



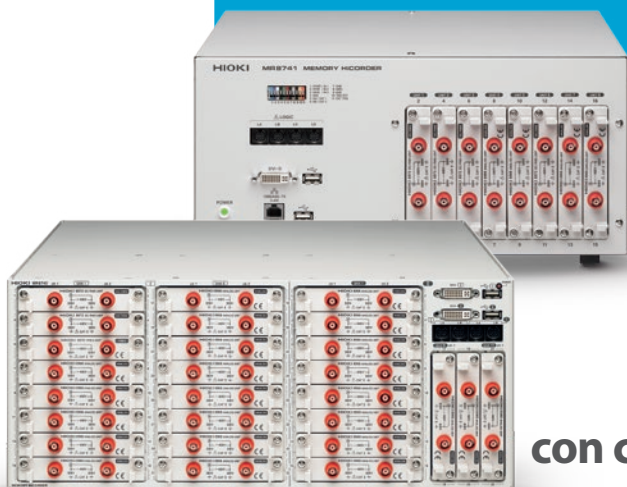
Modello	MR8875	MR8880/20	MR8870/20	MR8847 MR8847A	MR8827	MR8740 MR8741
Modalità di funzionamento						
MEM – HIGHSPEED	SI	SI	SI	SI	SI	SI
REC – REALTIME	SI	SI	-	SI	SI	SI
Calcolo RMS	-	SI	SI	SI*	SI	SI
Diagramma X-Y	-	-	-	SI	SI	solo MR8741
Analisi FFT	SI	-	-	SI	SI	SI
Segnali CAN	SI	-	-	SI*	-	-
Comparazione della forma d'onda	-	-	-	SI	SI	solo MR8741
Prestazioni di misura						
Velocità di campionamento	500KS/s	1MS/s	1MS/s	20MS/s	20MS/s	20MS/s
Elaborazione del dato	16 bit*	14 bit	12 bit	16 bit*	24 bit*	24 bit*
Tensione max tra canali	1000 Vcc*	600 Vcc/ca	400 Vcc/ca	1000 Vcc/ca*	1000 Vcc/ca*	1000 Vcc/ca*
Tensione max verso terra	1000 Vcc/ca*	600 Vcc/ca	300 Vcc/ca	1000 Vcc/ca*	1000 Vcc/ca*	1000 Vcc/ca*
Ingressi di misura						
Ingressi isolati tra loro	SI	SI	SI	SI	SI	SI
Max ingressi analogici	16	4	2	16	32	MR8740: 52 MR8741: 16
Max ingressi digitali	8	8	4	64*	32	16
Moduli di ingresso a slot	SI	-	-	SI	SI	SI
Memoria dati						
Memoria interna	64MB	8MB	4MB	/01 - /51= 128MB /52 = 512MB /53 = 1024MB	1024MB	MR8740: 1728MB MR8741: 512MB
Card**	2GB	fino a 2GB	fino a 2GB	fino a 2GB	fino a 2GB	-
SSD (Solid State Drive)	-	-	-	128GB***	128GB***	-
Display e stampante carta						
Dimensioni display grafico	8.4 pollici	5.7 pollici	4.3 pollici	10.4 pollici	10.4 pollici	10.4 pollici
Stampante su carta	-	opzionale	-	SI	opzionale***	-
Interfacce						
USB	SI	SI	SI	SI	SI	SI
Slot per chiavi USB	SI	SI	SI	SI	SI	SI
LAN	SI	-	-	SI	SI	SI
GP-IB	-	-	-	-	-	-
RS232	-	-	-	-	-	-
SD Card	SI	-	-	-	-	-
CF Card	-	SI	SI	SI	SI	-
Alimentazione						
Diretta in CA	-	-	-	SI	SI	SI
Tramite adattatore in CA	SI	SI	SI	-	-	-
Tramite batterie ricaricabili**	SI	SI	SI	-	-	-
Diretta in CC	SI	SI	SI	MR8847A***	-	-

(*) Le caratteristiche indicate con asterisco (*) sono da valutare in funzione dei moduli di ingresso intercambiabili (opzionali) installati sull'unità principale
 (**) non fornite in dotazione
 (***) installazione in fabbrica

NEW

MR8740 MR8741

Sistema integrato di acquisizione multicanale per installazione rack



Componibili e multicanale fino a 52 ingressi analogici, con campionamento simultaneo a 20MS/s

"Utilizzo tanti multimetri con lo scanner per commutare gli ingressi, ma impiego troppo tempo"

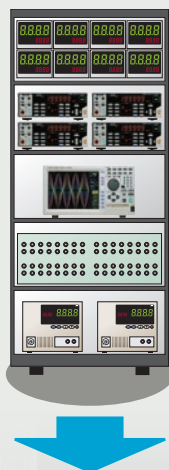
Riduci la durata delle prove

"Devo fare tante prove diverse, su tanti canali in contemporanea"

Fai misure multiple in simultanea

"Utilizziamo strumenti di misura in parallelo per misure multiple, ma è tutto un groviglio di cavi"

Passa ad un sistema ordinato



"Non possiamo incorporare il nostro oscilloscopio perciò lo utilizziamo su banco, ma è scomodo e precario"

Scegli una soluzione con montaggio rack

"Per posizionare tutto il necessario devo prevedere banchi prova enormi"

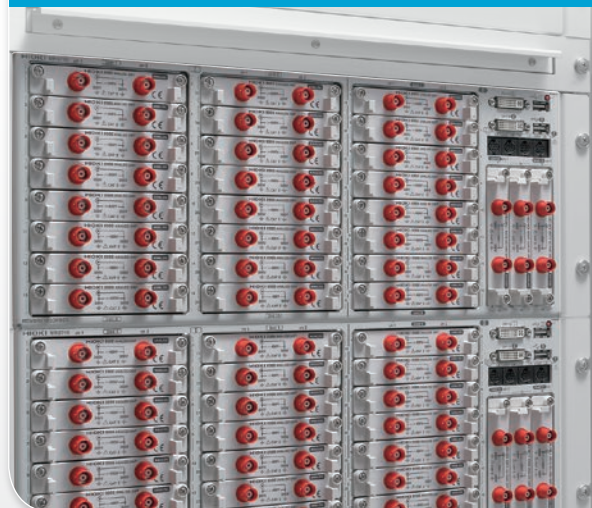
Passa ad un design che ottimizza gli spazi

"Vorrei poter fare prove veloci con il massimo della precisione"

MR874x consente elevata velocità, ed alta precisione

MR8740 e MR8741 superano ognuna di queste situazioni

Sono la risposta ideale per le esigenze di misure simultanee su tanti segnali di ingresso



Soluzione 1: modulo DVM mod. MR8990

MR8990 misura tensioni di piccola entità con risoluzione 0.1uV e precisione $\pm 0.01\%rdg \pm 0.025\%f.s.$. Qualsiasi piccola fluttuazione è sotto controllo.

Soluzione 2: tante unità di misura, insieme

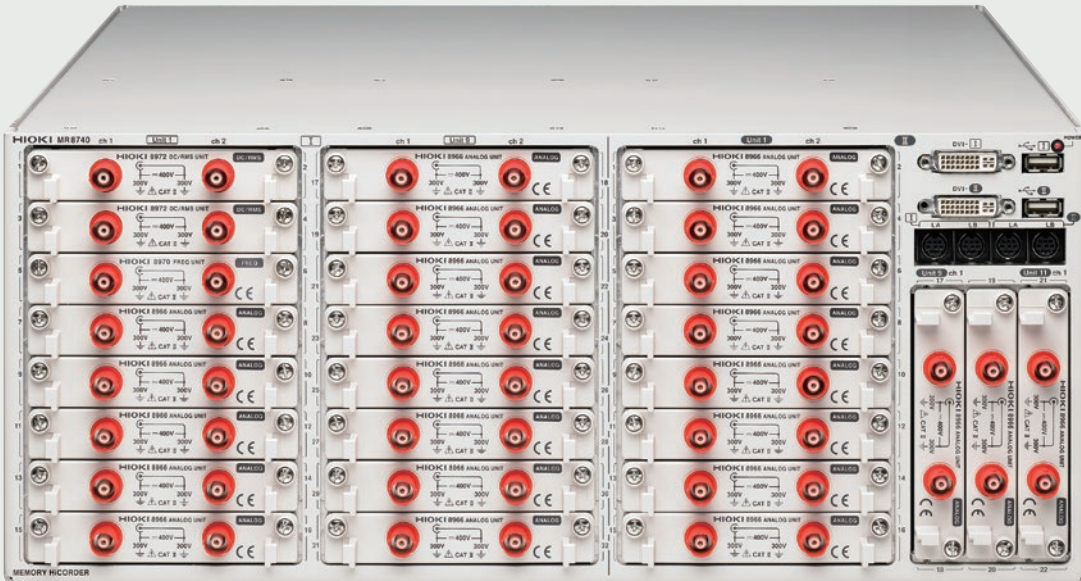
L'architettura multi-canale e multi-ingresso permette la misura di tensione, corrente, temperatura, frequenza, forza, segnali logici, per qualsiasi unità di misura, tutto insieme. Registrazione simultanea di segnali diversi.

Soluzione 3: design per installazione a rack

MR8740 e MR8741 si installano a rack, per il massimo dell'ordine e della gestione degli spazi.

MR8740

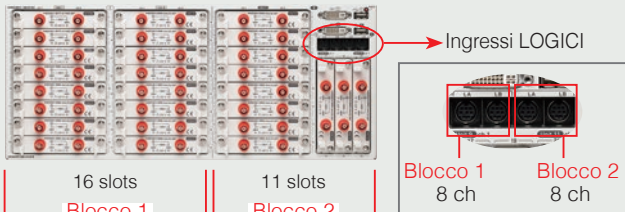
Registratore per installazione rack per 32+22 moduli di ingresso; architettura a 2 blocchi, come fossero due strumenti



- Architettura a 2 blocchi:
blocco 1 = 16 moduli;
blocco 2 = 11 moduli

- Supporta fino a 27 moduli di ingresso
- 16 canali logico-digitali inclusi di serie

Misure simultanee multi-canale fino a 54 ingressi
Sincronizzazione del trigger sui vari canali



Blocco 1: 32 analogici + 8 logici (tra i 2 blocchi può intercambiare un ritardo massimo di 1 μ s o 3 campionamenti)
Blocco 2: 22 analogici + 8 logici

I 2 blocchi sono configurabili e programmabili in maniera indipendente, anche per diverse funzioni

Il blocco 1 (32 canali) ed il blocco 2 (22 canali) eseguono misure indipendenti, perciò possono essere settate differenti funzionalità e diverse velocità di acquisizione. Anche l'operazione di start è separata, ed i file di misura sono registrati in funzione del relativo blocco.

Esempio:
Blocco 1: funzione MEM, 20MS/s
Blocco 2: funzione FFT, 20MS/s

Installazione rack

MR8740 e MR8741 supportano il formato di installazione rack EIA.

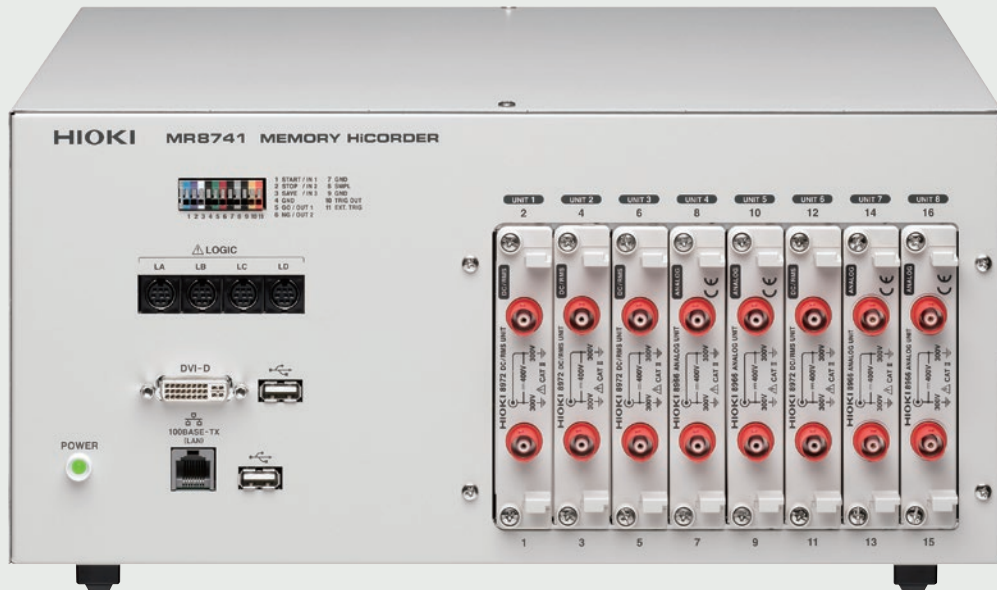
In opzione può essere previsto lo standard JIS.



Pannello posteriore:
LAN (100baseTX), USB (tipo A per chiavetta e mouse), alimentazione e accensione.

MR8741

Registratore da banco per 16 moduli di ingresso; incorpora la funzione di comparazione della forma d'onda e il controllo EXT I/O

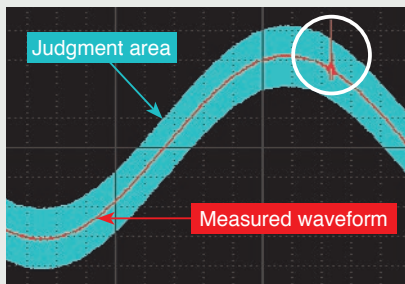


- Supporta fino a 8 moduli di ingresso
- 16 canali logico-digitali inclusi di serie

- Comparatore di forme d'onda
- Gestione di controlli esterni EXT I/O

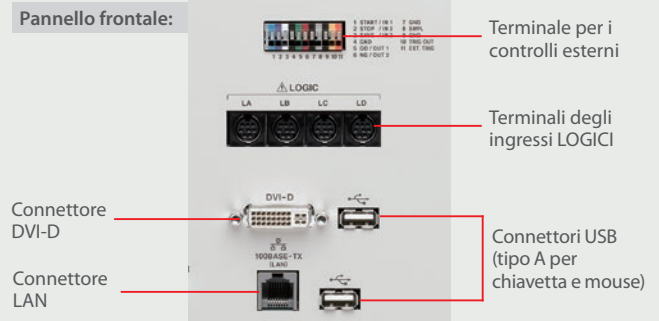
Funzione COMPARATORE DI FORME D'ONDA multi-canale

La funzione di comparazione di MR8741, controlla se la forma d'onda in misura esce dalla finestra di tolleranza programmata e fornisce un immediato esito PASS/FAIL. Lo strumento è in grado di misurare le forme d'onda su più canali alla velocità di 20 MS/s, fornendo l'esito PASS/FAIL. Utilizzando un asse tempi più lento di 100msec/div, il confronto può avvenire in real time, consentendo rilevazioni immediate, minimizzando i fermi macchina.



Area di riferimento e forma d'onda in misura

Pannello frontale:

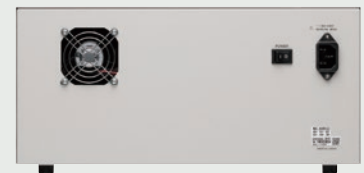


Connettore DVI-D
Connettore LAN

Terminale per i controlli esterni

Terminali degli ingressi LOGICI

Connettori USB (tipo A per chiavetta e mouse)



Pannello posteriore: ventola di raffreddamento, presa di alimentazione e interruttore di accensione.

Comparazione

[OUT] esito NG se un solo punto dell'onda esce dall'area di tolleranza
[ALL OUT] esito NG se tutta la forma d'onda esce dall'area di tolleranza

Modo GO/NG

[GO] arresta la registrazione con risultato GOOD
[NG] arresta la registrazione con risultato NOT GOOD
[GO & NG] arresta la registrazione con qualsiasi risultato GO o NG

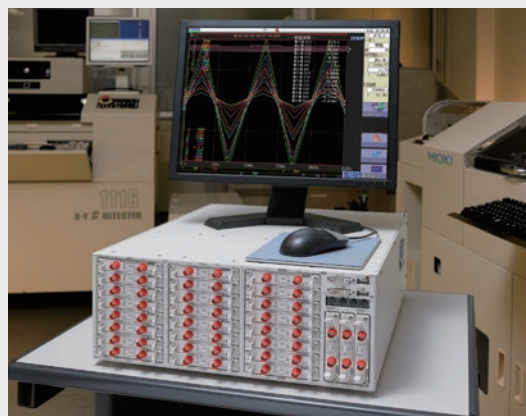
Connettività monitor e mouse

Il collegamento tra MR8740-MR8741 ed un monitor e ad un mouse consente di gestire le misurazioni senza l'utilizzo di un PC.

Tramite monitor sono disponibili le medesime visualizzazioni del modello MR8847.

Tramite mouse è possibile comandare lo strumento cliccando sulle icone di comando visibili a monitor, come se si operasse con una tastiera locale.

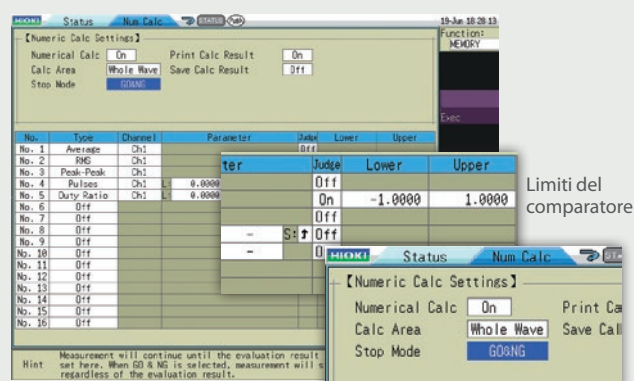
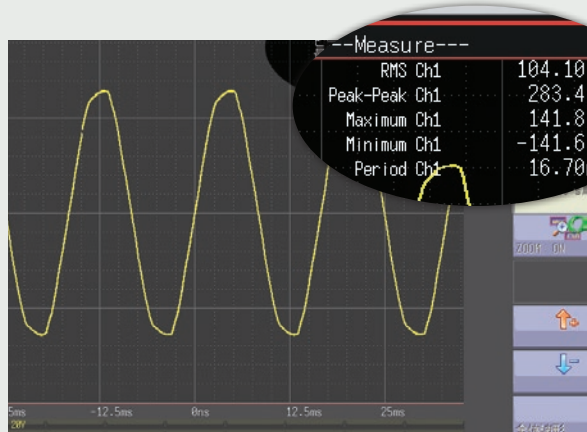
(Monitor e mouse non sono in dotazione)



Calcolo dei valori numerici

È possibile configurare fino a 20 diverse modalità di calcolo, quali RMS, picco, massimo...

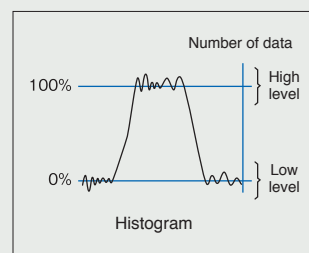
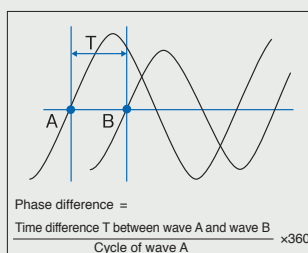
Si possono inoltre eseguire calcoli tra i valori di canali diversi ed ottenere un unico esito di comparazione, velocizzando i tempi di analisi.



Limiti del comparatore

Configurazione di calcolo

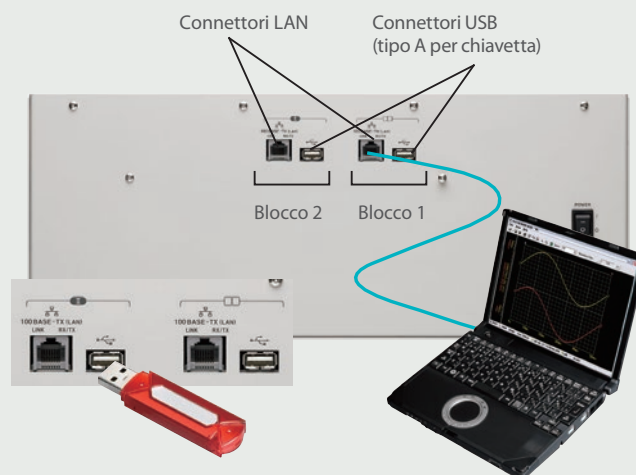
Impostazione del comparatore



Media e salvataggio dati

I dati misurati possono essere salvati su una generica chiavetta USB e successivamente copiati a PC.

Ogni blocco di misura salva nella propria specifica locazione di memoria.



Interfaccia LAN con funzioni HTTP e FTP server

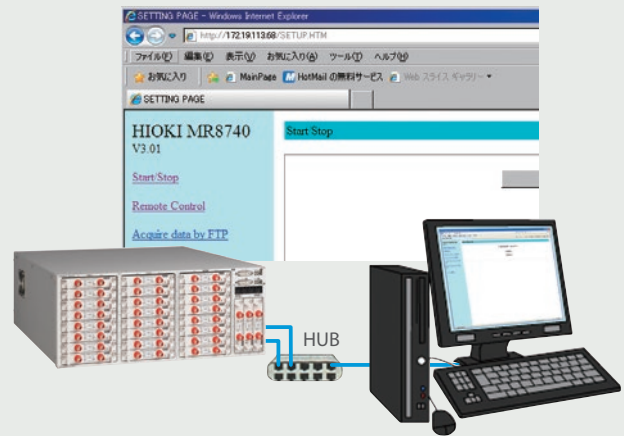
MR874x dispongono di interfaccia LAN 100BaseT.

Funzione HTTP server:

Si accede all'unità tramite web browser per la gestione remota e la visualizzazione on-line delle forme d'onda. I valori numerici delle forme d'onda possono essere scaricati e convertiti per Excel.

Funzione FTP server:

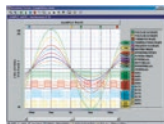
Permette di trasferire su PC i dati salvati su memoria interna o chiavetta USB.



Analisi dei dati su PC

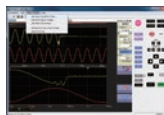
● WAVE PROCESSOR 9335 (option)

- Waveform display and calculation
- Print function



● LAN COMMUNICATOR 9333 (option)

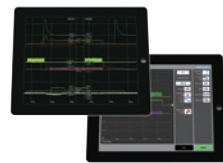
- Collect waveform data
- Remotely control Memory HiCorders with a PC
- Save data in CSV format and export to spreadsheet applications



● iPad App for Memory HiCorder HMR Terminal (option)

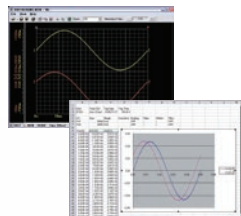
Free app (exclusively for iPad) downloadable from the App Store

- Freely control waveforms using iPad's gesture controls
- Multi-channel support – up to 32 channels (with MR8827, MR8740) of waveform data at your fingertips
- Operate the Memory HiCorder via network
You can change settings, and monitor waveforms during measurement.
*New function on Ver 2.0



● Wave Viewer (Wv) Software (bundled software)

- Confirmation of binary data waveforms on a computer
- Saving data in the CSV format for transfer to spreadsheet software



Wave Viewer (Wv) Outline specifications (bundled software)

Operating environment	Windows 8/7 (32/64-bit), Vista (32-bit), XP, 2000
Functions	<ul style="list-style-type: none"> • Simple display of waveform file • Convert binary data file to text format, CSV • Scroll display, enlarge/reduce, jump to cursor/trigger position, etc.

9335 Outline specifications (option)

Operating environment	Windows 8/7 (32/64-bit), Vista (32-bit), XP, 2000
Functions	<ul style="list-style-type: none"> • Display: Waveform display, X-Y display, cursor function, etc. • File loading: Readable data formats (.MEM, .REC, .RMS, .POW) Largest readable file: Largest file that can be saved by supported instruments (Supported file size may be limited due to computer's operating environment.) • Data conversion: Conversion to CSV format, batch conversion of multiple files
Print	<ul style="list-style-type: none"> • Print function: Saving of print image files (with support for enhanced metafile [EMF] format) • Print format: Select from no tiling, 2 to 16 tiles, 2 to 16 rows, X/Y 1 to 4 tiles, preview/hard copy

9333 Outline specifications (option)

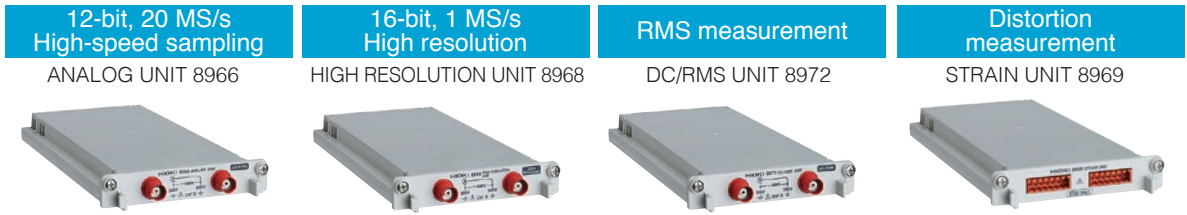
Supported units	MR8740 (ver 3.12 or later), MR8741 (ver 2.12 or later), or other
Operating environment	Windows 8/7 (32/64-bit), Vista (32-bit), XP, (The 9333 ver.1.09 or later)
Functions	<ul style="list-style-type: none"> • Auto-saves waveform data to PC, Remote control of Memory HiCorder (by sending 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, or other

HMR Terminal Outline specifications (free software)

Supported units	MR8740, MR8741, MR8847-01/-02/-03, MR8827 *calculated waveforms and logical waveforms not supported
Operating environment	iOS on the iPad (Apple Inc.)
Functions	<ul style="list-style-type: none"> • Data acquisition: Send to iPad via FTP using a WiFi router, or load to iPad via iTunes (PC app) • Intuitively operate waveform level searches, maximum / minimum / average values, zero position adjustment, and more at your fingertips • Waveform monitoring • Meter setting * Logic waveforms and computational waveforms are not supported.

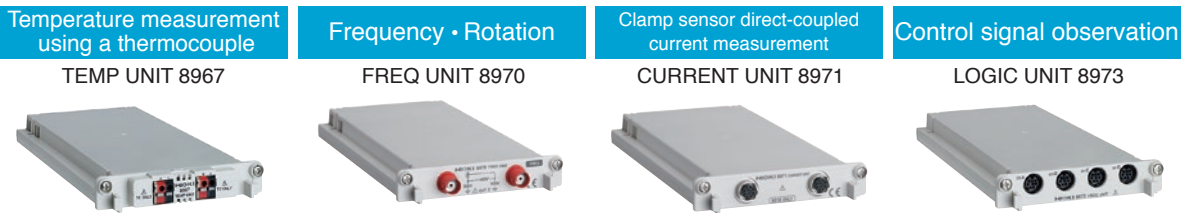
Moduli di ingresso inseribili su slot

*vedere anche la sezione dedicata ai nuovi moduli di misura, dopo la sezione relativa a MR8470-MR8741



Measurement functions	Voltage measurement	Voltage measurement	Voltage measurement (DC/RMS selectable)	Distortion measurement
Number of channels	2ch	2ch	2ch	2ch
Input connectors	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF), Max. rated voltage to earth ^(*) : 300 V AC, DC	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF), Max. rated voltage to earth ^(*) : 300 V AC, DC	Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF), Max. rated voltage to earth ^(*) : 300 V AC, DC	Weidmuller SL 3.5/790G (via Conversion Cable 9769, TAJIMI PRC03-12A10-7M10.5) Max. rated voltage to earth ^(*) : 33 Vrms, or 70V DC
Measurement range	5 mV to 20 V/div, 12 ranges	5 mV to 20 V/div, 12 ranges	5 mV to 20 V/div, 12 ranges	20 µε to 1000 µε/div, 6 ranges
Measurement resolution	1/100 of measurement range using 12-bit A/D conversion	1/1600 of measurement range using 16-bit A/D conversion	1/100 of measurement range using 12-bit A/D conversion	1/1250 of measurement range using 16-bit A/D conversion
Highest sampling rate	20 MS/s	1 MS/s	1 MS/s	200 kS/s
Measurement accuracy	±0.5 % f.s.	±0.3 % f.s.	±0.5 % f.s. RMS amplitude accuracy: ±1 % f.s. (DC, 30 Hz to 1 kHz)	±0.5 % f.s.
Frequency characteristics	DC to 5MHz (-3dB) (with AC coupling: 7 Hz to 5 MHz -3dB)	DC to 100 kHz (-3dB) (with AC coupling: 7 Hz to 100 kHz -3dB)	DC to 400 kHz (-3dB) (with AC coupling: 7 Hz to 400 kHz -3dB)	DC to 20 kHz+1 (-3dB)
Input coupling	AC/DC/GND	AC/DC/GND	AC/DC/GND	-
Max. allowable input	DC 400V	DC 400V	DC 400V	-

(*) 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 functions	Temperature measurement with thermocouple	Frequency measurement using voltage input	Current measurement using an optional sensor	Logic measurement using an optional probe
Number of channels	2ch	2ch	2ch	16 channels (up to 4 logic probes can be connected)
Measurement resolution	1/1000 of measurement range using 16-bit A/D conversion	1/2000 of measurement range using 16-bit A/D conversion (Integration mode)	1/100 of measurement range using 12-bit A/D conversion	Mini-DIN terminal (HIOKI logic probes only) Compatible logic probes: ■ 9320-01/9327 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 resistance: 1 MΩ (with digital input, 0 to +5 V) 500 kΩ or more (with digital input, +5 to +50V) Pull-up resistance: 2 kΩ (contact input: internally pulled up to +5 V) Digital input threshold: 1.4V/2.5V/4.0V Contact input detection resistance: 1.4 V: 1.5 kΩ or higher (open) and 500 Ω or lower (short) 2.5 V: 3.5 kΩ or higher (open) and 1.5 kΩ or lower (short) 4.0 V: 25 kΩ or higher (open) and 8 kΩ or lower (short) Response speed: 9320-01: 500ns or lower 9327: Detectable pulse width 100ns or higher Max. allowable input: 0 to +50V DC (the maximum voltage that can be applied across input pins without damage) ■ MR9321-01 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 resistance: 100 kΩ or higher (HIGH range), 30 kΩ or higher (LOW range) Output (H) detection: 170 to 250 V AC, ±DC 70 to 250 V (HIGH range) 60 to 150 V AC, ±DC 20 to 150 V (LOW range) Output (L) detection: 0 to 30 V AC, ±DC 0 to 43 V (HIGH range) 0 to 10 V AC, ±DC 0 to 15 V (LOW range) Response time: Rising edge 1 ms max, falling edge 3 ms max. (with HIGH range at 200 V DC, LOW range at 100 V DC) Max. allowable input: 250 Vrms (HIGH range), 150 Vrms (LOW range) (the maximum voltage that can be applied across input pins without damage) Up to three units can be installed in a single instrument (or 1 block)
Specifications	Input connectors: Thermocouple input: plug-in connector, Recommended wire diameter: single-wire, 0.14 to 1.5 mm ² , braided wire 0.14 to 1.0 mm ² (conductor wire diameter min. 0.18 mm), AWG 26 to 16 Input impedance: Min. 5 MΩ Max. rated voltage to earth ^(*) : 300 V AC, DC Temperature measurement range: 10°C/div (-100 °C to 200 °C) 50°C/div (-200 °C to 1000 °C) 100°C/div (-200 °C to 2000 °C) Thermocouple range: K: -200 to 1350 °C J: -200 to 1100 °C E: -200 to 800 °C T: -200 to 400 °C N: -200 to 1300 °C R: 0 to 1700 °C S: 0 to 1700 °C B: 400 to 1800 °C W (WRεS-26): 0 to 2000 °C Reference junction compensation: internal/ external (switchable), Line fault detection ON/OFF possible Measurement accuracy: Thermocouple K, J, E, T, N: ±0.1 % f.s. ±1 °C (±0.1 % f.s. ±2 °C at -200 °C to 0 °C), Thermocouple R, S, W: ±0.1 % f.s. ±3.5 °C (at 0 °C to 400 °C or less), ±0.1 % f.s. ±3 °C (at 400 °C or more), Thermocouple B: ±0.1 % f.s. ±3 °C (at 400 °C or more) Reference junction compensation accuracy: ±1.5 °C (added to measurement accuracy with internal reference junction compensation)	Input connectors: Isolated BNC connector (input impedance 1 MΩ, input capacitance 30 pF) Max. rated voltage to earth ^(*) : 300 V AC, DC Frequency measurement range: Between DC to 100kHz (Min. pulse width 2µs), 1Hz/div to 5kHz/div (full scale=20 div), 8 settings Accuracy: ±0.1% f.s. (exclude 5kHz/div), ±0.7% f.s. (at 5kHz/div) Rotation measurement range: Between 0 to 2 million rotations/minute (Min. pulse width 2µs), 100 (r/min)/div to 100k (r/min)/div (full scale=20 div), 7 settings Accuracy: ±0.1% f.s. (excluding 100k (r/min)/div), ±0.7% f.s. (at 100k (r/min)/div) Power frequency measurement range: 50Hz (40 to 60Hz), 60Hz (50 to 70Hz), 400Hz (390 to 410Hz) (full scale=20 div), 3 settings Accuracy: ±0.03Hz (exclude 400Hz range), ±0.1Hz (400Hz range) Integration measurement range: 2k counts/div to 1M counts/div, 6 settings Accuracy: ±range/2000 Duty ratio measurement range: Between 10Hz to 100kHz (minimum pulse width 2µs), 5%/div (full scale=20 div) Accuracy: ±1% (10Hz to 10kHz), ±4% (10kHz to 100kHz) Pulse width measurement range: Between 2µs to 2sec, 500µs/div to 100ms/div (full scale=20 div) Accuracy: ±0.1% f.s.	Input connectors: Sensor connector (input impedance 1 MΩ, exclusive connector for current sensor via conversion cable the 9318, common ground with recorder) Compatible current sensors: CT6865, CT6863, CT 6862, 9709, 9279, 9278, 9277, 9272-10 (To connect the 8971 via conversion cable the 9318) Measurement range: Using 9272-10 (20A), 9277: 100mA to 5A/div (f.s.=20div, 6 settings) Using CT6862: 200mA to 10A/div (f.s.=20div, 6 settings) Using 9272-10 (200A), 9278, CT6863: 1A to 50A/div (f.s.=20div, 6 settings) Using 9279, 9709: 2A to 100A/div (f.s.=20div, 6 settings) Accuracy: Using 9278, 9279: ±0.85% f.s. Using other sensor: ±0.65% f.s. RMS amplitude accuracy: ±1% f.s. (DC, 30Hz to 1kHz), ±3% f.s. (1kHz to 10kHz) RMS response time: 100ms (rise time from 0 to 90% f.s.), Crest factor: 2 Frequency characteristics: DC to 100kHz, ±3dB (with AC coupling: 7Hz to 100kHz) Highest sampling rate: 1 MS/s (simultaneous sampling across 2 channels) 8971 Current Unit precautions • Cannot be used with the MR8741. • Up to four units can be installed in a single instrument. • When using the 9709/CT6865, up to 7 current probes can be used.	Logic measurement using an optional probe

(*) with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage

Specifications

Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)	
Measurement functions	MEMORY (high-speed recording, X-Y), RECORDER (real-time recording), FFT (frequency analysis) (Recorder functionality scheduled to be available by the end of 2012.)
Number of input units	MR8740 : 27units + 16 logic channels (standard) MR8741: 8units + 16 logic channels (standard) * For analog units, channels are isolated from each other and from frame GND. For logic units and internal standard logic terminals, all channels have common GND.
Maximum sampling rate	20 MS/second (50 ns period, all channels simultaneously) External sampling (10 MS/second, 100 ns period)
Internal memory	MR8740: Block I; Total 512 M-words (16MW/ch) Block II; Total 352 M-words (16MW/ch) MR8741: Total 256 M-words (16MW/ch)
Data storage media	USB memory stick (USB 2.0)
Backup functions (At 25°C/ 77°F)	Clock and parameter setting backup: at least 10 years Waveform backup function: none
External control connectors (MR8741only)	Terminal block: External trigger input, Trigger output, External sampling input, Two external outputs (GO/NG output), Three external inputs (start, stop, save)
External interfaces	LAN: 100BASE-TX (DHCP, DNS supported, FTP server, HTTP server) USB: USB2.0 compliant, series A receptacle ×2
Environmental conditions (No condensation)	Operation: 0°C (32°F) to 40°C (104°F), 20% to 80% rh Storage: -10°C (14°F) to 50°C (122°F), 90% rh or less
Compliance standard	Safety: EN61010
Power supply	100 to 240 V AC, 50/60 Hz
Power consumption	MR8740: 250 VA, MR8741: 120 VA
Dimensions and mass (main unit only)	MR8740: Approx. 426 mm (16.77 in) W × 177 mm (6.97 in) H × 505 mm (19.88 in) D, 10.8 kg (381.0 oz) MR8741: Approx. 350 mm (13.78 in) W × 160 mm (6.30 in) H × 320 mm (12.60 in) D, 5.4 kg (190.5 oz)
Supplied accessories	Instruction Manual × 1, Application Disk (Wave Viewer Wv, Communication Commands table) × 1, Power cord × 1, rack-mounting hardware (EIA standard) × 1set (MR8740 only)

MEMORY (high-speed recording)	
Time axis	5 μs to 5 min/div (100 samples/div) 26 ranges, External sampling (MR8740 only), Time axis zoom: ×2 to ×10 in 3 stages, compression: 1/2 to 1/20,000 in 13 stages
Sampling period	1/100 of time axis range (minimum 50 ns period)
Recording length	25 to 100,000 div, or arbitrary setting in 1-div steps (max. 160,000 div)
Pre-trigger	Record data from before the trigger point at 0 to +100% or -95% of the recording length in 15 stages, or in 1 div step settings
Numerical calculation	<ul style="list-style-type: none"> Simultaneous calculation for up to 16 selected channels 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, standard deviation, area value, X-Y area value, specified level time, specified time level, pulse width, duty ratio, pulse count, four arithmetic operations, Time difference, phase difference, high-level and low-level Calculation result evaluation output: GO/NG Automatic storing of calculation results
Waveform processing	For up to 16 freely selectable channels, the following functions can be performed (results are automatically stored): Four arithmetic operations, absolute value, exponentiation, common logarithm, square root, moving average, differentiation (primary, secondary), integration (primary, secondary), parallel displacement along time axis, trigonometric functions, reverse trigonometric functions
Memory segmentation	Max. 1024 blocks
Other functions	<ul style="list-style-type: none"> No logging X-Y waveform synthesis (1-screen, 4-screens) Overlay (always overlay when started/overlay only required waveforms)

RECORDER (real-time recording)	
Time axis	10 ms to 1 hour/div, 19 ranges, time axis resolution 100 points/div Note: Out of data acquired at selected sampling rate, only maximum and minimum value data determined using 100 points/div units are stored. Time axis compression selectable in 13 steps, from × 1/2 to × 1/20,000
Sampling rate	1/10/100 μs 1/10/100 ms (selectable from 1/100 or less of time axis)
Recording length	Built-in presets of 25 - 50,000 div, or "Continuous" or arbitrary setting in 1-div steps (max. 80,000 div)
Waveform memory	Store data for most recent 80,000 div in memory
Auto save	Data is automatically saved in USB memory stick after measurement stops

Trigger functions	
Trigger mode	MEMORY (high-speed recording), FFT: Single, Repeat, Auto RECORDER* (real-time recording): Single, Repeat
Trigger sources	CH1 to CH16 (analog), Standard Logic 16ch + Logic Unit (Max. 3 units 48 channels), External, Timer, Manual (either ON or OFF for each source), Logical AND/OR of sources
Trigger types	<ul style="list-style-type: none"> Level: Triggering occurs when preset voltage level is crossed (upwards or downwards) Voltage drop: Triggering occurs when voltage drops below peak voltage setting (for 50/60 Hz AC power lines only) Window: Triggering occurs when window defined by upper and lower limit is entered or exited Period: Rising edge or falling edge cycle of preset voltage value is monitored and triggering occurs when defined cycle range is exceeded Glitch: Triggering occurs when pulse width from rising or falling edge of preset voltage value is under run Event setting: Event count is performed for each source, and triggering occurs when a preset count is exceeded Logic: 1, 0, or ×, Pattern setting
Level setting resolution	0.1% of full scale (full scale = 20 divisions)
Trigger filter	Selectable 0.1div to 10.0div, or OFF (at MEMORY function) ON (10ms fixed) or OFF (at RECORDER function*)
Trigger output (MR8741 only)	Open collector (5 voltage output, active Low) At Level setting: pulse width (Sampling period × data number after trigger) At Pulse setting: pulse width (2ms)
Other functions	Trigger priority (OFF/ON), Pre-trigger function for capturing data from before / after trigger event (at MEMORY function), Level display during trigger standby, Start and stop trigger (At RECORDER function*), Trigger search function

FFT	
Analysis mode	Storage waveform, Linear spectrum, RMS spectrum, Power spectrum, Density of power spectrum, Cross power spectrum, Auto-correlation function, Histogram, Transfer function, Crosscorrelation function, Impulse response, Coherence function, 1/1 Octave analysis, 1/3 Octave analysis, LPC analysis, Phase spectrum
Analysis channels	Selectable from all analog input channels
Frequency range	133 mHz to 8 MHz, External, (resolution 1/400, 1/800, 1/2000, 1/4000)
Number of sampling points	1000, 2000, 5000, 10000 points
Window functions	Rectangular, Hanning, Hamming, Blackman, Blackman-Harris, Flattop, Exponential
Display format	Single, Dual, Nyquist, Running spectrum
Averaging function	Time axis / frequency axis simple averaging, Exponential averaging, Peak hold (frequency axis), Averaging times: 2 times to 10,000 times

Other functions	
Waveform judgment function (In MEMORY or FFT function) (MR8741 only)	<ul style="list-style-type: none"> Area comparison with reference waveform area for time domain waveform, X-Y waveform, or FFT analysis waveform Parameter calculated value comparison with reference value Output: GO/NG decision, Open-collector 5V, <i>Note: Judge waveforms in near real-time at samplings speeds of 100msec/div (1ms sampling) or slower.</i>

Maximum Recording Time for the internal memory (At MEMORY Function)

Time axis	5 μs/div	10 μs/div	20 μs/div	50 μs/div	100 μs/div	200 μs/div	500 μs/div	1 ms/div	2 ms/div	5 ms/div	10 ms/div	20 ms/div	50 ms/div
Sampling period	50 ns	100 ns	200 ns	500 ns	1 μs	2 μs	5 μs	10 μs	20 μs	50 μs	100 μs	200 μs	500 μs
Recording Time	0.8 s	1.6 s	3.2 s	8 s	16 s	32 s	1 min 20 s	2 min 40 s	5 min 20 s	13 min 20 s	26 min 40 s	53 min 20 s	2 h 13 min 20 s
Time axis	100 ms/div	200ms/div	500ms/div	1s/div	2s/div	5s/div	10s/div	30s/div	50s/div	1min/div	100s/div	2min/div	5min/div
Sampling period	1 ms	2ms	5ms	10ms	20ms	50ms	100ms	300ms	500ms	600ms	1.0s	1.2s	3.0s
Recording Time	4 h 26 min 40 s	8 h 53 min 20 s	22 h 13 min 20 s	1 d 20 h 26 min 40 s	3 d 16 h 53 min 20 s	9 d 06 h 13 min 20 s	18 d 12 h 06 min 40 s	55 d 13 h 20 min 00 s	92 d 14 h 13 min 20 s	111 d 02 h 40 min 00 s	185 d 04 h 26 min 40 s	222 d 05 h 20 min 00 s	555 d 13 h 20 min 00 s

Configuration of options

*Input cords are not included. Please purchase them separately.
 *The 8971 use up to 4 with MR8740; not compatible with MR8741.
 When using the 9709 or the CT6865 with Current Unit 8971, a total of 7 current probes can be used.

Input modules

DIGITAL VOLTMETER UNIT MR8990
 2 ch, high-precision DC V input, 0.1 μ V resolution, high-speed sampling 500 times/s

ANALOG UNIT 8966
 2 ch, Voltage input, DC to 5 MHz bandwidth

TEMP UNIT 8967
 2 ch, thermocouple temperature input

HIGH RESOLUTION UNIT 8968
 2 ch, voltage input, DC to 100 kHz bandwidth

STRAIN UNIT 8969
 2 ch, strain gauge type converter amp
 Conversion Cable 9769
 For the 8969(MR8847/8827 series), bundled with the 8969

FREQ UNIT 8970
 2 ch, for measurement of frequency, rpm, pulse, etc.

CURRENT UNIT 8971
 2 ch, for measuring current using dedicated current sensors, bundled two Conversion cable 9318
 * The Current unit 8971 up to four module

DC/RMS UNIT 8972
 2 ch, voltage/DC to 400 kHz, RMS rectifier, DC and 30 to 100 kHz bandwidth

LOGIC UNIT 8973
 4 terminals, 16 ch
 * Max. up to two modules of the Logic unit 8973

Logic signal measurement

LOGIC PROBE 9327
 4-channel type, for voltage/contact signal ON/OFF detection (response pulse width 100 ns or more, miniature terminal type)

LOGIC PROBE MR9321-01
 4 isolated channels, ON/OFF detection of AC/DC voltage (miniature terminal type)

LOGIC PROBE 9320-01
 4-channel type, for voltage/contact signal ON/OFF detection (response pulse width 500 ns or more, miniature terminal type)

CONVERSION CABLE 9323
 *Used for connecting the 9320/9321(MR9321) and the 9324 to the Memory HiCorder with small logic terminal models
 * This cable is not required for the small-terminal types 9327, 9320-01, 9321-01 and MR9321-01.

Input cable (A)

*Voltage is limited to the specifications of the input modules in use

ALLIGATOR CLIP L9790-01
 Red/black set attaches to the ends of the cables L9790

CONTACT PIN 9790-03
 Red/black set attaches to the ends of the cables L9790

GRABBER CLIP 9790-02
 Red/black set attaches to the ends of the cables L9790
 * When this clip is attached to the end of the L9790, input is limited to CAT II 300 V, Red/black set.

CONNECTION CORD L9790
 Flexible ϕ 4.1 mm (0.16 in) thin dia., cable allowing for up to 600 V input, 1.8 m (5.91 ft) length
 * The end clip is sold separately.

L9790 L9790-01 9790-03 9790-02

Input cable (B)

*Voltage is limited to the specifications of the input modules in use

CONNECTION CORD L9198
 ϕ 5.0 mm (0.20 in) dia., cable allowing for up to 300 V input, 1.7 m (5.58 ft) length, small alligator clip

CONNECTION CORD L9197
 ϕ 5.0 mm (0.20 in) dia., cable allowing for up to 600 V input, 1.8 m (5.91 ft) length, a detachable large alligator clips are bundled

GRABBER CLIP 9243
 Attaches to the tip of the banana plug cable, CAT III 1000 V, 196 mm (7.72 in) length

INPUT CORD (C)

*Voltage is limited to the specifications of the input modules in use

10:1 PROBE 9665
 Note: This probe does not expand the maximum rated voltage above ground of an isolated input. 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
 Note: This probe does not expand the maximum rated voltage above ground of an isolated input. 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

Input cable (D)

*Voltage to ground is within this product's specifications. Separate power source is also required.

DIFFERENTIAL PROBE P9000-01
 (Wave mode only)
 For the Memory HiCorder series, input up to 1kV AC/DC

DIFFERENTIAL PROBE P9000-02
 (Select between WAVE/RMS mode)
 For the Memory HiCorder series, input up to 1kV AC/DC

AC ADAPTER Z1008
 100 to 240 V AC

Custom cable *For P9000. Inquire with your Hioki distributor.
 (1) Bus powered USB cable, (2) USB(A)-Micro B cable, (3) 3-prong cable

INPUT CORD (E)

*For DVM unit MR8990 only

TEST LEAD L2200
 Red/Black \times 1, 70cm (2.30ft) length, detachable large alligator clips or needle tips are bundled, CAT IV 600V, CAT III 1000V



MEMORY HiCORDER MR8740 (main unit only)

MEMORY HiCORDER MR8741 (main unit only)

Note: The MR8740s cannot operate alone. You must install one or more optional input modules in the unit.

PC Software

WAVE PROCESSOR 9335
 Convert data, print and display waveforms

LAN COMMUNICATOR 9333
 • Waveform data collect function
 • Remote control with the PC

iPad App for MEMORY HiCORDER HMR Terminal
 Download from the App Store Free (exclusively for Apple Inc. iPad)

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

Other options for input

CONNECTION CORD L9217
 Cord has insulated BNC connectors at both ends, signal output use, 1.6 m (5.25 ft) length

CONVERSION ADAPTER 9199
 Receiving side banana, output BNC terminal

CONNECTION CORD 9165
 Cord has metallic BNC connectors at both ends, use at metallic terminal, 1.5 m (4.92 ft) length, not CE marked

CONVERSION CABLE 9318
 For the CT6841/43 or other

Temperature sensor

*For reference only. Please purchase locally.

Thermocouple

Up to 200 A (High precision)

High-Precision pull-through current sensors, observe waveforms from DC to distorted AC.
AC/DC CURRENT SENSOR CT6862, 50A
AC/DC CURRENT SENSOR CT6863, 200A

Observe waveforms from DC to distorted AC.
AC/DC CURRENT PROBE CT6841, 20A
AC/DC CURRENT PROBE CT6843, 200A

CLAMP ON SENSOR 9272-10
 Enables observation of AC current waveforms. 1 Hz to 100 kHz response, input selectable 20 and 200A, 2V AC output.

Up to 500 A (High precision)

AC/DC CURRENT SENSOR 9709
 High-Precision pull-through current sensors, observe waveforms from DC to distorted AC. DC to 100 kHz response, input 500A, 2V AC output.

UNIVERSAL CLAMP ON CT 9279-01
 Enables observation from DC to AC current waveforms. DC to 20 kHz response, input 500A, 2V AC output. (CE marked)

Power supply for sensor Necessary for use high precision current sensors

SENSOR UNIT 9555-10
 For signal output L9217 is necessary

CONNECTION CORD L9217
 Insulated BNC connectors at both ends, 1.6 m (5.25 ft) length.

10 mA class to 500 A (High speed)

CLAMP ON PROBE 3273-50
 DC to 50 MHz wide band response, 10 mA-class current up to 30 Arms

CLAMP ON PROBE 3276
 DC to 100 MHz wide band response, 10 mA-class current up to 30 Arms

CLAMP ON PROBE 3274
 DC to 10 MHz wideband response, up to 150 Arms

CLAMP ON PROBE 3275
 DC to 2 MHz wideband response, up to 500 Arms

Power supply for sensor Necessary for use high speed current probes

POWER SUPPLY 3272
 For the 3270 series, single sensor connectable (2 units possible depending on conditions)

POWER SUPPLY 3269
 For the 3270 series, connect up to four sensors

100 A to 5000 A (Medium speed)

CLAMP ON AC/DC SENSOR CT9691-90
 DC to 10kHz (-3dB), 100A, Output 0.1 V/f.s., bundled the Sensor Unit CT6590

CLAMP ON AC/DC SENSOR CT9692-90
 DC to 20kHz (-3dB), 200A, Output 0.2 V/f.s., bundled the Sensor Unit CT6590

CLAMP ON AC/DC SENSOR CT9693-90
 DC to 15kHz (-3dB), 2000A, Output 0.2 V/f.s., bundled the Sensor Unit CT6590

AC FLEXIBLE CURRENT SENSOR CT9667-01/-02/-03
 10Hz to 20kHz (-3dB), AC 5000A/500A, Output 500mV/f.s., measurable conductor diameter ϕ 100 mm (3.94 in) to ϕ 254 mm (10.0 in)

500 A to 1000 A *For commercial power lines, 50/60Hz (separate power supply not required)

CLAMP ON PROBE 9018-50
 Excellent phase characteristics, 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

NEW

MR8990

Modulo Multimetro Digitale DVM ad alta risoluzione 24bit ed elevata precisione

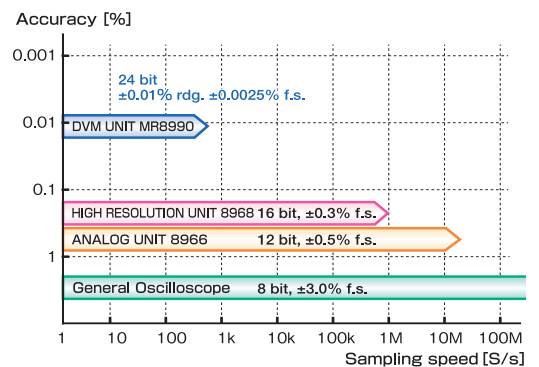


MR8990 è una unità a 2 canali di ingresso per la misura di tensione CC ad elevata precisione e risoluzione. Tramite MR8990 è possibile rilevare minime fluttuazioni di tensione da dispositivi quali batterie, sensori di processo e di automotive.

- **Elevata risoluzione: 24bit a 6 ½ cifre**
La minima risoluzione di misura di MR8990 è pari a 0.1µV
- **Elevata precisione: ±0.01% rdg ±0.0025 f.s.**
Elevata precisione di misura a fronte di un campionamento pari a 500 campioni/secondo.
- **Tensione massima ammessa: 500Vcc**
- **Alta impedenza di ingresso**
da 5mV/DIV a 500mV/DIV: 100MΩ o superiore
da 5V/DIV a 50V/DIV: 1MΩ ± 5%

*Nota: il modulo MR8990 non è compatibile con gli oscilloscopi registratori mod. MR8847/01

Input Unit Comparison Chart (Sampling Period and Accuracy)



Specifications

Product guaranteed for one year
Accuracy guaranteed for one year

Measurement range

Measurement range		Effective input range*	Measurement resolution	Input resistance
5 mV/div	(f.s. = 100 mV)	-120 mV to 120 mV	0.1 µV	More than 100 MΩ
50 mV/div	(f.s. = 1000 mV)	-1200 mV to 1200 mV	1 µV	
500 mV/div	(f.s. = 10 V)	-12 V to 12 V	10 µV	
5 V/div	(f.s. = 100 V)	-120 V to 120 V	100 µV	10 MΩ ±5%
50 V/div	(f.s. = 1000 V)	-500 V to 500 V	1 mV	

Measurement accuracy

*Measurement guaranteed accuracy range

Measurement range		NPLC: Less than 1	NPLC: More than 1
5 mV/div	(f.s. = 100 mV)	±0.01% rdg, ±0.015% f.s.	±0.01% rdg, ±0.01% f.s.
50 mV/div	(f.s. = 1000 mV)	±0.01% rdg, ±0.0025% f.s.	±0.01% rdg, ±0.0025% f.s.
500 mV/div	(f.s. = 10 V)		
5 V/div	(f.s. = 100 V)	±0.025% rdg, ±0.0025% f.s.	±0.025% rdg, ±0.0025% f.s.
50 V/div	(f.s. = 1000 V)		

Integration time

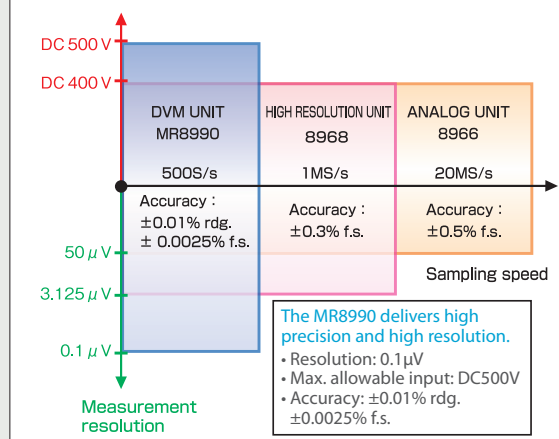
Power supply frequency	Integration time
50 Hz	20 ms × NPLC
60 Hz	16.67 ms × NPLC

NPLC: Settable from 0.1 to 0.9 (in increments of 0.1), 1 to 9 (in increments of 1), and 10 to 100 (in increments of 10). The number of power line cycles (NPLC), representing the number of cycles in the power supply (50 Hz or 60 Hz) period, determines the integration time. Larger NPLC values result in more effective rejection of noise caused by the power supply at the expense of lower sampling speeds.

Temperature characteristics: ± (0.002% rdg, ±0.00025% f.s.) / °C

A/D conversion measurement method: ΔΣ modulation method 24bit
Measurement functions: DCV
Number of channels: 2ch

Input Unit Comparison Chart (Input Voltage and Sampling Speed)



Option for MR8990

TEST LEAD L2200

One set (Redx1, Blackx1), 70cm (2.30ft) length

Unit jack: Banana terminal

The tip can be replaced with a pin lead or alligator clip.

Max. allowable input: CAT IV 600V, CAT III 1000V



Maximum sampling rate:
Max. allowable input:
Max. rated voltage to earth:

2 ms (500 sampling/sec)
DC 500 V
AC, DC 300 V

HIOKI

MR8790

NEW

Modulo Generatore di forme d'onda

MR8790 è una unità a 4 canali di uscita per la generazione di 4 forme d'onda sinusoidali nel campo di frequenza compreso tra 10mHz e 20kHz.

L'ampiezza massima del segnale sinusoidale di uscita è di 20 V picco-picco.

Dimensions and mass: approx. 106 mm (4.17 in) W × 19.8 mm (0.78 in) H × 196.5 mm (7.74 in) D, approx. 230 g (8.1 oz).

Accessories: None

WAVEFORM GENERATOR UNIT MR8790	
<small>(Accuracy at 23 ±5°C/73 ±9°F, 80% rh after 30 minutes of warm-up time; Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)</small>	
Output terminal	Number of channels: 4, SMB terminal (Output impedance: 1 Ω or less) Max. rated voltage to ground: 33 V rms AC or 70 V DC
Output voltage range	-10 V to 10 V (Amplitude setting range: 0 V to 20 V p-p, Setting resolution: 1 mV)
Max. output current	5 mA
Output function	DC, Sine wave (Output frequency range: 0 Hz to 20 kHz)
Accuracy	Amplitude accuracy: ±0.25% of setting ±2 mV p-p (1 Hz to 10 kHz) Offset accuracy: ±3 mV DC output accuracy: ±0.6 mV
Other	Self-test function (Voltage, Current)

*Nota: il modulo MR8790 non è compatibile con gli oscilloscopi registratori mod. MR8847/01

HIOKI

MR8791

NEW

Modulo Generatore di Impulsi

MR8791 è una unità a 8 canali di uscita per la generazione di treni di impulsi con una velocità di frequenza d'uscita compresa tra 0.1Hz e 20kHz.

Tramite questo modulo è possibile generare uscite simulate per riprodurre ogni tipo di segnale fornito da sensori quali ad esempio quelli utilizzati negli ambiti automotive e ferroviario.

Dimensions and mass: approx. 106 mm (4.17 in) W × 19.8 mm (0.78 in) H × 196.5 mm (7.74 in) D, approx. 230 g (8.1 oz).

Accessories: None

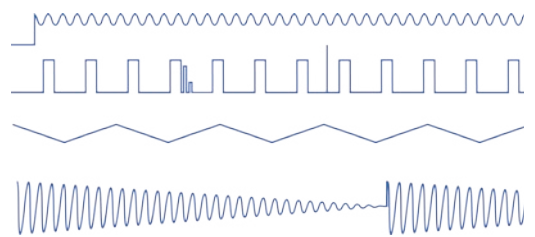
PULSE GENERATOR UNIT MR8791	
<small>(Accuracy at 23 ±5°C/73 ±9°F, 80% rh or less with no condensation; Accuracy guaranteed for 1 year)</small>	
Output terminal	Number of channels: 8, Connector: D-sub, half-pitch, 50-pin Max. rated voltage to ground: 33 V rms AC or 70 V DC (between unit and output channels) Logic output/Open collector output
Output mode 1	Pattern output: Read frequency: 0 Hz to 120 kHz, 2048 logic patterns Pulse output: Frequency 0 Hz to 20 kHz, Duty 0.1% to 99.9%
Output mode 2	Logic output: Output voltage level: 0 V to 5 V (H level: 3.8 V or more, L level: 0.8 V or less) Open collector output: Absolute maximum rated voltage for collector/emitter: 50 V Overcurrent protection: 100 mA
Other	Self-test function

*Nota: il modulo MR8791 non è compatibile con gli oscilloscopi registratori mod. MR8847/01

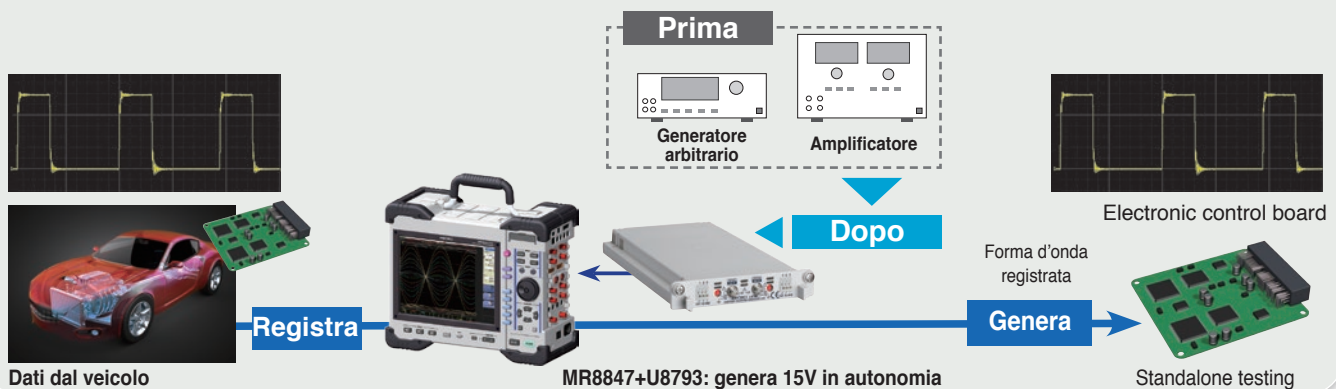
U8793

Modulo Generatore di forme d'onda arbitrarie

L'installazione del modulo di ingresso U8793 sugli oscilloscopi registratori MR8847, MR8827 e MR874x, consente di ottenere un sistema di controllo che combina le funzioni di registrazione e generazione di forme d'onda. È quindi possibile catturare una forma d'onda e successivamente riprodurla con le stesse identiche caratteristiche di ampiezza, frequenza, variazione. Il modulo U8793 è in grado di generare un segnale d'uscita isolato fino a 15V senza necessità di generatore o amplificatore supplementare.



Esempio applicativo su scheda di controllo per automotive



General Specifications

Number of output channels	2 channels per unit
Output format	Unbalanced output (floating)
Output terminal	SMB terminal
Dimensions and mass	Approx. 106 (W) × 19.8 (H) × 196.5 (D) mm, approx. 250 g
Accessory	User manual

Arbitrary Waveform Generation

Output waveforms	Waveforms measured with the Memory HiCorder MR8847, MR8847A, MR8827, MR8740, and MR8741
	Waveforms created with Waveform Creation Software SF8000
	Waveforms saved by the Arbitrary Waveform Generator 7075
	Power Quality Analyzer PW3198 and power meter waveforms
	Waveforms created as CSV-format files
	*Logic waveforms are not supported.
Voltage axis resolution	16 bits
Waveform memory capacity	256 kW/ch. × 8 blocks
Low-pass filter	2-stage LPF, 50 Hz to 1 MHz (14 steps in 1-2-5 progression)
D/A refresh rate	Up to 2 MHz (from 0 to 2 MHz, 10 mHz resolution)
Delay	-250.000 to 250.000
Number of loops	∞, 1 to 50,000

Function Generator Mode

Output waveforms	Sine, square, pulse (variable duty), triangle, ramp, DC
Output frequency range	10 mHz to 100 kHz (setting resolution: 10 mHz)

Analogue Output Specifications

(applicable to both custom waveform generation and function generation mode)

Maximum output voltage	-10V to 15V
Amplitude setting range	0V to 20V p-p (setting resolution: 1 mV)
DC offset setting range	-10V to 15V
Output impedance	1 Ω or less
Maximum output current	±10 mA (per channel)
Output type	Waveform output, open, shorted

Other Specifications

Channel synchronization	Set phase between unit channels or between units
Sweep functions	Frequency sweep, amplitude sweep, offset sweep (can be set simultaneously), duty sweep (during pulse output) *Up and down sweep operation is supported. (Target: Non-DC function generation waveforms and custom waveforms)
Program functions	Sequence length: Max. 128 steps (Hold on/off can be set by step.) Number of step loops: 1 to 1,000 Number of overall loops: 1 to 50,000 or ∞

*Nota: il modulo MR8791 non è compatibile con gli oscilloscopi registratori mod. MR8847/0x

U8974

NEW

Modulo per alta tensione
(1000VCC / 700VCA)

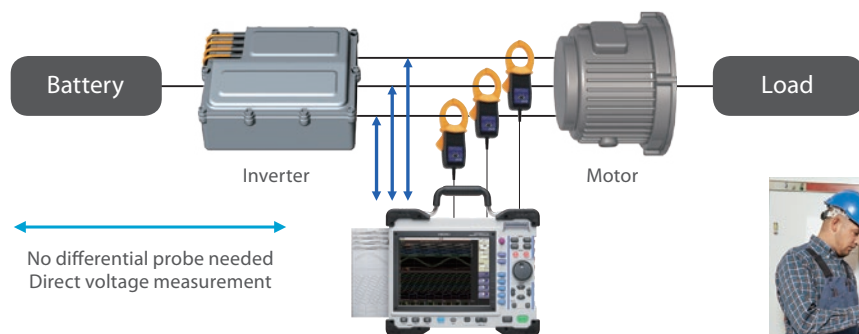


MR8790 è una unità a 4 canali di uscita per la generazione di 4 forme d'onda sinusoidali nel campo di frequenza compreso tra 10mHz e 20kHz.

L'ampiezza massima del segnale sinusoidale di uscita è di 20 V picco-picco.

Dimensions and mass: approx. 106 mm (4.17 in) W × 19.8 mm (0.78 in) H × 196.5 mm (7.74 in) D, approx. 230 g (8.1 oz)

Accessories: None



Supports high voltage systems around the world

HIGH-VOLTAGE UNIT U8974	
<small>(Accuracy at 23 ±5°C/73 ±9°F, 20 to 80% rh after 30 minutes of warm-up time and zero adjustment; Accuracy guaranteed for 1 year. Post-adjustment accuracy guaranteed for 1 year)</small>	
Measurement functions	Number of channels: 2, for voltage measurement, DC/RMS selectable Maximum rated voltage to ground: 1000 V AC or DC (CAT III), 600 V AC or DC (CAT IV)
Input terminals	Banana input terminal (Input impedance: 4 MΩ, Input capacitance: 5 pF)
Measurement range	200 mV, 500 mV, 1, 2, 5, 10, 20, 50 V/div (DC mode) 500 mV, 1, 2, 5, 10, 20, 50 V/div (RMS mode)
Measurement resolution	1/1600 of measurement range (using 16-bit A/D conversion)
Maximum sampling rate	1 MS/s
Measurement accuracy	±0.25% f.s. (with filter 5 Hz, zero position accuracy included)
RMS measurement	RMS accuracy: ±1.5% f.s. (DC, 30 Hz to 1 kHz), ±3% f.s. (1 kHz to 100 kHz) Response time: High speed 150 ms, Medium speed 500 ms, Low speed 2.5 s
Frequency characteristics	DC to 100 kHz -3 dB
Input coupling	DC / GND
Maximum input voltage	1000 V DC, 700 V AC

*Nota: l'oscilloscopio registratore mod. MR8847/0x necessita di version update (in fabbrica) per essere abbinato al modulo U8974

NEW

HMR-Terminal

Applicazione APP per iPad dedicata ai modelli MR8847, MR8827 e MR874x



HMR-Terminal è una applicazione APP, disponibile esclusivamente per tablet iPad, scaricabile gratuitamente dall'APP-Store che consente di configurare, visualizzare e registrare le forme d'onda dagli oscilloscopi registratori modello MR8847, MR8827, MR8740 e MR8741.

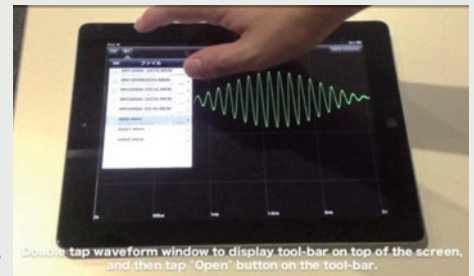
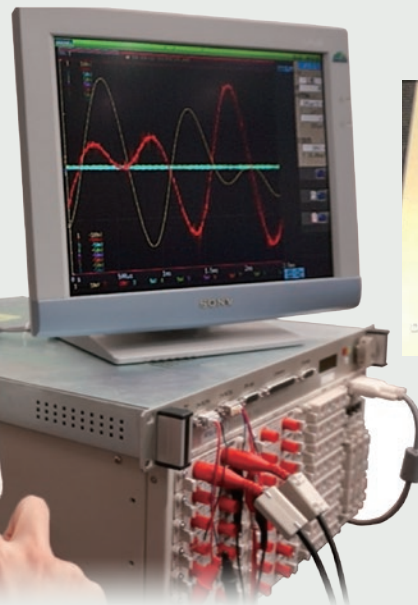
La modifica delle configurazioni e la visualizzazione istantanea sfruttano la connessione wi-fi del tablet, pertanto è necessario che l'oscilloscopio registratore sia connesso ad una rete wi-fi, attraverso la propria interfaccia LAN-Ethernet. Il trasferimento su iPad dei file registrati avviene tramite connessione al server FTP di cui sono dotati gli oscilloscopi registratori compatibili.

Su display remoto è possibile visualizzare ed analizzare fino a 32 canali di misura, sfruttando le funzionalità tattili e di gestione menù tipiche del dispositivo iPad.

Esempio applicativo su scheda di controllo per automotive

Observe waveforms being displayed on the host (Memory HiCorder) in real time on your iPad.

* Graphic data is transferred at high speed! Settings can also be sent.

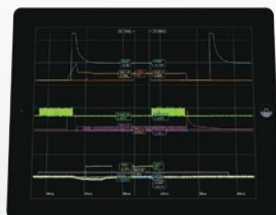


Double tap waveform window to display tool-bar on top of the screen, and then tap "Open" button on the tool-bar.

Download waveform files stored in the host (Memory HiCorder) via FTP

Free app (exclusively for iPad) downloadable from the App Store

- Easy waveform operation on iPad
- Fingertip operation of Max. 32 channels of waveform data
- Operate MEMORY HiCORDER via network, change settings, and monitor waveforms during measurement
- * New function in Ver 2.0



HMR Terminal Brief Specifications

Operating environment	iOS on the iPad (Apple Inc.)
Supported OS	iOS
Functions	<ul style="list-style-type: none"> - Data acquisition: Send to iPad via FTP using a WiFi router, or load to iPad via iTunes (PC app) - Intuitively operate waveform level searches, maximum / minimum / average values, zero position adjustment, and more at your fingertips - Waveform monitor - Meter setting * Logic waveforms and computational waveforms are not supported.

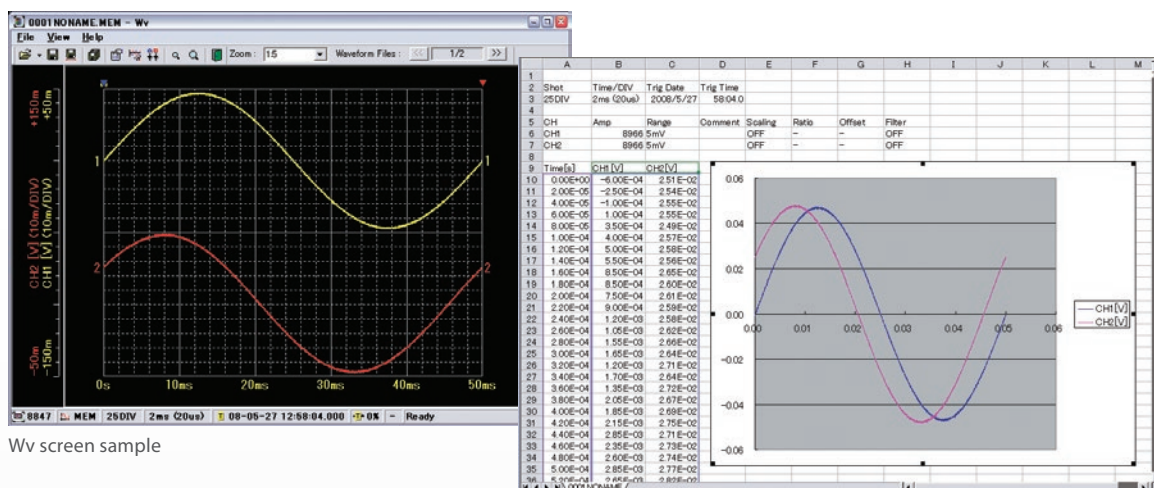
Wave-Viewer software

Applicativo software per la visualizzazione dei dati delle forme d'onda

L'applicativo software Wave-Viewer è fornito in dotazione a tutti gli oscilloscopi registratori presentati in questo catalogo, ad esclusione del modello MR8870/20 per il quale il software si chiama "Wave-Processor" sebbene mantenga le medesime funzionalità e prestazioni.

Wave-Viewer consente di aprire i file dati salvati e di svolgere le seguenti funzioni:

- Visualizzazione delle forme d'onda, così come rappresentate a display sullo strumento
- Possibilità di utilizzare i cursori orizzontali e verticali, scorrere con il puntatore all'interno della forma d'onda, la controllare la posizione del trigger, utilizzare la funzione di zoom per ingrandire/ridurre il dettaglio visualizzato
- Conversione dei file di dati binari in formato CSV o equivalente, per elaborazione su foglio di calcolo commerciale quale Excel, OpenOffice, ...



Wv screen sample

Excel spreadsheet sample

Il trasferimento del file può essere realizzato tramite diverse modalità in funzione delle caratteristiche di comunicazione e interfaccia specifiche di ogni modello di oscilloscopio registratore: tramite connessione LAN, USB, chiave USB, CF card, SD card, FTP server.

Wave-Viewer è compatibile con i Sistemi Operativi Windows 10 (32-bit o 64-bit), Windows 8/8.1 (32-bit o 64-bit), Windows 7 (32-bit o 64-bit), Windows Vista (32-bit), Windows XP (32-bit).

Wave-Processor, specifico per oscilloscopio registratore MR8870/20, è compatibile con i Sistemi Operativi Windows 8/8.1 (32-bit o 64-bit), Windows 7 (32-bit o 64-bit), Windows Vista (32-bit), Windows XP (32-bit), Windows 2000.

Applicativo software per il controllo remoto tramite connessione LAN

L'applicativo software 9333 (opzionale e compatibile con i modelli MR8847/0x, MR8847A/5x, MR8827, MR8741 e MR8741) consente di:

- Abilitare il controllo remoto tramite interfacciamento LAN
- Acquisizione dei dati tramite la funzione di auto-salvataggio su PC del file binario delle forme d'onda
- Trasferimento e salvataggio su PC del file dati di tipo CSV per elaborazione su foglio di calcolo commerciale quale Excel, OpenOffice, ...
- Stampa di report ed immagini del display, sia su stampante termica installata sullo strumento (quando prevista), sia su stampante di rete connessa a PC.

9333 è compatibile con i Sistemi Operativi Windows 8/8.1 (32-bit o 64-bit), Windows 7 (32-bit o 64-bit), Windows Vista (32-bit), Windows XP (32-bit).



9333 Brief Specifications

Supported OS	Windows 8/7 (32/64-bit), Vista (32-bit), XP (9333 ver.1.09 or later)
Functions	<ul style="list-style-type: none"> - Auto-saves waveform data to PC, Remote control of Memory HiCorder (by sending key codes and receiving images on screen), print report, 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, etc.

9335

Applicativo software per l'analisi e l'elaborazione dei dati delle forme d'onda

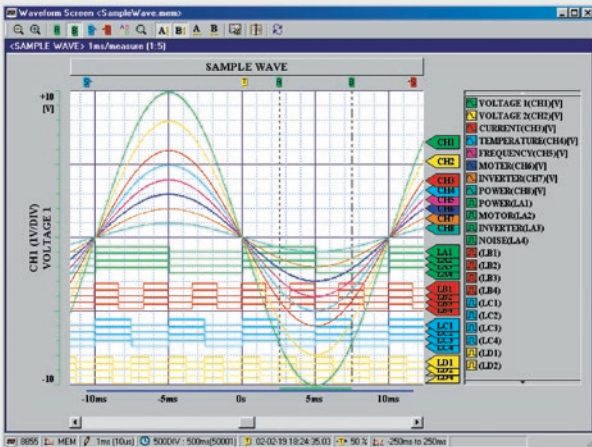
L'applicativo software 9335 (opzionale e compatibile con i modelli MR8847/0x, MR8847A/5x, MR8827, MR8741 e MR8741) consente di visualizzare, convertire, calcolare e stampare tramite PC le forme d'onda e i dati acquisiti dall'oscilloscopio registratore in uso.

9335 consente all'operatore di realizzare a monitor le svariate modalità di visualizzazione ed analisi numerico-grafiche disponibili sul display dell'oscilloscopio registratore.

In particolare, è possibile realizzare rappresentazioni su diagramma X-Y, rivelare tracciare e identificare i fenomeni di interesse inserendo marcatori di riferimento, cercare un particolare evento in base a data ora o ampiezza, e ri-assegnare una nuova condizioni di trigger.

9335 incorpora 19 tipologie di funzioni di calcolo che consentono di realizzare analisi statistiche semplici e veloci.

9335 è compatibile con i Sistemi Operativi Windows 8/8.1 (32-bit o 64-bit), Windows 7 (32-bit o 64-bit), Windows Vista (32-bit), Windows XP (32-bit), Windows 2000.



9335 Brief Specifications

Supported OS	Windows 8/7 (32/64-bit), Vista (32-bit), XP
Functions	<ul style="list-style-type: none"> - Display functions: Waveform display, X-Y display, Cursor function, etc. - 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, Batch conversion of multiple files, etc.
Printing	<ul style="list-style-type: none"> - Print function: Printing image file output (expanded META type, ".EMF") - Print formatting: 1 up, 2-to-16 up, 2-to-16 rows, X-Y 1-to-4 up, preview, hard copy