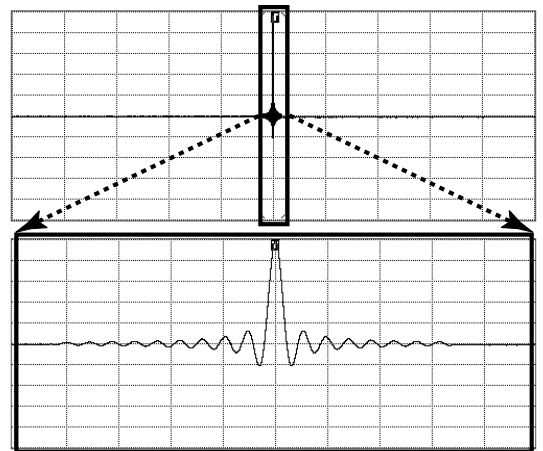
■ Clock input for external sampling *In memory recorder function
The sampling rate for the memory recorder can be controlled by the timing of an external clock signal. This is useful for example to collect data synchronized to the running cycle of an engine.

Sampling controlled by external clock signal

Maximum frequency 500kHz

Input waveform
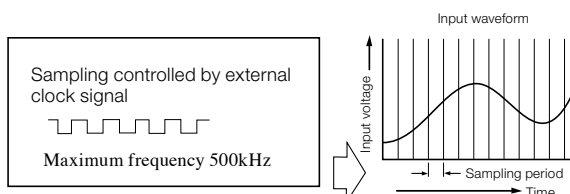
High-speed response and Effective value recorder functions are useful in following signal variations

- Function Details -

Outline of recorder function

The input signal is converted to digital form and displayed and printed in real time. The chart speed is a maximum of 20mm/s (in the 500ms/division range). Even with real-time recording, the last 2000 divisions of the waveform can be observed (by scrolling both horizontally and vertically) and reprinted following measurement.

Recording paper

2000DIV divisions in memory
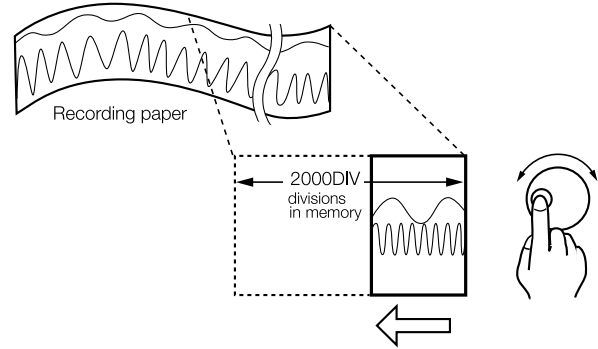
Virtual recording

The **8835**-**01** supports a high-speed recording function in the memory with no need for recording paper. Although real-time recording on the recording paper is not possible in the high-speed range of the recorder function (10ms to 200ms/division), the waveforms are stored in the memory and can therefore be monitored on the screen. The last 2000 divisions of the waveform are retained in the memory before the measurement is completed. If the recording length is not set to "continuous", the printer can also be operated, allowing waveforms to be printed out later.

Recording Time of the Recorder

Time axis	Chart speed	Sampling period	Recording time for approx. 1 roll of recording paper (30m)[1]
10ms[2]/DIV		1μs 10μs 100μs	20 s
20ms[2]/DIV	20mm/s		40 s
50ms[2]/DIV			1 m 40 s
100ms[2]/DIV		1μs, 10μs 100μs, 1ms	3 m 20 s
200ms[2]/DIV	20mm/s		6 m 40 s
500ms/DIV			24 m 45 s
1 s/DIV	10mm/s	1μ, 10μ, 100μs 1ms, 10ms	49 m 30 s
2 s/DIV	5mm/s		1 h 39 m 00 s
5 s/DIV	2mm/s		4 h 7 m 30 s
10 s/DIV	1mm/s	1μs 10μs 100μs 1ms 10ms 100ms	8 h 15 m
30 s/DIV	20mm/min		24 h 45 m
1 min/DIV	10mm/min		2 days 1 h 30 m
2 min/DIV	5mm/min		4 days 3 h 00 m
5 min/DIV	2mm/min		10 days 7 h 30 m
10 min/DIV	1mm/min		20 days 15 h
30 min/DIV	20mm/hr		61 days 21 h
1 hr/DIV	10mm/hr		123 days 18 h

*1 Based on 2970 divisions, assuming that about 30 cm of the paper length will not be used.
*2 Real-time recording on the recording paper is not possible.

### Continuous X-Y recorder function

This function allows two signals converted to digital form to be combined in an x-y plot and stored in memory. Any of the four analog channels can be used for an x-y plot, and up to three x-y plots can be combined. The x-y plot can be viewed on the screen in real time, and the recording time is unlimited. The x-y plot can also be reprinted.

Y input

X input

X-Y matrix memory

Display

Illustration of X-Y recorder concept
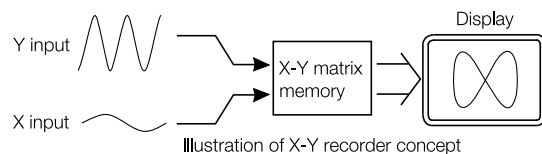
Effective value (RMS-value) recorder function

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

Note: Using fixed 200μs sampling, data for two waveforms are captured for calculating the rms value. This process is repeated 20 times per second, resulting in high-speed response that is 10 times faster than that of a digital tester or similar (using a 2-second update rate).

+141V
0V
−141V
100V power line waveform

+141V
−141V
Chart of Recorder function

100Vrms
Chart of RMS recorder function
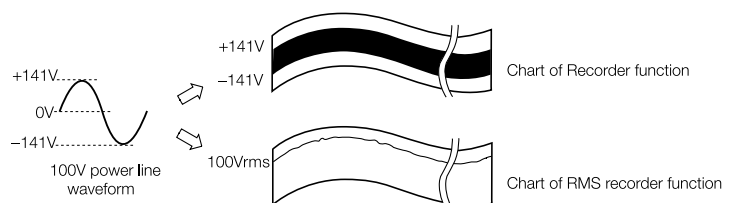
Easily interfaced with a PC or a waveform comparator

Support for connection to PCs via Ethernet

8835-**01** can be connected to Ethernet, a standard network protocol in the Internet age (using the optional **LAN CARD** and **LAN COMMUNICATOR 9333**). For those who frequently analyse measurement data on PCs, this function offers a good match. Also, connection to PCs using RS-232C connection or GP-IB connection is possible (using the optional **RS-232C CARD 9557** and **GP-IB CARD 9558**). **8835**-**01** data can be sent to PCs or be remotely controlled from PCs.
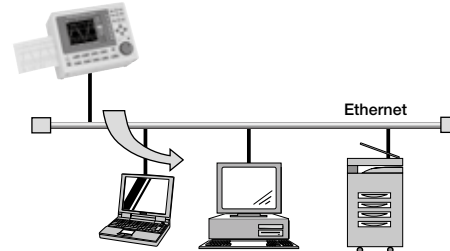
* Because LAN card, GP-IB card, and RS-232C card all use the same PC card slot of **8835**-**01**, when one of them is inserted into the PC card slot, then any memory card cannot be used at the same time.
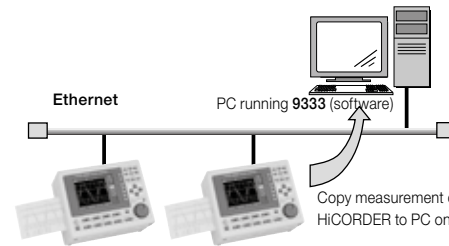
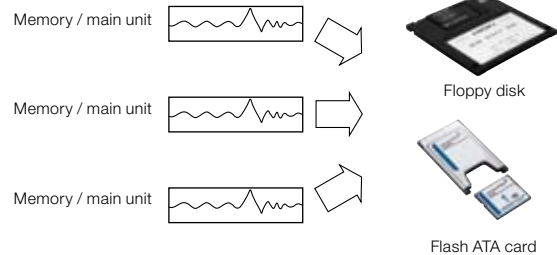■ **Connect HiCORDER to departmental LAN** (using TCP/IP communication protocol)

Copy or remote operations of HiCORDER data files from client PCs running 9333 (software)

Color image output to the network printer

■ **Save data to network server** (using TCP/IP communication protocol)

Ethernet

PC running 9333 (software)

Copy measurement data files obtained from HiCORDER to PC on network

Offline data exchange with PCs

The supplied waveform viewer (PC application) can convert saved waveform data to text files (CSV format). For data storage, FD/PC card (supplied as standard) can be used. This allows easy offline data exchange with PCs.

* In addition to **HiCORDER**'s read/write native file (binary format), data can also be saved to text files (CSV format) which can be opened by PC spreadsheet applications, or waveform bitmap files (BMP format). However, because data saved in text files cannot be read by **HiCORDER**, it is recommended that text data conversion be performed on PCs.

Memory / main unit

Memory / main unit

Memory / main unit

Floppy disk

Flash ATA card

Data compatibility with the model 8730/8731

The **MEMORY HiCORDER 8835**-**01** is judgment area and waveform data compatible with **HIOKI WAVE COMPARATOR**s **8730/8731**.
The **8835**-**01** lends itself to detailed analysis and printing of waveform judgment data on production lines.

(* Waveform data is binary data within 500 DIV.)
(* The waveform judgment function of the **8835**-**01** must be upgraded with the **FUNCTION UP DISK 9540**-**01**.)
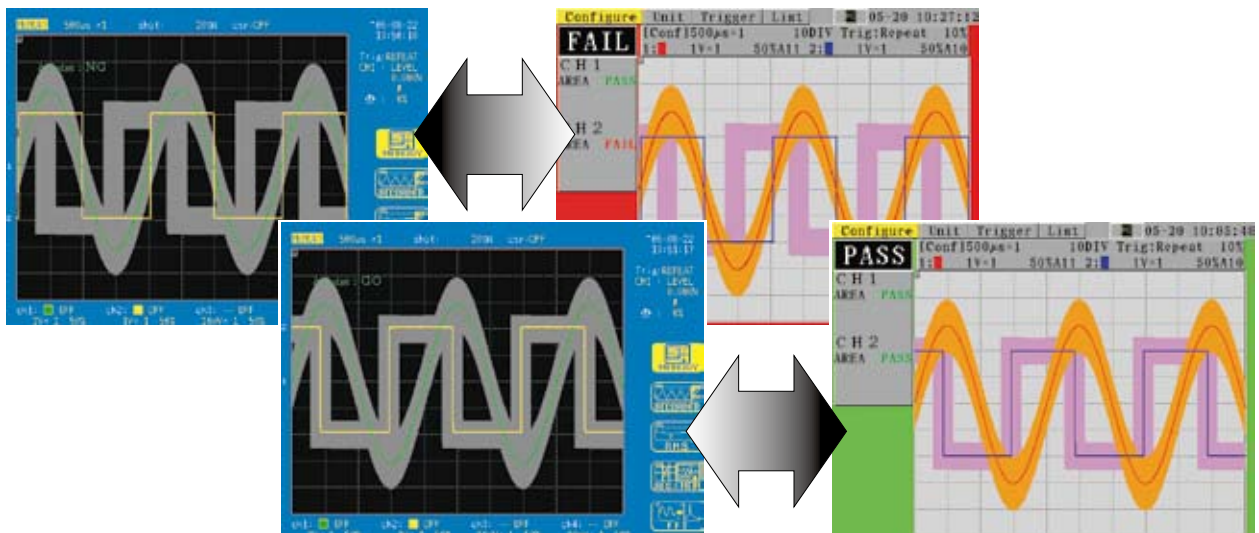
Waveform judgment screen on the 8835-01

Waveform judgment screen on the 8731

- Function Details -

## Trigger functions for monitoring of all four channels

In all of the functions, including the memory recorder and recorder, all eight analog input channels and sixteen logic input channels can be used for trigger input. In addition to a level trigger, which compares voltages based on a reference value, the 8835-01 supports the following triggers.

● Window trigger that compares voltages based on two reference values
● Voltage-drop detection trigger that detects voltage drops in commercial power lines
● RMS-value level trigger that compares signals based on the RMS-value level
● Period detection trigger that measures periods and detects all deviating periods
● Pattern trigger that compares signals based on the logic signal ON/OFF pattern
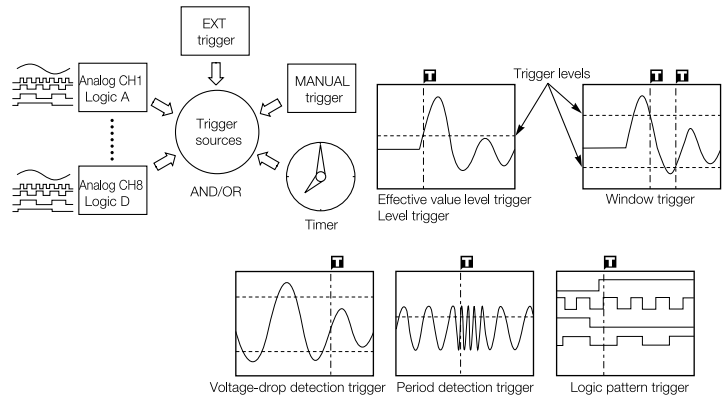
Variable (span adjustment), vernier (fine adjustment)

When sensors are used to measure and record noise, temperature, acceleration or other physical quantities, precise calibration is important. This is facilitated by the vernier function that allows fine adjustment of amplitude. The variable function lets the user numerically specify the measurement span, such as 1 - 5V or 4 - 20mA. This is useful for matching the range of instrumentation to the full span of the recording paper. A scaling function for converting measurement results is also available.
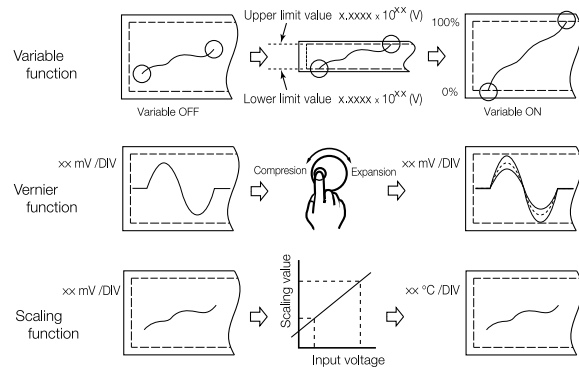
## Manipulation using the cursor

Use of the two cursors on the screen enables the user to read the time difference and potential difference.
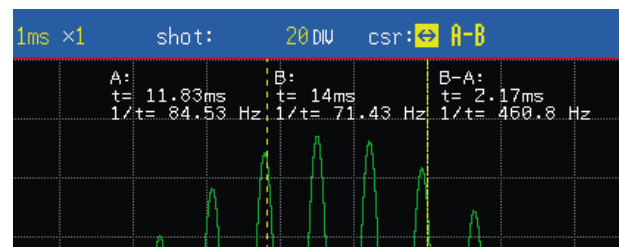
Signal outputs, control inputs, DC input

The results of waveform decisions, parameter decisions, and triggers are output as open collector signals. The 8835-01 is also provided with signal inputs for remote control of the start, stop, and print buttons.

The 8835-01 has a dual AC/DC power-supply specification, and an external battery can be used by means of the DC POWER ADAPTER 9439, in addition to normal AC power supply. This allows vehicle-mounted applications, where an AC power supply is not available. If both supplies are connected, the AC power supply takes precedence, but if the AC power fails, the unit automatically switches to DC operation.
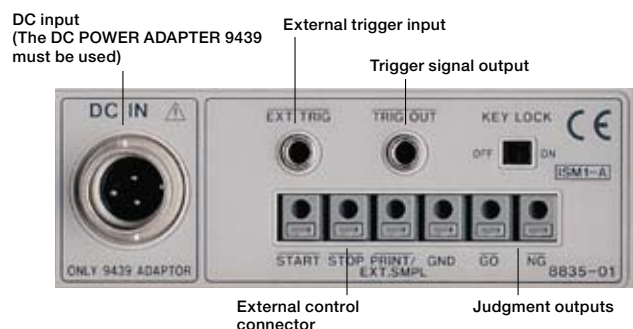
*When using the F/V UNIT 8940 with 12 V DC power, the printer can only be used for up to 2 channels.

Upgrading provides sophisticated functions

Additional functions provided by the FUNCTION UP DISK 9540-01 (with the 8835, use the FUNCTION UP DISK 9540)
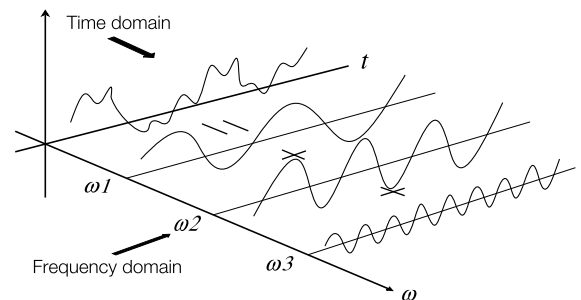
Recorder and memory functions

If an abnormal event is detected by triggers during the real-time recording of signals using the recorder function, it is stored in memory by the high-speed sampling memory recorder. The recorder function works independently and is therefore continuous. These functions are useful when the user wants to record normal waveforms as well as abnormal waveforms.

Slow speed recording

High speed storage in memory
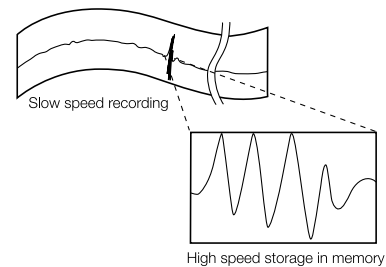
FFT analysis functions

The single-channel FFT function is used in spectrum analysis. The two-channel FFT function analyzes transfer functions. The octave analysis function is used in acoustic analysis. The signal source for FFT analysis is a section obtained from the waveforms captured in the memory recorder
(the required number of pieces of data for FFT analysis are 1000, 2000, 5000 and 10000).

Time domain

t

$\omega 1$

$\omega 2$

Frequency domain

$\omega 3$

ω

Waveform judgment functions
*In memory recorder functions and FFT analysis functions

The 8835-01 can monitor a measured waveform for a preset judgment area. Unlike a voltage level only comparison such as a trigger setting, this function makes it possible to easily prepare a standard judgment area making it an excellent system for comparisons both in level direction and in time axis direction.
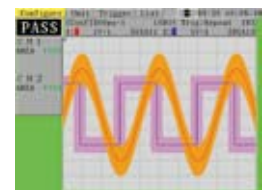
Patented: Registration number 2028013

The 8835-01 is waveform data and area data compatible with the **WAVE COMPARATOR 8730** and **8731**.
(* Waveform data is binary data within 500 DIV. The 8730 and 8731 comparators do not provide an FFT analysis function.)
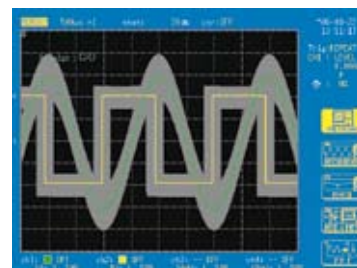
Waveform judgment screen on the 8835-01

Waveform judgment screen on the 8731

Simultaneous computation on eight channels

It is possible to simultaneously compute four different types of waveforms, each of which has been captured on one of the eight channels in memory recorder mode. The results of four basic arithmetic computations, differentiation, or integral are displayed in a waveform.
(The waveform computation requires a **FUNCTION UP DISK. 9540-01** With the **8835**, the waveform computation requires a **FUNCTION UP DISK 9540**.)
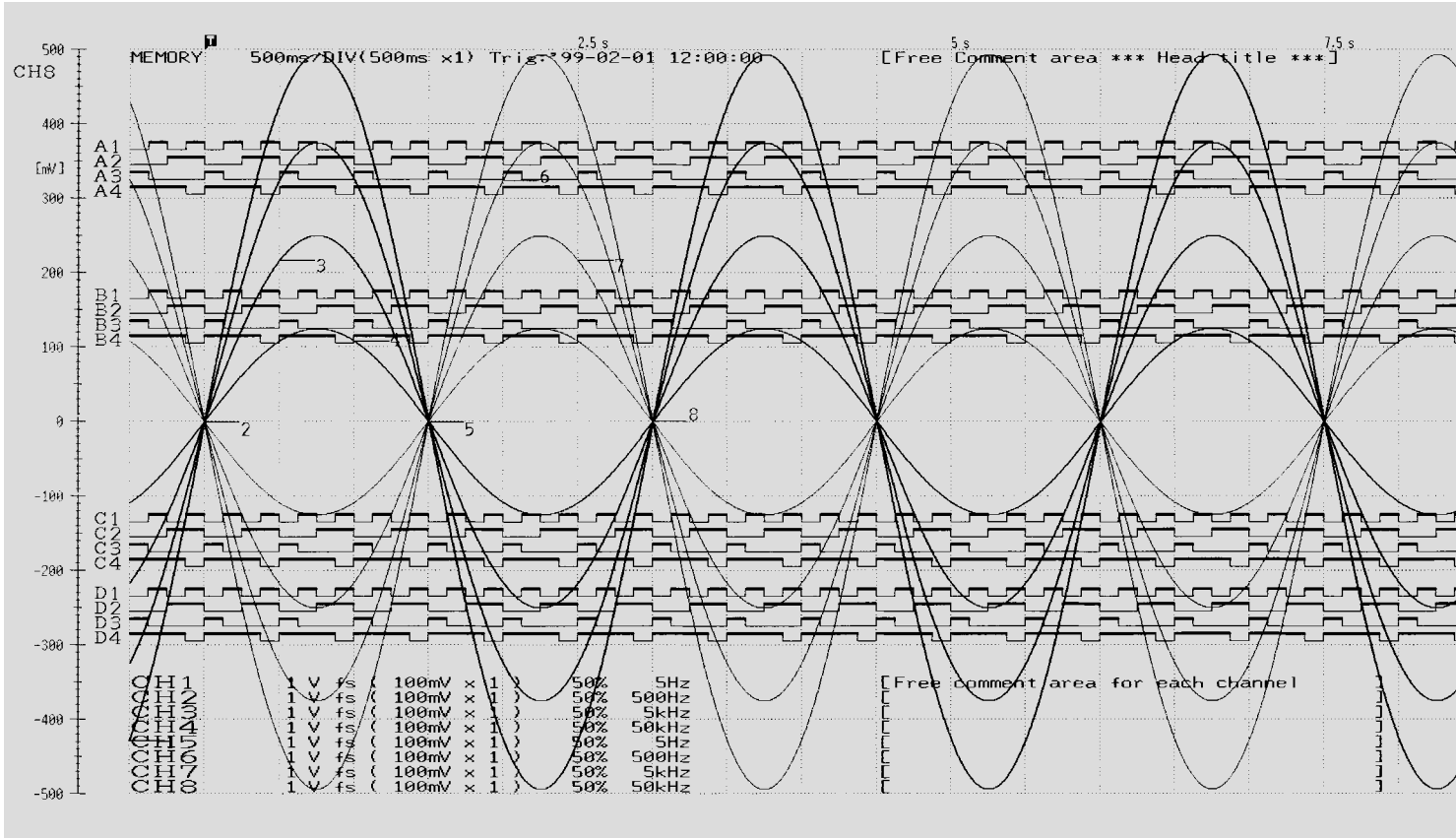
For parameter calculations that calculate numerical values such as the maximum and minimum values, up to eight waveforms can be operated simultaneously on four channels.
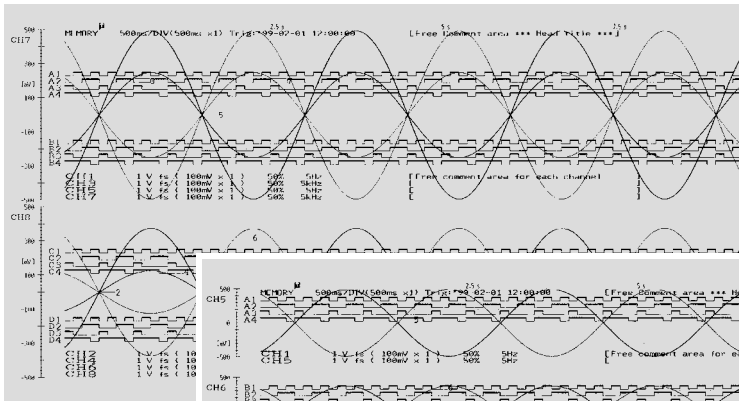(The parameter operations are a standard function.)
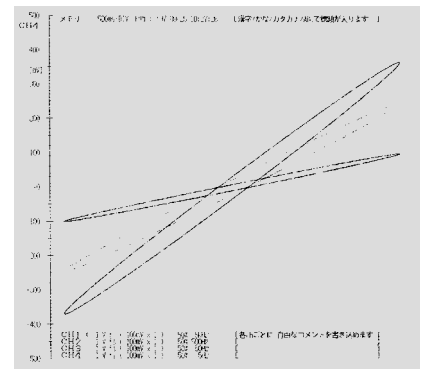
Example Printouts

(Actual size)

Sample recording in memory recorder function (full width)

The recording width can also be divided into two or four parts, and X-Y plots are possible.
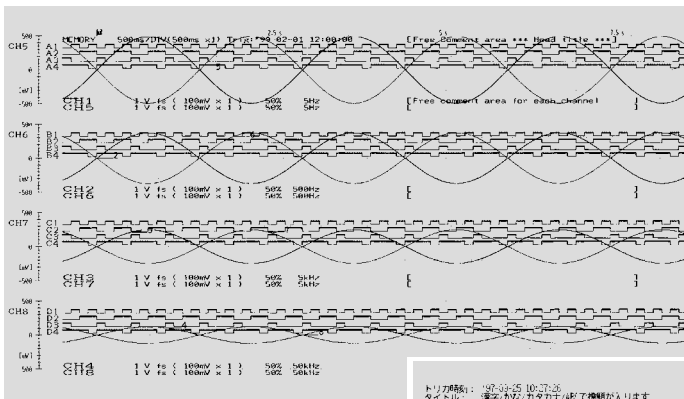

Sample recording (two sections)

Sample recording in X-Y format

* Example when used with 1-4 channels set

Synthesized X-Y waveforms can be output where amplitude data for each input channel is plotted on the vertical and horizontal axes, based on the waveform data obtained using the memory recorder. The recording size is 100 mm × 100 mm.

Although the sample print out is in Japanese, the actual print out appears in English. (Two languages selectable)

Sample recording (four sections)

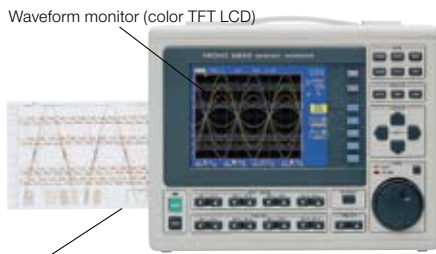Full-width recordings and recordings divided into two or four parts are also possible.

Logging output * Example when used with 1-4 channels set

Instantaneous voltage values are printed for each sampling.

Although the sample print out is in Japanese, the actual print out appears in English. (Two languages selectable)
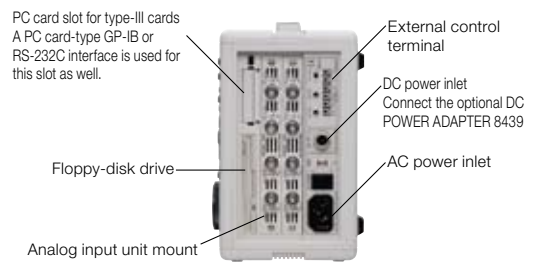
Waveform monitor (color TFT LCD)

Thermal printer: 110 mm in width, 8 dots/mm

Logic probes input terminals

PC card slot for type-III cards
A PC card-type GP-IB or
RS-232C interface is used for
this slot as well.

External control terminal

DC power inlet
Connect the optional DC
POWER ADAPTER 8439

Floppy-disk drive

AC power inlet

Analog input unit mount

Basic specifications	8835-01 (use 2ch input type modules)	8835-01 (use 4ch ANALOG UNIT 8946)
Input type/number of channels	Plug-in input modules Max. 4 analog ch's + 16 logic ch's (Isolated analog channels, isolated input and frame, logic has common GND)	Plug-in input modules Max. 8 analog ch's + 16 logic ch's (Isolated analog channels, isolated input and frame, logic has common GND)
Measurement functions	MEM (high-speed recording) REC (real-time recording) RMS (50/60Hz, or DC only) REC & MEM (Additional functions provided by the optional FUNCTION UP DISK 9540-01) FFT (Additional functions provided by the optional FUNCTION UP DISK 9540-01)	
Maximum sampling rate	1 MS/second (1µs, all channels simultaneously) External sampling (500kS/second, 2µs)	
Memory capacity	4 Mwords total (12 analog bits + 4 logic bits) × 4 Mwords/channel (1 channel used) to (12 analog bits + 4 logic bits) × 500 kwords/channel (8 channels used)	
Data storage media	PC Card Type III slot × 1: up to 1GB (Flash ATA) 3.5" Floppy disk drive × 1: 1.44MB, 1.2MB, 720KB, MS-DOS format File format: Binary, text, BMP	
Backup functions (at 25°C)	Clock and setting conditions: battery life of at least 10 years Waveform data: battery life of at least 1 hour after system power is turned OFF (at 2 minutes after power-on)	
External control connectors	Mini-jack 3.5 mm in dia.: Trigger input/output Terminal board: External start, stop, print input/sampling input, decision output	
Interfaces (option)	GP-IB, RS-232C, LAN Note: Use one of the following: RS-232C CARD 9557, GP-IB CARD 9558, LAN CARD (HIOKI-tested)	
Environmental conditions (no condensation)	Operation: +5°C (41°F) to +40°C (104°F), 35% to 80% rh Storage: -10°C (14°F) to +50°C (122°F), 20% to 90% rh	
Compliance standard	Safety: EN61010 EMC: EN61326, EN61000-3-2, EN61000-3-3	
Power requirements	100 to 120V AC or 200 to 240V AC (50/60 Hz) 10 to 28V DC (use the DC POWER ADAPTER 9439 : option)	
Power consumption (when using two units of 8936)	120VA, max. for 100V AC (approx. 60VA with the printer off) 70VA, max. for 12V DC (approx. 30VA with the printer off)	
Power consumption (when using two units of 8940)	170VA, max. for 100V AC (approx. 110VA with the printer off) 80VA, max. for 12V DC (approx. 50VA with the printer off) Note: When using the F/V UNIT 8940 with 12V DC power, the printer can only be used for up to 2 channels.	
Dimensions and mass	285mm (11.22in) W × 220mm (8.66in) H × 132mm (5.20in) D, 4.5kg (158.73oz.) (main unit only)	
Supplied accessories	Instruction Manual × 1, Power cord × 1, Printer paper ×1, Protective cover ×1, Roll paper attachment ×2, PC card protector ×1, Application Disk (Wave Viewer Wv, Communication Commands table) ×1	

Print/display section

Display	6.4 inch TFT color LCD, with English/Japanese selector (640 × 480 dots)
Recording paper	110 mm (4.33 in) × 30 m (98.4 ft), thermal paper roll
Recording width	10 divisions for full scale, 1 DIV = 10 mm (0.39 in) (80 dots)
Paper feed density	10 rows/mm (250 rows/in) * 20 rows/mm (500 rows/in with the memory recorder's smooth print function)
Recording speed	Max. 25 mm/s (0.98 in/s)

Trigger functions

Trigger sources	CH1 to CH8 (analog), CHA to CHD (logic), external, timer, manual (either ON or OFF for each source), logical AND/OR of sources
Trigger types (analog)	Level: Digital setting of voltage. Triggered when set value is exceeded in UP or DOWN direction. Window: When entering or exiting a level range defined by upper or lower limit Voltage drop: Only for AC power lines. Triggered when the peak voltage falls below setting value RMS level: Only for DC and AC power lines. Triggered when rms value crosses set value in UP or DOWN direction Period: When rising or falling edge of set voltage does not fall within cycle range
Level setting resolution	Equivalent to 0.25% when full scale is set to 10 divisions
Trigger types (logic)	Pattern trigger: 1, 0, or × (disregard), logical product (AND) or logical sum (OR) set for 4 channels
Trigger filter (analog/logic)	OFF, setting range 0.1 to 10.0 DIV in 9 stages (MEM, REC & MEM function), ON/OFF (REC function)
Other functions	Pre-trigger function to capture pre- and post-trigger waveform, trigger output (active Low with φ 3.5mm mini-jack and open collector 5 voltage output), Start & stop trigger in REC function

Memory functions

Time axis	100µs to 5min/DIV, 20 ranges or external sampling, time axis resolution 100 points/DIV, time axis zoom: ×2 to ×10 in 3 stages, compression: 1/2 to 1/2,000 in 10 stages
Sampling rate	1/100 of time axis ranges (minimum sampling period 1µs)
External sampling	Max. 500kS/s (minimum sampling period 2µs)
Recording length	Settable in 1 DIV steps, 20 to 40,000 DIV[1] [1] Depending on the number of channels in use.
Pre-trigger	Can record data from before the trigger point, 0 to 100% or -95% of recording length; 15 settings
Other functions	waveform processing[2], waveform parameter processing, waveform averaging[2], memory segmentation (up to 255 segments)[2], logging (numerical printout), X-Y waveform plot, voltage axis zoom ×2 to × 10, 3 settings, compression 1/2, zoom, variable display, graph superimposition, waveform judgment function[2] [2] Additional functions provided by the optional FUNCTION UP DISK 9540-01

Recorder functions (time axis waveform and X-Y format)

Time axis	10ms to 1 hour/DIV with 17 ranges, time axis resolution 100 points/DIV, time axis compression: 1/2 to 1/50 in 5 stages At 10ms to 200ms/DIV, printing in real time is not possible, but waveform data are stored in memory and can be monitored on screen. Data are stored for 2,000 divisions before the end of measurement. At recording length settings other than "Continuous", the printer can be used simultaneously, for follow-up printing of waveforms.
Sampling rate	1µs to 100ms; 6 settings (selectable from 1/100 or less of time axis)
Recording length	Settable in 1 DIV steps, 20 to 2,000 DIV[3], or "Continuous"[4] At X-Y format: only continuous for X-Y plotting [3] Measure all channels. [4] When time 10 ms – 200 ms/DIV and printer is ON, continuous is not available.
X-Y sampling period	100µs; fixed (dot), 100µs to 25ms (line)
X-Y axis resolution	40dots/DIV (display), 80dots (horizontal) × 80 dots (vertical)/DIV (printer)
Waveform memory	Store data for most recent 2,000 DIV in memory. Backward scrolling and re-printing available.
Other functions	logging (numerical printout), additional recording (recording is resumed without overwriting previous data), voltage axis magnification ×2 to ×10; 3 settings, compression 1/2; 1 setting, variable display.

RMS Recorder Function (for 50/60 Hz and DC)

Time axis	5s to 1 hr/DIV; 9 settings, time axis compression 1/2 to 50; 5 settings
Sampling rate	200µs fixed (20 rms datas/s)
RMS calculation accuracy	±3% f.s.
Recording length	Settable in 1 DIV steps, 20 to 2,000 DIV[5], or "Continuous" [5] Measure all channels.
Waveform memory	Store data for most recent 2,000 DIV in memory. Backward scrolling and re-printing available.
Other functions	logging (numerical printout), additional recording (recording is resumed without overwriting previous data), voltage axis magnification ×2 to ×10; 3 settings, compression 1/2; 1 setting, variable display.

Auxiliary Functions

General	Printing of settings including input range, trigger time, etc, cursor measurement, scaling, free comment input, screen hard copy, registration of setting conditions (eight conditions), start condition retention, auto setup, auto saving, remote control, auto ranging, view function, online help, key lock, list printing, etc.
Scaling	Scaling: Translation of amplitude gradation only Variable: Arbitrary setting of the upper and lower limit of the waveform display range
Vernier function	Allows precision adjustment of input voltage.
Waveform parameter calculation (in MEM function)	Average value, effective (rms) value, peak to peak value, maximum value, time to maximum value, minimum value, time to minimum value, period, frequency, rise time, fall time, area value, X-Y area value, and standard deviation.

■ PC Software Specifications

Wave Viewer (Wv) Software (Application disk CD-R, bundled accessory)	
Functions	• Simple display of waveform file • Text conversion: convert binary data file to text format, with selectable space or tab separators in addition to CSV, and specifiable section, thinning available • Display format settings: scroll functions, enlarge/reduce display, display channel settings • Others: voltage value trace function, jump to cursor/trigger position function
Compatible PC operating systems	Windows 95/98/Me, Windows NT 4.0 (SP3 or later), 2000, XP

■ Options (sold separately)

FUNCTION UP DISK 9540-01 Additional functions to the MEMORY HiCORDER 8835-01

REC & MEM functions Additional functions provided by the FUNCTION UP DISK 9540-01

Time axis (REC)	500ms to 1hour/DIV; 17 settings, 1 DIV = 100 samples, time axis compression 1/2 to 1/50, 5 settings Note: Sampling period 1/100 of time axis range at MEM function
Time axis (MEM)	100μs to 5 minutes/DIV; 20 settings, 1 DIV = 100 samples, time axis zoom ×2 to ×10; 3 settings, compression 1/2 to 1/2000, 10 settings Note: Sampling period 1/100 of time axis range (min. 1μs)
Recording length	REC: Settable in 1-division steps, 20 to 1,000 DIV, or continuous MEM: Settable in 1-division steps, 20 to 2,000 DIV
Trigger source	REC: timer trigger, or OFF MEM: CH1 to CH8 (analog), logic A to D, or external trigger
Other functions	Only real-time waveform is output when printer output is started, reprinting of stored REC waveform data (last 1000 DIV), Additional recording function (recording is resumed without overwriting previous data), variable display

FFT functions Additional functions provided by the FUNCTION UP DISK 9540-01

Analysis mode	Storage waveform, Linear spectrum, RMS spectrum, Power spectrum, Cross-power spectrum, Auto-correlation function, Histogram, Transfer function, Cross-correlation function, Unit-impulse response, Coherence function, Octave analysis
Analysis channels	1 or 2 selected channels out of all analog channels
Frequency range	133mHz to 400kHz, External, (resolution 1/400, 1/800, 1/2000, 1/4000)
Number of sampling points	1000, 2000, 5000, 10000 points
Analysis data	Selected from: Newly loaded data / MEM function waveform data / MEM waveform of REC & MEM function
Windows	Rectangular, Hanning, Exponential
Averaging function	Time axis / frequency axis simple averaging, exponential averaging, peak hold

Additional features Additional functions provided by the FUNCTION UP DISK 9540-01

Waveform processing calculations (MEM function)	(Maximum possible calculation up to 1000 DIV; accuracy is within the tolerance of the input module.) Four arithmetic operations, absolute value, exponentiation, common logarithm, square root, moving average, differentiation once and twice, integration once and twice, parallel displacement along the time axis. 8 arbitrary operational equation.
Waveform judgment function (MEM function) (FFT function)	Type: Area judgment using reference waveform for time axis waveform, X-Y plot, or FFT display. Parameter judgment for waveform parameter processing. Judgment output: pass/fail output, open-collector 5V voltage output
Others	Waveform averaging; memory segmentation (up to 255 segments)

■ Input unit specifications (sold separately)

Dimensions and mass: approx. 170 (6.69in) W × 20 (0.79in) H × 148.5 (5.85in) D mm, approx. 290 g (10.2 oz) Accessories: None

ANALOG UNIT 8936 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 30 minutes of warm-up time and zero-adjust; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for voltage measurement
Input connectors	Isolated BNC connector (input impedance 1MΩ, input capacitance 30pF), Max. rated voltage to earth: 370V AC, DC (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	10mV to 50V/DIV, 12 ranges, full scale: 10DIV, AC voltage for possible measurement/display using the memory function: 280V rms, low-pass filter: 5Hz/500Hz/5kHz/100kHz
Measurement resolution	1/160 of measurement range (using 12-bit A/D conversion; installed in the 8835-01)
Highest sampling rate	1MS/s (simultaneous sampling in 2 channels)
Accuracy	DC amplitude: ±0.4% of full scale, zero position: ±0.1% of full scale (after zero adjustment)
Frequency characteristics	DC to 400kHz ±3dB, with AC coupling: 7Hz to 400kHz ±3dB
Input coupling	DC, GND, AC
Max. allowable input	400V DC (the maximum voltage that can be applied across input pins without damage)

FFT ANALOG UNIT 8938 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 30 minutes of warm-up time and zero-adjust; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for voltage measurement
Anti-aliasing filter	Integrated filter for suppressing aliasing distortion caused by FFT processing (automatic cutoff frequency setting/OFF)
Other functions	Other specifications same as the ANALOG UNIT 8936

Dimensions and mass: approx. 170 (6.69in) W × 20 (0.79in) H × 148.5 (5.85in) D mm, approx. 300 g (10.6 oz) Accessories: None

VOLTAGE/TEMP UNIT 8937 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 1 hour of warm-up time and zero-adjust; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for voltage measurement/temperature measurement with thermocouple
Input connectors	Voltage input: metallic BNC connector (input impedance 1MΩ, input capacitance 50pF), thermocouple input: terminal connector (input impedance min. 5.1MΩ), Max. rated voltage to earth: 30Vrms or 60V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Voltage measurement range	1mV to 5V/DIV, 12 ranges, full scale: 10DIV, low-pass filter: 5Hz/500Hz/5kHz/100kHz, Measurement resolution: 1/160 of measurement range (using 12-bit A/D conversion; installed in the 8835-01)
Temperature measurement range	20°C to 200°C/DIV, 4 ranges, full scale: 10DIV, low-pass filter: 5Hz/500Hz, Measurement resolution:1/160 of measurement range (using 12-bit A/D conversion; installed in the 8835-01)
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)
Highest sampling rate	Voltage input: 1MS/s, Temperature measurement: 4kS/s (simultaneous sampling in 2 channels)
Accuracy	Voltage input: DC amplitude ±0.4% of full scale, zero position ±0.15% of full scale, Temperature measurement (K, E, J, T, N): ±0.1% of full scale ±1°C, ±0.1% of full scale ±2°C (-200 to 0°C), (R, S): ±0.1% of full scale ±3°C, (B): ±0.1% of full scale ±4°C (400 to 1800°C) , Reference junction compensation accuracy: ±0.1% of full scale ±1.5 °C (internal reference junction compensation)
Frequency characteristics	Voltage input: DC to 400 kHz +1/–3dB Temperature measurement: DC to 1kHz +1/–3dB
Input coupling	DC, GND, AC
Max. allowable input	30Vrms or 60V DC (the maximum voltage that can be applied across input pins without damage)

Dimensions and mass: approx. 170 (6.69in) W × 20 (0.79in) H × 148.5 (5.85in) D mm, approx. 250 g (8.8 oz) Accessories: Conversion cable × 2

STRAIN UNIT 8939 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 1 hour of warm-up time and auto-balance; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for distortion measurement (electronic auto-balancing, balance adjustment range within ±10000με)
Input connectors	Via conversion cable, TAJIMI PRC03-12A10-7M10.5, Max. rated voltage to earth: 30Vrms or 60V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Suitable transducer	Strain gauge converter, bridge impedance: 120Ω to 1kΩ, bridge voltage 2 ±0.05V
Measurement range	50με to 2000με/DIV, 6 ranges, full scale: 10DIV, low-pass filter: 10Hz/30Hz/300Hz/3kHz
Measurement resolution	1/160 of measurement range (using 12-bit A/D conversion; installed in 8835-01)
Highest sampling rate	1MS/s (2-channel simultaneous sampling)
Accuracy After auto-balancing	DC amplitude: ±(0.5% of full scale +2με), zero position: ±0.5% of full scale
Frequency characteristics	DC to 20 kHz +1/–3dB
Max. allowable input	10V DC + AC peak (the maximum voltage that can be applied across input pins without damage)

CONVERSION CABLE 9318 (to connect 9270 to 9272, 9277 to 9279 and 8940)
CONVERSION CABLE 9319 (to connect 3273, 3273-50 and 8940)

Dimensions and mass: approx. 170 (6.69in) W × 20 (0.79in) H × 148.5 (5.85in) D mm, approx. 300 g (10.6 oz) Accessories: None

F/V UNIT 8940 (Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 30 minutes of warm-up time and zero-adjust; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for voltage input based frequency measurement, integration, pulse duty ratio, current (with optional clamp-on sensor), and voltage measurement
Input connectors	Metallic BNC connector (input impedance 1MΩ, input capacitance 60pF), sensor connector (dedicated connector for clamp-on sensor via conversion cable, common ground with recorder), Max. rated voltage to earth: 30Vrms or 60V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Compatible current sensors	9270, 9271, 9272, 9277, 9278, 9279, 3273, 3273-50
Measurement range	Frequency: DC to 100kHz, with 0.1Hz to 10kHz/DIV, 11 ranges, 10 (r/min) to 1k (r/min)/DIV, 5ranges, P50Hz (40 to 60Hz), P60Hz (50 to 70Hz) * Power line frequency measurement requires the DIFFERENTIAL PROBE 9322 or PT 9303, Accuracy: ±0.2% of full scale (except 10kHz/DIV range), ±0.7% of full scale (10kHz/DIV range), ±0.032Hz (P50Hz, P60Hz range) Integration: DC to 90kHz, with 10counts to 1Mcounts/DIV, 11 ranges Pulse duty ratio: 10Hz to 100kHz, with 100% of full scale, 1 range, Accuracy: ±1% of full scale (10Hz to 10kHz) Threshold: −10 to +10V (settable in 0.2V steps) Full scale: 10DIV, Max. allowable input: 30Vrms or 60V DC (the maximum voltage that can be applied across input pins without damage)
Measurement range	Voltage: 1mV to 5V/DIV, 12 ranges Current: 10mA to 200A/DIV, 10 ranges, using current sensor (powered from the 8940, max. 4 sensors total) DC amplitude accuracy: ±0.4% of full scale, zero position ±0.15% of full scale (current measurement accuracy dependent on sensor accuracy/ characteristics) Frequency characteristics: DC to 400kHz ±3dB Full scale: 10DIV, Max. allowable input: 30Vrms or 60V DC (the maximum voltage that can be applied across input pins without damage)
Measurement resolution	1/160 of measurement range (installed in 8835-01, excluding current range when using 9279)
Highest sampling rate	1MS/s (simultaneous sampling in 2 channels), (frequency/duty ratio measurement: 1.125μs cycle)
Other functions	Voltage input pull-up: ON (10kΩ)/OFF, input coupling: DC, GND, AC (voltage/current), DC (others), low-pass filter: 5Hz/500Hz/5kHz/100kHz

* The 8940 can be used with the 8835-01, but the 8835, main unit only, current probe cannot be used. The 8940 can be used with the 8835 standard models later than Ver. 2.10, 9540 install models later than Ver.5.10 can be used.

Dimensions and mass: approx. 170 (6.69in) W × 20 (0.79in) H × 148.5 (5.85in) D mm, approx. 310 g (10.9 oz) **Accessories**: None

4ch ANALOG UNIT 8946
(Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 30 minutes of warm-up time and zero-adjust; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 4, for voltage measurement
Input connectors	Metallic BNC connector (input impedance 1MΩ, input capacitance 15pF), **Max. rated voltage to earth:** 30Vrms or 60V DC (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	20mV to 5V/DIV, 8 ranges, full scale: 10DIV, low-pass filter, 5Hz/500Hz/5kHz/50kHz, input coupling: DC, GND
Measurement resolution	1/160 of measurement range (using 12-bit A/D conversion; installed in the **8835-01**)
Highest sampling rate	1MS/s (simultaneous sampling in 4 channels)
Accuracy	**DC amplitude:** ±0.5% of full scale, **zero position:** ±0.15% of full scale (after zero adjustment)
Frequency characteristics	DC to 100kHz ±3dB
Max. allowable input	30Vrms or 60V 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 30 cm (0.98 ft), approx. 150 g (5.3 oz)

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

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

Cable length and mass: Main unit cable 1.5 m (4.92 ft), input section cable 1 m (3.28 ft), approx. 320 g (11.3 oz)

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

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

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

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

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

Dimensions and mass: approx. 170 (6.69in) W × 20 (0.79in) H × 148.5 (5.85in) D mm, approx. 310 g (10.9 oz) **Accessories**: None

CHARGE UNIT 8947
(Accuracy at 23 ±5°C/73 ±9°F, 35 to 80 % rh after 1 hour of warm-up time and zero-adjust; accuracy guaranteed for 1 year)

Measurement functions	Number of channels: 2, for acceleration measurement
Input connectors	**Voltage input/integrated preamplifier input:** metallic BNC connector (for voltage input: input impedance 1MΩ, input capacitance 200pF or less) **Charge input:** miniature connector (#10-32 UNF) **Max. rated voltage to earth:** 30Vrms or 60V DC (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)
Suitable transducer	**Charge input:** Charge-output type piezoelectric acceleration pick-up sensor **Internal preamp input:** Acceleration pick-up sensor with an internal preamp
Measurement range Charge input (miniature connector) Internal pre-amp input (BNC connector)	100m (m/s²)/DIV to 20k (m/s²)/DIV, 12 ranges × 6 types, **charge input sensitivity:** 0.1 to 10 pC/(m/s²), **integrated pre-amplifier input:** 0.1 to 10 mV/(m/s²), **amplitude accuracy:** ±2% of full scale, **frequency characteristics:** 1 to 50kHz, +1/–3dB, **low-pass filter:** 500Hz/5kHz, **pre-amplifier drive power source:** 2mA ±20%, +15V ±5%, **maximum input charge:** ±500pC (high-sensitivity setting, 6 ranges), ±50000pC (low-sensitivity setting, 6 ranges)
Measurement range Voltage input (BNC connector)	1mV to 5V/DIV, 12 ranges, **DC amplitude accuracy:** ±0.4% of full scale, **frequency characteristics:** DC to 400kHz, +1/–3 dB, **low-pass filter:** 5Hz/500Hz/5kHz/100kHz, **input coupling:** DC, GND, AC, **Max. allowable input:** 30Vrms or 60V DC
Measurement resolution	1/160 to 1/64 of measurement range (depending on measurement sensitivity; installed in the **8835-01**)
Highest sampling rate	1MS/s (simultaneous sampling in 2 channels)
Anti-aliasing filter	Integrated filter for suppressing aliasing distortion caused by FFT processing (automatic cutoff frequency setting/OFF)

LAN COMMUNICATOR 9333

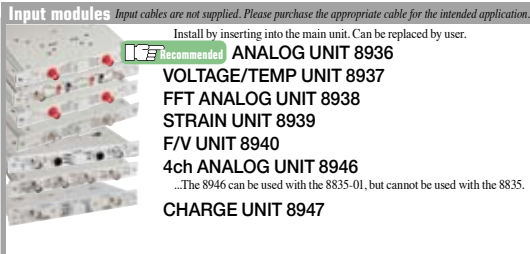| Distribution media	One CD-R
Operating environment	Computer equipped with Pentium (133 MHz) or better CPU, running under Windows 95/98/Me or Windows NT 4.0/ 2000/XP operating system, with network adapter installed and configured to use TCP/IP protocol, and at least 64 MB of memory.
HiCORDER side	Standard LAN connector, LAN card
Communications	Ethernet, TCP/IP
Remote control	Remote control of MEMORY HiCORDER (by sending key codes and receiving images on screen), print reports, print images from the screen, receive waveform data in same format as waveform files from the MEMORY HiCORDER (binary only)
Waveform data acquisition	Accept auto-saves from the MEMORY HiCORDER, same format as auto-save files of MEMORY HiCORDER (binary only), print automatically with a MEMORY HiCORDER from a PC. The MEMORY HiCORDER's print key launches printouts on the PC
Waveform viewer	Simple display of waveform files, conversion to CSV format, Scroll function, enlarge/reduce display, display CH settings.

WAVE PROCESSOR 9335

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

Configuration of options

Note: Options described as "factory-installed options" must be specified when ordering and cannot be installed by the user. Note: Product names appearing in this catalog are trademarks or registered trademarks of various companies.

Input modules
Input cables are not supplied. Please purchase the appropriate cable for the intended application.

Install by inserting into the main unit. Can be replaced by user.

Recommended ANALOG UNIT 8936
VOLTAGE/TEMP UNIT 8937
FFT ANALOG UNIT 8938
STRAIN UNIT 8939
F/V UNIT 8940
4ch ANALOG UNIT 8946
...The 8946 can be used with the 8835-01, but cannot be used with the 8835.

CHARGE UNIT 8947

Voltage measurement for use with general input modules

Recommended

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.

ALLIGATOR CLIP 9790-01
Red/black set attaches to the ends of test leads (9790)
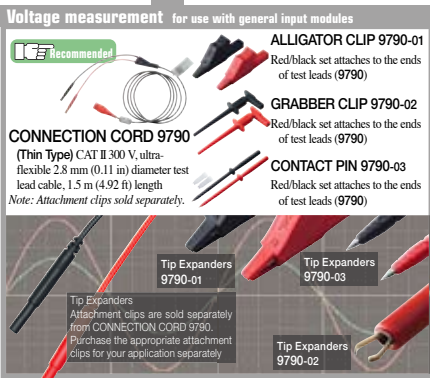
GRABBER CLIP 9790-02
Red/black set attaches to the ends of test leads (9790)

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
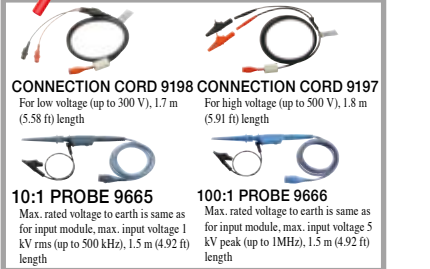
CONNECTION CORD 9198
For low voltage (up to 300 V), 1.7 m (5.58 ft) length

CONNECTION CORD 9197
For high voltage (up to 500 V), 1.8 m (5.91 ft) length

10:1 PROBE 9665
Max. rated voltage to earth is same as for input module, max. input voltage 1 kV rms (up to 500 kHz), 1.5 m (4.92 ft) length

100:1 PROBE 9666
Max. rated voltage to earth is same as for input module, max. input voltage 5 kV peak (up to 1MHz), 1.5 m (4.92 ft) length
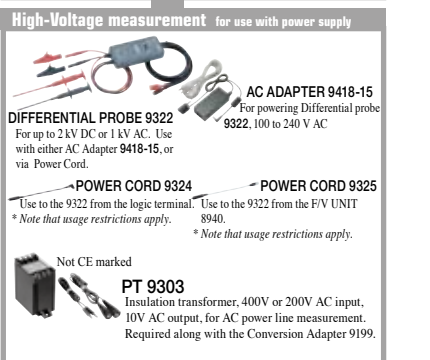
High-Voltage measurement for use with power supply

DIFFERENTIAL PROBE 9322
For up to 2 kV DC or 1 kV AC. Use with either AC Adapter 9418-15, or via Power Cord.

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

POWER CORD 9324
Use to the 9322 from the logic terminal.
* Note that usage restrictions apply.

POWER CORD 9325
Use to the 9322 from the F/V UNIT 8940.
* Note that usage restrictions apply.

Not CE marked
PT 9303
Insulation transformer, 400V or 200V AC input, 10V AC output, for AC power line measurement. Required along with the Conversion Adapter 9199.
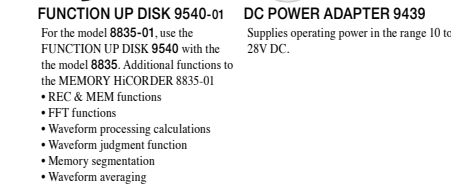
MEMORY HiCORDER 8835-01

＊ The MEMORY HiCORDER 8835-01 cannot operate alone. You must install one or more optional input modules in the unit.

FUNCTION UP DISK 9540-01
For the model 8835-01, use the FUNCTION UP DISK 9540 with the model 8835. Additional functions to the MEMORY HiCORDER 8835-01
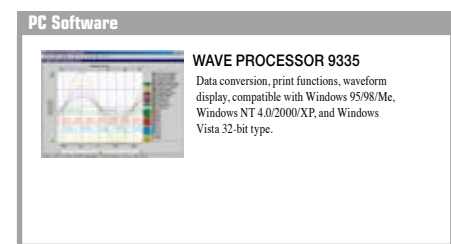• REC & MEM functions
• FFT functions
• Waveform processing calculations
• Waveform judgment function
• Memory segmentation
• Waveform averaging

DC POWER ADAPTER 9439
Supplies operating power in the range 10 to 28V DC.

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.
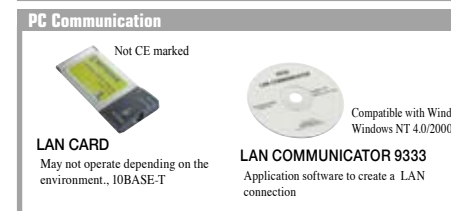
PC Communication

Not CE marked
LAN CARD
May not operate depending on the environment., 10BASE-T

LAN COMMUNICATOR 9333
Compatible with Windows 95/98/Me, Windows NT 4.0/2000/XP
Application software to create a LAN connection

GP-IB CARD 9558
PCMCIA-compliant, cord length: 2m (6.6ft)

RS-232C CARD 9557
PCMCIA-compliant

Logic signal measurement

LOGIC PROBE 9320
4-channel type, for voltage/contact signal ON/OFF detection (response time 0.5 μsec, miniature terminal type)

LOGIC PROBE 9321
4 isolated channels, ON/OFF detection of AC/DC voltage

Current measurement ＊ The 3274, 3275, and 3276 cannot be used for the F/V UNIT 8940

F/V UNIT 8940

CONVERSION CABLE 9318
(to connect the 9272 - 9279 and the 8940)

UNIVERSAL CLAMP ON CT 9277
Observe waveforms from DC to distorted AC. DC to 100kHz response, input 20A / output 2V AC

UNIVERSAL CLAMP ON CT 9278
Observe waveforms from DC to distorted AC. DC to 100kHz response, input 200A / output 2V AC

UNIVERSAL CLAMP ON CT 9279
Not CE marked
Observe waveforms from DC to distorted AC. DC to 20kHz response, input 500A / output 2V AC

SENSOR UNIT 9555-10
Power supply unit for the 9272 to the 9279 clamp sensors, except for connecting to the F/V unit 8940, for signal output 9217 is necessary.

CLAMP ON SENSOR 9272-10
Enables observation of AC current waveforms. Input: 1 to 100kHz, selectable 20 and 200A rms ranges, 2V AC output

CONVERSION CABLE 9705
Use with the Conversion Cable 9318 to connect Model 9272-10 to the F/V Unit 8940. (Not necessary for when using the Model 9272 due to different output wiring specifications.)

CONVERSION CABLE 9318
to connect the 9272 to 9279 and the 8940

3273-50
CONVERSION CABLE 9319
(to connect the 3273-50 and the 8940)

CONVERSION CABLE 9319
to connect the 3273-50 and the 8940

CLAMP ON PROBE 3273-50
DC to 50MHz wideband response, mA-class current up to 30A rms

Current measurement ＊connect directly to the analog input module

3274 3275 3273-50 3276
3272
3269

CLAMP ON PROBE 3273-50
DC to 50MHz wideband response, mA-class current up to 30A rms

CLAMP ON PROBE 3274
DC to 10MHz wideband response, mA-class current up to 150A rms

CLAMP ON PROBE 3275
DC to 2MHz wideband response, mA-class current up to 500A rms

CLAMP ON PROBE 3276
DC to 100MHz wideband response, mA-class current up to 30A rms

POWER SUPPLY 3272
Connect and power up to one CLAMP ON PROBE to use in combination with voltage input modules

POWER SUPPLY 3269
Connect and power up to four CLAMP ON PROBEs to use in combination with voltage input modules

CLAMP ON PROBE 9018-50
Input from 10 to 500 A, 40 Hz to 3 kHz for 0.2 V AC output. BNC terminal

CLAMP ON PROBE 9132-50
Input from 20 to 1000 A, 40 Hz to 1 kHz for 0.2 V AC output. BNC terminal

Printer options

RECORDING PAPER 9221
110 mm (4.33 in) × 30 m (98.43 ft), 10 rolls set

Not CE marked
PAPER WINDER 220H
Paper width 70mm (2.75 in) to 220mm (8.66 in), using special-purpose AC adapter

Other options

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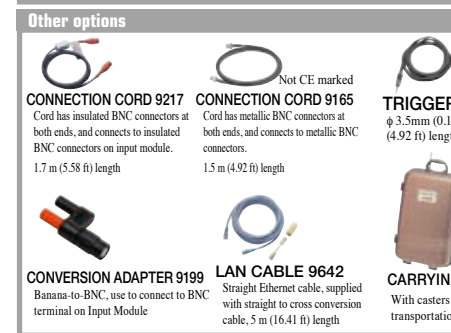1.7 m (5.58 ft) length

Not CE marked
CONNECTION CORD 9165
Cord has metallic BNC connectors at both ends, and connects to metallic BNC connectors.
1.5 m (4.92 ft) length

Not CE marked
TRIGGER CORD 9305
φ3.5mm (0.14in) mini-plug, 1.5m (4.92 ft) length

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

LAN CABLE 9642
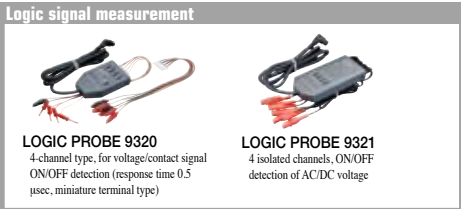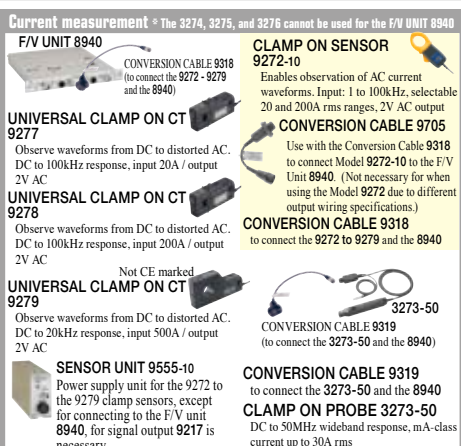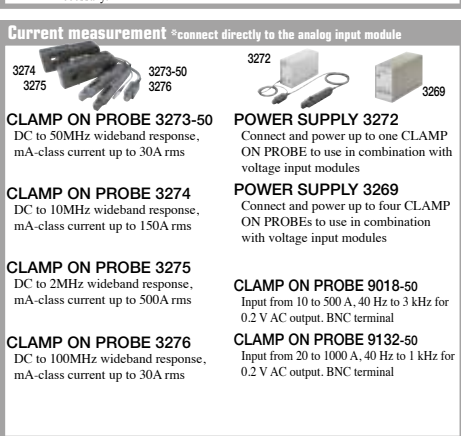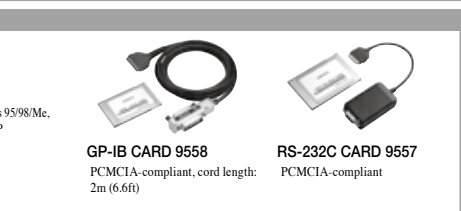Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

CARRYING CASE 9388
With casters for convenient transportation.

Removable storage (CF card)

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

Combination example (1)	Main unit with memory 4 MW	No. of channels	2 ch + logic 16 ch	4 ch + logic 16 ch
(normal choice of the input unit, up to 200V AC direct input.)	8835-01 × 1	Input module	8936 × 1	8936 × 2
		Input cable	9198 × 2	9198 × 4

Combination example (2)	Main unit with memory 4 MW	No. of channels	4ch + logic 16ch	8ch + logic 16ch
(select an automotive input unit that can handle up to 30 V AC.)	8835-01 × 1	Input module	8946 × 1	8946 × 2
		Input cable	9198 × 4	9198 × 8