Highest Measurement Capabilities and Fastest Transfer Rate in History

MEMORY HiCORDER MR6000

- Work efficiently and intuitively using the MR6000's large touch panel
- Capture momentary phenomena by performing isolation measurement at up to 200 MS/s (when using the High Speed Analog Unit U8976)
- Enjoy a stress-free user experience thanks to dramatically faster saving of data
- Save data in real time while measurement continues
- CAN, CAN FD, and LIN measurement; MDF saving
- Generate user-defined waveforms and monitor values

Model No. (Order Code) **MR6000** (Main unit only, input modules up to 8 units)
MR6000-01 (Built-in real-time waveform calculation and other functionality)

Note: Main unit MR6000/MR6000-01 cannot operate alone. You must install one or more optional input modules in the unit.

■ **Basic specifications** (Accuracy guaranteed for 1 year)

|	MR6000	MR6000-01
Additional function	N/A	Real-time waveform calculation, Digital Filter calculation
Number of input units	Max. 8 units	
Number of channels	Max. 32 analog channels (when using the U8975), or 128 logic channels (when using the 8973)	
Measurement ranges (20 div full-scale)	10 mV to 400 V f.s., 12 ranges (when using the U8976), Resolution : 1/1600 of range. 4 V to 200 V f.s., 6 ranges (when using the U8975), Resolution : 1/32000 of range	
Max. allowable input	1000 V DC/700 V AC (when using the U8974), 400 V DC (when using the U8976), 200 V DC (when using the U8975)	
Frequency characteristics	DC to 30 MHz (when using the U8976), DC to 2 MHz (when using the U8975)	
Max. sampling rate	200 MS/s, all channnels simultaneously (when using the U8976) External sampling: 10 MS/s	
Recording methods	Normal: Normal waveform recording. Envelope: Record maximum and minimum values every fixed period. Dual sampling: Record waveforms at a sampling rate that differs from the envelope during envelope measurement	
Calculation functions	Numerical calculation, waveform processing*, FFT calculations *Power fluctuation analysis using full-wave average operator	
Storage memory capacity	1 G-words	
Removable storage	SD memory card ×1, USB memory ×7, SSD/HDD (built in the main unit) ×1 FTP transmission (to LAN-connected computer) *Use only Storage Media sold by HIOKI.	
Display	12.1 inch XGA-TFT color LCD (1024 × 768 dots)	
Display formats	Time-domain waveform representation, XY composite waveform display, FFT display	
External interfaces	LAN, USB, SD, SATA, Monitor output	
Power supply	100 to 240 V AC (50/60 Hz) (300 VA max.)	
Dimensions and mass	353 mm (13.9 in)W × 235 mm (9.25 in)H × 154.8 mm (6.09 in)D, 6.5 kg (229.3 oz) (main unit only)	
Included accessories	Power cord ×1, Quick start manual ×1, Precautions concerning use ×1, Application disk (CD-R) ×1, Instruction manual (CD-R, detail and calculation) ×1, Blank panel (for blank slots only)	

Other options refer to the detailed catalog

Note: user cannot install or change the SSD Unit U8332, the HD Unit U8333, and the Z5021

Storage Media Precaution
Use only Storage Media sold by HIOKI. Compatibility and performance are not guaranteed for Storage Media made by other manufacturers. You may be unable to read from or save data to such media.

Options A

PROBE POWER UNIT Z5021
Specified upon order of the MR6000, power max. 4 × CT6710 series, or max. 8 × other probes

CARRYING CASE C1010
For the MR6000, includes compartment for options, hard trunk type

SSD UNIT U8332
Specified upon order, built-in type, 256 GB

HD UNIT U8333
Specified upon order, built-in type, 320 GB

SD MEMORY CARD 2GB Z4001
2 GB capacity

SD MEMORY CARD Z4003
8 GB capacity

USB DRIVE Z4006
16 GB, Long-life, High-reliability SLC Flash Memory

Options B

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

- **ANALOG UNIT 8966**
2 ch, voltage input, 20MS/s (DC to 5 MHz)
- **TEMP UNIT 8967**
2 ch, thermocouple temperature input
- **HIGH RESOLUTION UNIT 8968**
2 ch, voltage input, 1MS/s (DC to 100 kHz)
- **STRAIN UNIT 8969**
2 ch, strain gauge type converter amp
- **FREQ UNIT 8970**
2 ch, for measurement of frequency, rpm, pulse
- **CURRENT UNIT 8971**
2 ch, for measuring current using dedicated current sensors
- **DC/RMS UNIT 8972**
2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- **LOGIC UNIT 8973**
4 terminals, 16 ch
- **DIGITAL VOLTMETER UNIT MR8990**
2 ch, DC V input, 0.1 µV resolution, 500 times/s sampling
- **HIGH VOLTAGE UNIT U8974**
2 ch, voltage input, max. 1000 V DC, 700 V AC
- **4CH ANALOG UNIT U8975**
4 ch, voltage input, 5MS/s (DC to 2 MHz)
- **HIGH SPEED ANALOG UNIT U8976**
2 ch, voltage input, 200MS/s (DC to 30 MHz)
- **3CH CURRENT UNIT U8977**
3 ch, current measurement by dedicated current sensor
- **4CH ANALOG UNIT U8978**
4 ch, voltage input, 5MS/s (DC to 2 MHz)
- **CHARGE UNIT U8979**
4 ch, for acceleration measurement, charge output / preamplifier output / voltage output
- **ARBITRARY WAVEFORM GENERATOR UNIT U8793** : 2 ch, FG function 10 mHz to 100 kHz, Arbitrary waveform generator D/A refresh rate 2 MHz, Output 15 V

Capture High- to Low-Voltage Signals in a Single Device! Rugged, Professional and Ready for the Field

MEMORY HiCORDER MR8880

Printer docks onto main unit
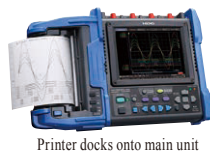
Printer unit is optional

- CAT III 600V isolation performance; directly measure a 480V power line
- 4 completely isolated channels let you simultaneously record data on a 3-phase power line plus have one extra channel
- Tough against harsh environments; -10°C to 50°C operating temperature range
- Built to withstand mechanical shocks and vibrations (ships standard with side protectors)
- Make settings easily with PRESETS function

Model No. (Order Code) **MR8880-20** (4ch, printer unit option, English model)

Note: Input cords and Battery Pack are not included. Purchase the cords appropriate for your application separately. Printer Unit MR9000 is optional and sold separately.

■ **Basic specifications** (Accuracy guaranteed for 1 year)

Number of channels	4 analog channels + 8 logic channels (standard) *Note: Isolated analog channels, isolated input and frame, logic has common GND*
Measurement ranges (10 div full-scale)	4 channels of voltage measurement; mode switchable between instantaneous waveform or RMS value, 10 mV to 100 V/div, 13 ranges, resolution: 1/640 of range. RMS value mode: 30 Hz to 10 kHz, Crest factor: 2
Max. rated voltage	Between terminals: 600 V AC/DC, Between terminal to earth: 600 V AC/DC CAT III; 300 V AC/DC CAT IV
Frequency characteristics	DC to 100 kHz (±3dB)
Time axis (High-speed function)	100 µs to 100 ms/div, 10 ranges, Sampling period: 1/100 of range
Recording intervals (Real-time function)	100 µs to 1 minute, 19 selections (simultaneous sampling in all channels)
Measurement functions	High-speed function (high speed recording) Real-time function (actual time recording)
Memory capacity	14-bits × 1M-words/ch (1 word = 2 bytes)
Removable storage	CF card slot ×1 (Up to 2 GB), USB 2.0 memory ×1
Printing	[Printer unit is option] 112 mm (4.41 in) × 18 m (59.06 ft), thermal paper roll, Recording speed : 10 mm (0.39 in)/sec *Note: Printing is not supported when using alkaline batteries*
Display	5.7-inch VGA-TFT color LCD (640 × 480 dots)
Displayable languages	English, Japanese, Chinese
Communication interfaces	USB 2.0 mini-B receptacle × 1; Transfers files from the installed CF card or USB memory stick to a PC when connected, and External PC control
Power supply	AC adapter Z1002: 100 to 240 V AC (50/60 Hz), 45 VA (include AC adapter, when Real-time recording), 107 VA (include AC adapter, when Real-time recording and printing) Battery pack Z1000: Battery pack has priority when used in combination with battery pack, recharge with AC adapter 3 hours, Continuous use 3 hours (with back-light ON) LR6 (AA) alkaline batteries ×8, Continuous use 40 minutes, (with back-light ON, cannot be used with the Printer unit) DC power supply: 10 to 28 V DC (cable available by special order)
Dimensions and mass	205 mm (8.07 in)W × 199 mm (7.83 in)H × 67 mm (2.64 in)D, 1.66 kg (58.6 oz) (with the Battery pack installed) When printer is combined - with main unit: 303 mm (11.93 in)W × 199 mm (7.83 in)H × 67 mm (2.64 in)D, 2.16 kg (76.2 oz) (with the Battery pack installed)
Included accessories	Instruction manual ×1, AC adapter Z1002 ×1, Alkaline battery box ×1, Strap ×1, USB cable ×1, Application disk (Wave viewer Wv, Communication commands table) ×1

Dedicated options

AC adapter Z1002 is bundled with the MR8880

PRINTER UNIT MR9000
Printing width 100 mm (3.94 in), used together with the MR8880-20 main body, includes 1 roll of recording paper

AC ADAPTER Z1002
For main unit, 100 to 240 V AC

BATTERY PACK Z1000
NiMH, Charges while installed in the main unit

CARRYING CASE C1003
For the MR8880, includes compartment for options, soft case type

Options

Other options: refer to the detailed catalog

RECORDING PAPER 9234
112 mm (4.41 in) × 18 m (59.06 ft), roll type, 10 rolls/set

PC CARD 2G 9830 (2 GB capacity) **PC CARD 512M 9728** (512 MB capacity)
PC CARD 1G 9729 (1 GB capacity)

1000V Direct Input Multi-channel Logger

MEMORY HiCORDER MR8875

LAN
USB2.0
SD
SDHC
CE
3 year Warranty

- 1000V input and instantaneous DC or RMS waveform measurement with new Analog Unit MR8905
- Multi-channel logger capable of thermocouple temperature measurement up to 60 ch at 10 msec intervals
- Measure multiple channels simultaneously despite handheld portable design
- Max. 2 µsec high-speed simultaneous logging for all input channels
- Save directly to the SD Card in real time for uninterrupted long-term logging
- 16-bit high-resolution measurement of voltage, temperature, distortion and CAN signals
- FFT calculation, waveform calculation functions for advanced analysis
- Intuitive touch screen for optimal operability
- Tough against vibrations and extreme temperatures, with strengthened body ideal for in-vehicle testing and road tests
- 3 different power supplies

Model No. (Order Code) MR8875   (Max. 16 - 60ch, 32MW memory, main unit only)

Note: Test leads are not included. Purchase the leads appropriate for your application separately. AC Adapter Z1005 is included as standard.

■ Basic specifications (Accuracy guaranteed for 1 year)

Number of input units	Up to 4 slots
Number of channels	Max. 16 analog channels (Max. 60 channels when using the MR8902) + standard 8 logic channels + 2 pulse channels *Note: For analog units, channels are isolated from each other and from the MR8875's GND. For CAN unit ports or standard logic terminals or standard pulse terminals, all channels have common GND.*
Measurement ranges (20 div full-scale)	5 mV to 10 V/div , 11 ranges (when using the MR8901), 500 mV to 50 V/div , 7 ranges (when using the MR8905), resolution : 1/1250 of range
Max. rated voltage	Between terminals: 1000 V DC, 700 V AC (when using the MR8905)
Frequency characteristics	DC to 100 kHz (-3 dB, when using the MR8901)
Time axis	200 µs to 5 min/div, 21 ranges, sampling period: 1/100 of range, External sampling possible
Max. sampling rate	[When using MR8901] 500 kS/s (2 µs period, all channels simultaneously) [When using MR8902] 10 ms (all input channels are scanned at high speed during every recording interval) [When using MR8903] 200 kS/s (5 µs period, all channels simultaneously) External sampling: 200 kS/s (5 µs period)
Measurement functions	High-speed function (high speed recording), Real-time calculation between channels, FFT calculation, or other functions
Storage memory capacity	Total 32 M-words (memory expansion: N/A, 8 MW each input unit) *Note: 1 word = 2 bytes, therefore 32 Mega-words = 64 Mega-bytes.* *Note: Storage memory can be allocated depending on the number of channels used at each input unit*
Removable storage	SD card slot ×1, USB 2.0 memory
Display	Touch-panel operation 8.4-inch SVGA-TFT color LCD (800 × 600 dots)
Communication interfaces	LAN: 100BASE-TX (DHCP, DNS supported, FTP server/ client, WEB server, send E-mail, command control) USB: USB 2.0 compliant, series mini-B receptacle ×1 (setting / measure with communication command, or file transfer SD card to PC), series A receptacle ×2 (USB memory, USB mouse/ key-board)
Power supply	1) AC adapter Z1002: 100 to 240 V AC (50/60 Hz), 56 VA 2) Battery pack Z1003: 7.2 V DC, 36 VA, continuous operation time: 1 hour with back light ON (AC adapter has priority when used in combination with battery pack), Charges while installed in the MR8875, recharging time: 3 hours 3) External DC Power: 10 to 28 V DC, 56 VA, (please contact your HIOKI distributor for connection cord)
Dimensions and mass	298 mm (11.73 in)W × 224 mm (8.82 in)H × 84 mm (3.31 in)D, 2.4 kg (84.7 oz), (excluding input units and the Battery pack Z1003) Reference data: 3.47 kg/ 122.4 oz (including the MR8901 ×4 units and the Battery pack Z1003)
Included accessories	Instruction manual ×1, Measurement guide ×1, AC adapter Z1002 ×1, Protection sheet ×1, USB cable ×1, Shoulder strap ×1, Application disk (Wave viewer Wv, communication commands table, CAN Editor) ×1

Dedicated options

Other options: refer to the detailed catalog

AC ADAPTER Z1002
For main unit, 100 to 240 V AC

BATTERY PACK Z1003
NiMH, Charges while installed in the main unit

CAN CABLE 9713-01
For the MR8904, unprocessed on one end, 1.8 m (5.91 ft) length

SD MEMORY CARD 2GB Z4001
SD MEMORY CARD 8GB Z4003

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

CARRYING CASE C1004
For the MR8875, includes compartment for options, hard trunk type

Input modules

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

- **ANALOG UNIT MR8901**
  4ch, Voltage measurement, DC to 100kHz
- **VOLTAGE/TEMP UNIT MR8902**
  15ch, Voltage measurement, Thermocouple measurement
- **STRAIN UNIT MR8903**
  4ch, Voltage measurement, Strain gauge converter input
- **CAN UNIT MR8904**
  2-port, up to 15 analog channels and up to 16 logic channels
- **ANALOG UNIT MR8905**
  2ch, High-voltage measurement
  (available with MR8875 Ver 2.14/3.14 or later)

Oscilloscope-like Waveform Observation, Plus Recording of RMS Variations - In a Single Device!

MEMORY HiCORDER MR8870

USB2.0
CE
3 year Warranty

- Mode for recording instantaneous waveform and RMS fluctuations
- Save values in real time to a CF card
- Record four channels at once by synchronizing two instruments with the bundled PC application
- Compact and easy to carry
- Easy, intuitive operation
- Fast, 1MS/s performance despite the compact size
- Built-in, compact-yet-sharp QVGA-TFT wide LCD

Model No. (Order Code) MR8870-20   (2ch, English model)

Note: Input cords and battery pack are not included. Purchase the cords appropriate for your application separately. The AC Adapter Z1005 is included as standard.

■ Basic specifications (Accuracy guaranteed for 1 year)

Number of channels	2 analog channels + 4 logic channels (standard) *Note: Isolated analog channels, isolated input and frame, logic has common GND*
Measurement ranges	10 mV to 50 V/div (10 div full-scale), 12 ranges, Resolution: 1/100 of range
Max. rated voltage	Between terminals: 400 VDC, Between terminal to earth: 300 VAC, DC CAT II
Frequency characteristics	DC to 50 kHz (-3 dB)
Time axis (Memory mode)	100 µs to 5 min/div, 20 ranges, at 100 points/div resolution, three steps of time-axis magnification from ×2 to ×10, and 9 steps of time-axis compression from ×1/2 to ×1/1,000
Recording intervals (RMS mode)	1 ms to 1 min., 16 settings, sampling period: 200 µs (fixed) (for AC voltage/current, 1,000 RMS values/sec.), envelope mode always on *Note: Only the maximum value and minimum value for each recording interval are recorded.*
Measurement functions	Memory recorder (high speed recording), RMS recorder (50/60 Hz, DC only)
Memory capacity	12-bits × 2M-words/ch (1 word = 2 bytes)
Removable storage	CF card TYPE I slot ×1 (Up to 2 GB)
Display	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Displayable languages	English, Japanese
Interfaces	USB 2.0 mini-B receptacle ×1, Functionality: Connect the instrument to a PC to send files on the CF card to the PC. The instrument cannot be controlled from a PC.
Printer	N/A
Power supply	AC Adapter Z1005: 100 to 240 VAC (50/60 Hz) , 30 VA max. (when using the AC adapter and charging the 9780 with the instrument) Battery Pack 9780: 3 VA, continuous operating time of approx. 2 hr. (25°C reference value; when used with the Z1005, the Z1005 takes priority), charging time of 200 min. using the AC adapter (25°C reference value) (option) External DC power: 10 to 16 V, 10 VA max. (connection cord of 3 m or less is available by special-order)
Dimensions and mass	176 mm (6.93 in)W × 101 mm (3.98 in)H × 41 mm (1.61 in)D, 600 g (21.2 oz) (with the Battery pack 9780 installed)
Included accessories	Instruction manual ×1, Measurement guide ×1, AC adapter Z1005 ×1, Strap ×1, USB cable ×1, Application disk (Dedicated program for the MR8870) ×1, Protection sheet 9809 ×1

Accessories

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets can be purchased separately, bundled with instrument

AC ADAPTER Z1005
100 to 240 V AC, bundled with instrument

Options

Other options refer to the detailed catalog

BATTERY PACK 9780
NiMH, Charges while installed in the main unit

SOFT CASE 9812
Includes space for small items, Neoprene rubber

CARRYING CASE 9782
Includes compartment for options, resin coated

PC CARD 2G 9830 (2 GB capacity)
PC CARD 1G 9729 (1 GB capacity)
PC CARD 512M 9728 (512 MB capacity)

The Global Standard Recorder for Field and R&D Testing

MEMORY HiCORDER MR8847A

USB2.0
LAN
CE
3 year Warranty

- Supports a wide variety of measurements with a total of 17 plug-in modules
- Generate and record with a single unit
- Direct 1000 V high voltage input testing
- High-speed sampling up to 20MS/s with fully isolated inputs
- 32 analog + 16 logic channels to 64 logic + 20 analog channels
- High-speed sampling with waveform judgement function
- Soil-resistant construction strong against adverse working environments
- Big buttons coated to withstand industrial oil and residue
- Drop-in paper loading and one-touch setup, along with high-speed 50mm/s printing

Model No. (Order Code) **MR8847-51** (Max. 16ch, 64MW memory, main unit only)
MR8847-52 (Max. 16ch, 256MW memory, main unit only)
MR8847-53 (Max. 16ch, 512MW memory, main unit only)

Note: Main unit MR8847-51/ -52/ -53 cannot operate alone. You must install one or more optional input modules in the unit.

Accessories: Instruction manual ×1, Measurement guide ×1, Application disk (Wave viewer Wv, Communication commands table) ×1, Power cord ×1, Input cord label ×1, USB cable ×1, Printer paper ×1, Roll paper attachment ×2, Ferrite clamp ×1

■ Basic specifications (Accuracy guaranteed for 1 years)

Max. Number of channels	16 ch analog + 16 ch logic, or 10 ch analog + 64 ch logic (when used with built-in logic input + plug-in Logic Unit 8973 × 3)
Number of slots	8 slots (Max. 8) [Limitation on number of slots] when using the Current Unit 8971: Max. 4, when using the Logic Unit 8973: Max. 3
Number of logic channels	16 ch logic (logic probe terminal GND share a common GND with chassis) Built-in logic input not available when using DVM Unit MR8990 on slots 1 or 2. [Limitation on using built-in logic input] (with logic measurement ON) • Measurement resolution on slots 1 and 2 is limited up to 12 bits • Cannot use Frequency Unit 8970 on slots 1 or 2.
Measurement ranges (20 div full-scale)	[Analog unit 8966]: 5 mV/div to 20 V/div, 12 ranges, resolution : 1/100 of range (using 12-bit A/D) [High Voltage Unit U8974]: 200 mV/div to 50 V/div, 8 ranges, resolution : 1/1600 of range (using 16-bit A/D)
Max. allowable input	400 V DC (using the 8966), 1000 V DC (using the U8974)
Frequency characteristics	DC to 5 MHz (-3 dB, using the 8966), DC to 100 kHz (using the U8794)
Time axis (Memory function)	5 μs to 5 min/div (100 samples/div) 26 ranges, External sampling (100 samples/div, or free setting), Time axis zoom: x2 to x10 in 3 stages, compression: 1/2 to 1/200 000 in 16 stages
Measurement functions	MEMORY (high-speed recording), RECORDER (real-time recording), X-Y RECORDER (X-Y real-time recording), FFT
Other functions	Waveform judgment (at Memory or FFT function)
Memory capacity	MR8847-51: Total 64 M-words (Memory expansion: none) 32 MW/ch (using 2 Analog channels), to 4 MW/ch (using 16 Analog channels) MR8847-52: Total 256 M-words (Memory expansion: none) 128 MW/ch (using 2 Analog channels), to 16 MW/ch (using 16 Analog channels) MR8847-53: Total 512 M-words (Memory expansion: none) 256 MW/ch (using 2 Analog channels), to 32 MW/ch (using 16 Analog channels)
Removable storage	CF card slot (standard) ×1 (up to 2GB, FAT, or FAT-32 format), SSD (128 GB, optional), USB memory stick (USB 2.0)
Printing	216 mm (8.50 in) × 30 m (98.43 ft), thermal paper roll, Recording speed : Max. 50 mm (1.97 in)/s
Display	10.4 inch TFT color LCD (SVGA, 800 × 600 dots)
Displayable languages	English, Japanese, Korean, Chinese
External interfaces	[LAN] 100BASE-TX (FTP server, HTTP server), [USB] USB2.0 compliant, series A receptacle ×1, series B receptacle ×1, (File transfer internal drive/CF card to PC, or remote control from PC)
Power supply	100 to 240 V AC, 50/60 Hz (130 VA max., when using printer: 220 VA max.), 10 to 28 V DC (when using the optional factory-installed DC Power Unit 9784)
Dimensions and mass	351 mm (13.82 in) W × 261 mm (10.28 in) H × 140 mm (5.51 in) D, 7.6 kg (268.1 oz) (main unit only)

Option A

Other options: refer to the detailed catalog

SSD UNIT U8331
Specify upon order, built-in type, 128 GB

DC POWER UNIT 9784
Factory-installed option - not user installable, built in on the bottom case. 10 to 28 V DC drive.

RECORDING PAPER 9231
A4 width 216 mm (8.50 in) × 30 m (98.43 ft), 6 rolls/set

CARRYING CASE 9783
For the MR8847 series/8847 series, includes compartment for options, hard trunk type

Option B

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

- ANALOG UNIT 8966 2 ch, voltage input, 20MS/s (DC to 5 MHz)
- 4ch ANALOG UNIT U8975 4 ch, voltage input, 5MS/s (DC to 2 MHz)
- 4CH ANALOG UNIT U8978 4 ch, voltage input, 5MS/s (DC to 2 MHz)
- TEMP UNIT 8967 2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968 2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969 2 ch, strain gauge type converter amp

- FREQ UNIT 8970 2 ch, for measurement of frequency, rpm, pulse
- CURRENT UNIT 8971 : 2 ch, for measuring current using dedicated current sensors
- 3CH CURRENT UNIT U8977 : 3 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972 : 2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973 : 4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990 2 ch, DC V input, 0.1 μV resolution, 500 times/s sampling

- WAVEFORM GENERATOR UNIT MR8790 : 4 ch, ±10 V DC output, 1 Hz to 20 kHz sine waveform output
- PULSE GENERATOR UNIT MR8791 8 ch, 0.1 Hz to 20 kHz pulse, pattern output
- ARBITRARY WAVEFORM GENERATOR UNIT U8793 2 ch, FG function 10 mHz to 100 kHz, Arbitrary waveform generator D/A refresh rate 2 MHz, Output 15 V
- HIGH VOLTAGE UNIT U8974 2 ch, voltage input, max. 1000 V DC, 700 V AC
- CHARGE UNIT U8979 2 ch, for acceleration measurement, charge output / preamplifier output / voltage output

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Waveform Generation and Recording. Total 64ch, 32 Analog Channels + 32 Logic Channels

MEMORY HiCORDER MR8827
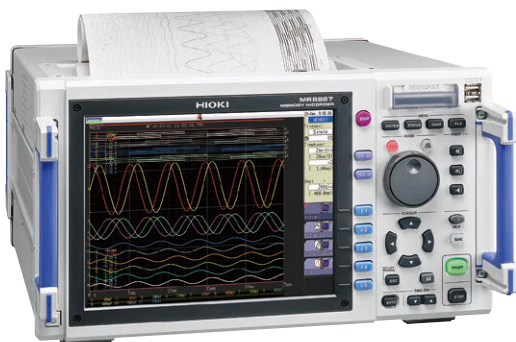
USB2.0
LAN
CE
3 year Warranty

- Generate and record waveforms with a single unit
- Output previously recorded problematic waveforms and apply to devices under test to simulate potential issues
- 32 analog + 32 logic channels to 28 analog + 64 logic channels
- High-speed sampling up to 20MS/s with fully isolated inputs
- Safe measurement with all isolated analog inputs
- Large capacity memory of total 512M-words
- Measure various system signals from high voltage to ultra low voltage simultaneously

Model No. (Order Code) **MR8827** (Max. 32ch, 512MW memory, main unit only)

Note: Main unit MR8827 cannot operate alone. You must install one or more optional input modules in the unit.

■ Basic specifications (Accuracy guaranteed for 1 year)

Max. Number of channels	32 ch analog + 32 ch logic, or 28 ch analog + 64 ch logic (when use with built-in logic input + plug-in logic unit 8973 × 2)
Number of slots	16 slots (Max. 16)
Number of logic channels	32 ch logic (logic probe terminal GND share a common GND with chassis) Built-in logic input not available when using DVM Unit MR8990 on slots 1, 2, 9, or 10. [Limitation on using built-in logic input] (with logic measurement ON) • Measurement resolution on slots 1, 2, 9, and slot 10 is limited up to 12 bits • Cannot use Frequency Unit 8970 on slots 1, 2, 9, or 10
Measurement ranges (20 div full-scale)	[Analog Unit 8966]: 5 mV/div to 20 V/div, 12 ranges, resolution : 1/100 of range (using 12-bit A/D) [High Resolution Unit 8968]: 5 mV/div to 20 V/div, 12 ranges, resolution : 1/1600 of range (using 16-bit A/D)
Max. allowable input	400 V DC (using the 8966/8968)
Frequency characteristics	DC to 5 MHz (-3 dB, using the 8966), DC to 100 kHz (-3 dB, using the 8968)
Time axis (Memory function)	5 μs to 5 min/div, 26 ranges, at 100 points/div resolution
Measurement functions	Memory (high-speed recording), Recorder (real-time recording), X-Y recorder, FFT
Other functions	Numerical calculation, Waveform processing, Waveform judgment (at Memory, or FFT function)
Memory capacity	128M-words/ch (using 4 Analog channels) to 16M-words/ch (using 32 Analog channels), Total capacity 512MW memory
Data storage media	USB memory stick, CF card, Built-in SSD unit (option, 128GB) *Approx. 125 sec. when saving 100 MB of data, *Data of 100 MB in size can record 16,000 div waveforms across 32 channels.
Printing	[Built-in A4-size printer option]: 216 mm (8.50 in) × 30 m (98.43 ft), thermal paper roll, Recording speed : Max. 50 mm (1.97 in)/s
Display	10.4 inch TFT color LCD (SVGA, 800 × 600 dots)
External interfaces	LAN: 100BASE-TX, USB 2.0 series A receptacle 2 port (for USB memory, mouse) USB 2.0 series B receptacle (for communication with PC, mass storage)
Power supply	100 to 240 V AC, 50/60 Hz (220 VA max., when using printer: 350 VA max.)
Dimensions and mass	401 mm (15.79 in)W × 233 mm (9.17 in)H × 388 mm (15.28 in)D (including protruding parts except handle), 12.6 kg (444.4 oz) (main unit only)
Included accessories	Instruction manual ×1, Power cord ×1, Application disk (CD-R) ×1, Input cord label ×1, Printer paper ×1 (when ordering printer unit), Roll paper attachment ×2 (when ordering printer unit)

Option A

Other options: refer to the detailed catalog

SSD UNIT U8330
Specify upon order, built-in type, 128 GB

PRINTER UNIT U8350
Built-in option. Printing width 200 mm (7.87 inch). Compatible recording paper: Model 9231

RECORDING PAPER 9231
A4 width 216 mm (8.50 in) × 30 m (98.43 ft), 6 rolls/set

CARRYING CASE (special order)
hard trunk type Inquire with your local Hioki distributor.

Option B

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

- ANALOG UNIT 8966 2 ch, voltage input, 20MS/s (DC to 5 MHz)
- TEMP UNIT 8967 2 ch, thermocouple temperature input
- HIGH RESOLUTION UNIT 8968 2 ch, voltage input, 1MS/s (DC to 100 kHz)
- STRAIN UNIT U8969 2 ch, strain gauge type converter amp
- FREQ UNIT 8970 2 ch, for measurement of frequency, rpm, pulse

- CURRENT UNIT 8971 : 2 ch, for measuring current using dedicated current sensors
- DC/RMS UNIT 8972 : 2 ch, Voltage, 1MS/s (DC to 400 kHz), or RMS (DC/ 30 to 100 kHz)
- LOGIC UNIT 8973 4 terminals, 16 ch
- DIGITAL VOLTMETER UNIT MR8990 2 ch, DC V input, 0.1 μV resolution, 500 times/s sampling
- WAVEFORM GENERATOR UNIT MR8790 : 4 ch, ±10 V DC output, 1 Hz to 20

- kHz sine waveform output
- PULSE GENERATOR UNIT MR8791 8 ch, 0.1 Hz to 20 kHz pulse, pattern output
- ARBITRARY WAVEFORM GENERATOR UNIT U8793 : 2 ch, FG function 10 mHz to 100 kHz, Arbitrary waveform generator D/A refresh rate 2 MHz, Output 15 V
- HIGH VOLTAGE UNIT U8974 2 ch, voltage input, max. 1000 V DC, 700 V AC
- CHARGE UNIT U8979 : 2 ch, for acceleration measurement, charge output / preamplifier output / voltage output

Recorders / Data Loggers

Perform Pulse Integration of Vehicle Speed or Flow Rate for Equipment Such as Air Conditioners

WIRELESS PULSE LOGGER LR8512

*Bundled accessory (L1010)
Not covered by warranty

- For pulse totalization and measuring logical ON/OFF signals or revolutions
- Compact, two-channel model fits where other devices don't
- Download measurement data to a tablet or computer with Bluetooth® wireless technology or capture in real time with the LR8410
- Three-way power (AC adapter, AA alkaline batteries, or external 5 to 13.5 V power supply)
- Store 500,000 data points per channel

Model No. (Order Code) **LR8512** (2 ch)

For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.
Bluetooth® is a trademark of Bluetooth SIG, Inc. and licensed for use by HIOKI E.E. CORPORATION.

■ Data can be downloaded using Hioki's tablet and smartphone app (for Android devices).
Search for "HIOKI" and download the Wireless Logger Collector!

GET IT ON Google Play

CONNECTION CABLE L1010
1.5 m (4.92 ft) length

AC ADAPTER Z2003
100 to 240V AC

MAGNETIC STRAP Z5004

■ **Basic specifications** (Accuracy guaranteed for 1 year)

Functionality	[Used as standalone product (Data collected manually)] Windows PC or Windows tablet (CD-R with software included) Android smartphone or Android tablet terminal (Software can be downloaded free of charge from Google Play.) *Communication range varies with the performance of the computer or tablet (up to a line-of-sight distance of roughly 30 m)* [Used as logging module (Real-time measurement)] Device can be used as an LR8410 logging module to record and display data in real time and to control up to 7 units, Communication distance: 30 m
Number of channels	2ch (common GND)
Measurement items	Integrating (cumulative/ Instant), Revolution, Logic (Records a 1/0 for each record-ing interval)
Supported input format	Non-voltage "a" contact (always-open contact point), open collector, or voltage input (DC 0 to 50 V)
Measurement range	[Totalization] 0 to 1000 M pulse, Max. resolution 1 pulse, [No. of revolutions] 0 to 5000/n [r/s], Max. resolution 1/n [r/s]
Display items	Measurement value, date, time, number of recorded data, maximum value, minimum value, and average value
Functions	Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function
Recording	[Capacity] 500,000 data items for each channel [Mode] Instantaneous value [Interval] 0.1 to 30 sec, 1 to 60 min, 16 selections
Power source	AC Adapter Z2003 (100 to 240 V AC, 50/60 Hz), AA alkaline batteries (LR6) ×2, External power 5 to 13.5 V DC (can also be supplied from USB bus power, with a conversion cable)
Continuous operat-ing time ([Capacity] 500,000 data items for each channel) (23˚C)	2 months (Recording interval of 1 min, Bluetooth® OFF), 14 days (Recording interval of 1 sec, Bluetooth® ON), 5 days (Recording interval of 0.1 sec, during real-time measurement with the LR8410)
Dimensions and mass	85 mm (3.35 in) W × 61 mm (2.40 in) H × 31 mm (1.22 in) D, 95 g (3.4 oz) (excluding the battery)
Included accessories	CD-R ×1 (Instruction Manual, Logger Utility, Wireless Logger Collector), Measurement Guide ×1, Caution for Using Radio Waves ×1, AA alkaline batteries (LR6) ×2, Connection cable L1010 ×2

Compact & Lightweight Heat Flow Logger for Analyzing the Causes of Temperature Change

HEAT FLOW LOGGER LR8432

- Use a heat flow sensor to measure the movement and volume of heat energy
- Measure of temperature and voltage
- Record measurement data on a USB flash drive for easy transfer to a computer
- Record to reliable Compact Flash cards during long-term measurement applications for increased peace of mind
- Ten isolated analog input channels
- 10 ms sampling and recording across all channels
- Record raw waveforms and post-calculation waveforms at the same time. (Heat transmission coefficient processing)
- Two graduations can be displayed with a double gauge

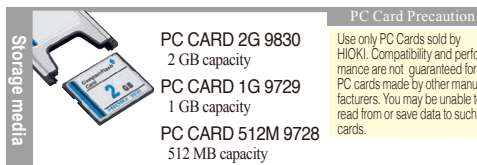Model No. (Order Code) **LR8432-20** (10 ch, English model)

Note: The LR8432-20 is not bundled with the Battery Pack 9780. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.
Note: Use only HIOKI CF cards, which are manufactured to strict industrial standards, for long-term storage of important data. Correct operation of non-HIOKI CF cards or USB memory sticks is not guaranteed.

■ **Basic specifications** (Accuracy guaranteed for 1 year)

Specialized functions for heat flow measurement	■ Easy scaling settings: directly enter the sensitivity of the heat flow sensor ■ Calculations: waveform processing function for the analysis of temperature and heat flow (Simple average, moving average, integration, heat transmission coefficient), Integration with numerical calculations
Analog inputs	[No. of channels] 10 isolated analog channels using scanning input method (M3 mm dia. screw terminal block) [Voltage measurement range] ±10 mV to ±60 V, 1-5V, Max. resolution 500 nV [Temperature : thermocouples −200 ℃ to 1800 ℃ (depending on sensor), thermo-couples (K, J, E, T, N, R, S, B), Max. resolution 0.1 ℃ [Humidity] not available [Max. allowable input] 60 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] 30 AC Vrms, 60 V DC (max. voltage between input channel terminals, and from termi-nals to chassis ground without damage)
Pulse inputs	[No. of channels] 4 pulse input channels (requires CONNECTION CABLE 9641, all pulse inputs share common ground with the main unit) [Totalized pulses] 0 to 1000M (count) (No-voltage 'a' contact, open collector or voltage input), Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s), Resolution 1/n (r/s) * n = pulses per rotation (1 to 1,000) [Max. allowable input] 0 to 10 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] Non-isolated
Recording intervals	10 ms to 1 hour, 19 selections (All input channels are scanned at high speed during every recording interval)
Selectable filters	50 Hz, 60 Hz, or OFF (digital filtering of high frequencies on analog channels)
Memory capacity	Internal storage: 3.5 M-words, External storage: CF card or USB memory stick (only HIOKI CF cards are guaranteed for correct operation)
External interface	USB 2.0 mini-B receptacle ×1; Functions: Control from a PC, Transfers files from the installed CF card to a PC (cannot transfer files from the connected USB memory stick to a PC via USB communication), Data copy between CF card and USB memory stick
Display	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Functions	Save data to the CF Card or USB memory stick in real time, Numerical Calculations, etc.
Power supply	AC Adapter Z1005: 100 to 240 VAC (50/60 Hz), 30 VA Max. (including AC adapter), 10 VA Max. (main unit only) Battery Pack 9780: Continuous use 2.5 hours (@25°C/77°F), 3 VA Max. External power source: 10 to 16 V, 10 VA Max. (please contact HIOKI distributor for cable; less than 3 m/9.84 ft cable length)
Dimensions and mass	176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 550 g (19.4 oz) (Battery Pack 9780 not installed)
Included accessories	Measurement Guide ×1, CD-R (Instruction manual PDF, Logger Utility Instruction Manual PDF, Data acquisition application program Logger Utility) ×1, USB cable ×1, AC Adapter Z1005 ×1

Other options: refer to the detailed catalog

BATTERY PACK 9780
NiMH, Charges while installed in the main unit

SOFT CASE 9812
Includes space for small items, Neoprene rubber

CARRYING CASE 9782
Includes compartment for options, Resin coated

CONNECTION CABLE 9641
For pulse inputs, 1.5 m (4.92 ft) length

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets

PC CARD 2G 9830
2 GB capacity
PC CARD 1G 9729
1 GB capacity
PC CARD 512M 9728
512 MB capacity

PC Card Precaution
Use only PC Cards sold by HIOKI. Compatibility and perfor-mance are not guaranteed for PC cards made by other manu-facturers. You may be unable to read from or save data to such cards.

Logging Multi-point Data Has Never Been So Easy with a Data Wireless Logger

WIRELESS LOGGING STATION LR8410

LR8410-20 Main unit

LR8510 (Sold separately)

SD Card bundled
SDHC
LAN
USB2.0
CE
3 year Warranty

- Capture logging data using Bluetooth® wireless technology. Install logging modules in hard-to-reach locations (over line-of-sight distances of up to 30 meters *1)
  (*1) The presence of obstructions may shorten this range. In addition, radio wave intensities, which are indicated with the antenna-like indicators, vary depending on units even while these units are operating in the same environment.
- Measurement units have built-in buffer memory so that measurement data can be saved if communication is temporarily disrupted.
- Choose an input unit based on the parameters you wish to measure (15-channel and 2-channel units are available)
- Easily add up to 7 input units wirelessly to keep your environment free of tangled wires (for a total of up to 105 channels when using 15-channel units)
- 100 msec simultaneous sampling across all channels using rapid scanning method
- Quick Set guide makes configuration a breeze
- Can receive data from LR8410 Link compatible products (Ver. 1.40 or later)

Model No. (Order Code) LR8410-20 (English model, main unit only)

The LR8410-20 alone is not capable of making measurements. One or more input modules are necessary to measure. The main unit and input modules are not bundled with the Battery Pack Z1007. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.

Note: Use only HIOKI SD Memory card, which is manufactured to strict industrial standards, for long-term storage of important data. Correct operation of non-HIOKI SD cards or USB memory sticks are not guaranteed.

*Models LR8512 to LR8515 may only be used in countries in which they have been certified.
These products emit radio waves. Use of radio waves is subject to licensing requirements in certain countries. Use in countries or regions other than those listed above may constitute a violation of law, exposing the operator to legal penalties.
*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by HIOKI E.E. CORPORATION is under license.
*For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Basic specifications (Accuracy guaranteed for 1 year)

No. of measurement channels	Connect up to seven LR8510 series units wirelessly (using Bluetooth® wireless technology) to measure or collect data from up to 105 channels.
Pulse, Digital input	2 pulse input channels or 2 digital input channels (when using the LR8512)
Recording intervals	100 ms(*2), 200 ms to 1 hour, 16 selections (All input channels are scanned within each recording interval.) (*2) Setting not available when the thermocouple burnout detection setting is on
Data storage	Internal memory: 8 M-words, Data storage media: SD memory card or USB memory stick (Only data recorded to a genuine HIOKI SD memory card is guaranteed)
Interface	LAN: 100BASE-TX, USB: USB 2.0 series mini-B receptacle ×1
Display device	5.7 inch TFT color liquid crystal display (640 × 480 pixel)
Functions	Save waveform data in real time to the SD memory card or USB memory stick, Numerical value calculations, Waveform calculations, 4ch alarm output (not isolated, common ground), and others
Power supply	[AC adapter] Using the AC adapter Z1008 (100 to 240 V AC, 50/60 Hz), 45 VA Max. (including AC adapter), 15 VA Max. (exclusive of AC adapter) [Internal battery] Using the Battery Pack Z1007 (optional accessory), 3 hours of continuous use (at 23 ˚C reference data), 7 VA Max. [External power] 10 to 28 V DC, 15 VA Max. (Please contact your HIOKI distributor for connection cord)
Dimensions and mass	230 mm (9.06 in) W × 125 mm (4.92 in) H × 36 mm (1.42 in) D, 700 g (24.7 oz) (excluding Battery Pack)
Included accessories	Instruction manual ×1, Measurement guide ×1, SD Memory Card (2GB) Z4001 ×1, CD-R (data collection software "Logger Utility") ×1, USB cable ×1, AC Adapter Z1008 ×1

■ LR8510 Basic specifications

Measurement parameters	[No. of channels] 15 analog channels; isolated scanning method input (2 terminals: M3 screw type) [Voltage] ±10 mV to ±100 V, 1-5 V f.s., max. 500 nV resolution [Temperature: Thermocouples] -200 ˚C to 2000 ˚C (depends on sensor), Thermocouples (K, J, T, or other), max. 0.01 ˚C resolution Not available for [Pt 100, JPt 100 sensor] [Resistance] [Humidity] [Max. rated voltage between isolated input channels] 300 V DC [Max. allowable input] ±100 V DC [Max. rated voltage from isolated terminals to ground] 300 V AC, DC
Power supply	[AC adapter] Using the AC adapter Z1008 (100 to 240 V AC, 50/60 Hz), 23 VA Max. (including AC adapter), 7 VA Max. (exclusive of AC adapter) [Internal battery] Using the Battery Pack Z1007 (optional accessory), 24 hours of continuous use (at 100 ms recording interval, 23 ˚C reference data), 120 hours of continuous use (at 1 minute recording interval, 23 ˚C reference data), 0.4 VA Max. [External power] 10 to 28 V DC, 7 VA Max.

■ LR8511 Basic specifications

Measurement parameters	[No. of channels] 15 analog channels; isolated scanning method input (4 terminals: push-button type) [Voltage] ±10 mV to ±100 V, 1-5 V f.s., max. 500 nV resolution [Temperature: Thermocouples] -200 ˚C to 2000 ˚C (depends on sensor), Thermocouples (K, J, T, or other), max. 0.01 ˚C resolution [Temperature: Pt 100, JPt 100 sensor] -200 ˚C to 800 ˚C, max. 0.01 ˚C resolution (not isolated between channels) [Resistance] 0 Ω to 200 Ω f.s., max. 0.5 mΩ resolution (not isolated between channels) [Humidity] 5.0 to 95.0 % rh (use with optional sensor), 0.1 % rh resolution (not isolated between channels) [Max. rated voltage between isolated input channels] 300 V DC [Max. allowable input] ±100 V DC [Max. rated voltage from isolated terminals to ground] 300 V AC, DC
Power supply	Same as the LR8510

*Please see the individual product catalog for more information about other LR8512 to LR8520.

*Z4001 is bundled with the LR8410

Input modules

WIRELESS VOLTAGE/ TEMP UNIT LR8510
2 terminals M-3 mm screw type, 15 channels, Voltage, temperature with thermocouple

WIRELESS UNIVERSAL UNIT LR8511
4 terminals push-button type, 15 channels, Voltage, temperature with thermocouple, platinum resistance temperature sensor, humidity, or resistance measurement

WIRELESS PULSE LOGGER LR8512
2ch, pulse/No.of revolutions/ logic measurement, for the LR8410

WIRELESS CLAMP LOGGER LR8513
2ch, AC and DC load current/AC leak current measurement

WIRELESS HUMIDITY LOGGER LR8514
2 ch temperature/ 2 ch humidity recording

WIRELESS VOLTAGE/ TEMP LOGGER LR8515
2 ch voltage / thermocouple (K, T) recording

WIRELESS FUNGAL LOGGER LR8520
Record fungal index, growth prediction, temperature and humidity

Storage media

SD Card Precaution
Use only the SD Card Z4001 sold by HIOKI. Compatibility and performance are not guaranteed for SD cards made by other manufacturers. You may be unable to read from or save data to such cards.

SD MEMORY CARD 2GB Z4001
2 GB capacity

SD MEMORY CARD Z4003
8 GB capacity

USB DRIVE Z4006
16 GB capacity

Input options
Sensor guaranteed for 1 year.

HUMIDITY SENSOR Z2000
3 m (9.84 ft) length

Power supply
*AC adapter is bundled with the LR8410-20, LR8510/8511

BATTERY PACK Z1007
Li-ion, charges while installed

AC ADAPTER Z1008
100 to 240V AC

Carrying cases and stands

CARRYING CASE C1007
Holds one LR8410 series and four measurement units

FIXED STAND Z1009
For wall hanging and slanted bench mounting

PC peripherals

GENNECT One SF4000
Application for Windows

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

1ms Sampling Portable Logger Expandable to 120 Channels with Your Choice of Plug-in Modules

MEMORY HiLOGGER LR8450

Measurement units (Sold separately)

LR8450 Main unit installed with U8552+U8550

- Expandable to 120 ch with wired/plug-in modules
- Record voltage output from pressure and other sensors with 1ms sampling speed
- Directly connect strain gauge and measure signals in as fast as 1ms intervals
- Significantly reduced effects from noise let you safely measure in high voltage and high frequency areas such as around inverter motors

Model No. (Order Code) **LR8450** (Standard model, main unit only)

Note) Measurement is not possible with the LR8450 only. One or more plug-in units are required (sold separately).

■ Basic specifications (Accuracy guaranteed for 1 year)

Max. number of connectable modules	4 plug-in input modules
Connectable modules (Plug-in modules)	U8550, U8551, U8552, U8553, U8554, U8555, U8556
No. of measurement channels	Up to 120 ch with plug-in input modules (U8555 can input up to 500 channels per unit)
Pulse/logic input	[Number of ch] 8 ch (common GND, non-isolated, exclusive setting for pulse/logic input for individual channels) [Adaptive input format] Non-voltage contact, open collector, or voltage input [Count] 0 to 1000 M pulse, 1 pulse resolution [Rotational speed] 0 to 5000/n (r/s), 1/n (r/s) resolution, 0 to 300,000/n (r/min.), 1/n (r/min.) resolution, n: Number of pulses per rotation (1 to 1000) [Logic input] Records 1 or 0 for each recording interval
Recording intervals	1 ms *, 2 ms *, 5 ms * (* Can be set only when using 1 ms/S modules), 10 ms to 1 hour, 22 selections (Data refresh interval can be set for each unit)
Data storage	SD Memory Card/USB Drive (user-selectable) (Only storage media sold by HIOKI are guaranteed for operation)
LAN interface	100BASE-TX / 1000BASE-T, DHCP, DNS support, Functions: Data acquisition, condition settings used with the Logger Utility software, configuring settings and controlling recording using communications commands, FTP server / FTP client, HTTP server, Email transmission, NTP client
USB interface	Series A receptacle × 2: USB 2.0 compliant (USB drive, keyboard, or hub)) Series mini-B receptacle × 1: Data acquisition, condition settings used with the Logger Utility, configuring settings and controlling recording using communications commands, transferring data from a connected SD Memory Card to a computer
SD card slot	SD standard-compliant slot × 1 (with SD memory card/SDHC memory card support), Guaranteed-operation options: Z4001, Z4003
Display	7 inch TFT color liquid crystal display (WVGA 800 × 480 pixel)
Functions	Save waveform data in real time to the SD memory card or USB drive, numerical value calculations, waveform calculations, 8ch alarm output, voltage output ×2 (5 V /12 V /24 V selectable)
Power supply	[AC adapter] Using the Z1014 (100 V to 240 V AC, 50 Hz/60 Hz), 95 VA Max. (including AC adapter), 28 VA Max. (exclusive of AC adapter) [Battery Pack] Using the Z1007 (accommodates 2 batteries), continuous use 4 hr (reference value for 2 pieces), 20 VA Max. [External power] 10 V to 30 V DC, 28 VA Max. (Please contact your HIOKI distributor for connection cord)
Dimensions and mass	Without any modules: 272 mm (10.71 in) W × 145 mm (5.71 in) H × 43 mm (1.69 in) D (excluding protrusions), 1108 g (39.1 oz) (excluding Battery Pack) With 2 modules: 272 mm (10.71 in) W × 198 mm (7.80 in) H × 63 mm (2.48 in) D (excluding protrusions) With 4 modules: 272 mm (10.71 in) W × 252 mm (9.92 in) H × 63 mm (2.48 in) D (excluding protrusions)
Included accessories	Quick Start Manual ×1, LOGGER Application Disc (Quick Start Manual, Instruction Manual, Logger Utility, Logger Utility Instruction Manual, CAN editor, CAN editor instruction manual, Communication Instruction Manual) ×1, USB Cable ×1, AC Adapter Z1014 ×1

1ms Sampling Portable Logger Expandable to 330 Channels with Your Choice of Wireless and Plug-in Modules

MEMORY HiLOGGER LR8450-01 (Wireless LAN model)

Measurement units (Sold separately)

LR8450-01 Main unit installed with U8552+U8550

- Wireless LAN model expandable to 330 ch with wireless and plug-in modules
- Record voltage output from pressure and other sensors with 1ms sampling speed
- Directly connect strain gauge and measure signals in as fast as 1ms intervals
- Significantly reduced effects from noise let you safely measure in high voltage and high frequency areas such as around inverter motors
- Avoid wiring issues by minimizing cable length using wireless units
- Monitor data captured remotely on PC with wireless LAN technology

Model No. (Order Code) **LR8450-01** (Wireless LAN equipped model, main unit only)

The LR8450 and LR8450-01 cannot perform measurement on their own. One or more plug-in modules or wireless modules are required (sold separately).
Note) The LR8450-01 and wireless modules emit radio waves. Use of radio waves is subject to licensing requirements in certain countries. Using it in a country or region other than those indicated may violate the law and may result in legal penalties for the operator.
Note) For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

■ Basic specifications (Accuracy guaranteed for 1 year)

Max. number of connectable modules	4 plug-in input modules + 7 wireless input modules
Connectable modules (Plug-in modules)	U8550, U8551, U8552, U8553, U8554, U8555, U8556
Connectable modules (Wireless modules)	LR8530, LR8531, LR8532, LR8533, LR8534, LR8535, LR8536
No. of measurement channels	Up to 120 ch with plug-in input modules, up to 330 ch with plug-in input modules and wireless input modules (U8555 and LR8535 can input up to 500 channels per unit)
Pulse/logic input	[Number of ch] 8 ch (common GND, non-isolated, exclusive setting for pulse/logic input for individual channels) [Adaptive input format] Non-voltage contact, open collector, or voltage input [Count] 0 to 1000 M pulse, 1 pulse resolution [Rotational speed] 0 to 5000/n (r/s), 1/n (r/s) resolution, 0 to 300,000/n (r/min.), 1/n (r/min.) resolution, n: Number of pulses per rotation (1 to 1000) [Logic input] Records 1 or 0 for each recording interval
Recording intervals	1 ms *, 2 ms *, 5 ms * (* Can be set only when using 1 ms/S modules), 10 ms to 1 hour, 22 selections (Data refresh interval can be set for each unit)
Data storage	SD Memory Card/USB Drive (user-selectable) (Only storage media sold by HIOKI are guaranteed for operation)
LAN interface	100BASE-TX / 1000BASE-T, DHCP, DNS support, Functions: Data acquisition, condition settings used with the Logger Utility software, configuring settings and controlling recording using communications commands, FTP server / FTP client, HTTP server, Email transmission, NTP client
Wireless LAN interface	IEEE 802.11b/g/n Communications range: 30 m, line of sight Encryption function: WPA-PSK/WPA2-PSK, TKIP/AES Usable channels: 1 to 11 Supported modes: Wireless unit connectivity, access point, station Functions: Configuring settings and controlling recording using communications commands, FTP server / client, HTTP server, NTP client
USB interface	Series A receptacle × 2: USB 2.0 compliant (USB drive, keyboard, or hub)) Series mini-B receptacle × 1: Data acquisition, condition settings used with the Logger Utility, configuring settings and controlling recording using communications commands, transferring data from a connected SD Memory Card to a computer
SD card slot	SD standard-compliant slot × 1 (with SD memory card/SDHC memory card support), Guaranteed-operation options: Z4001, Z4003
Display	7 inch TFT color liquid crystal display (WVGA 800 × 480 pixel)
Functions	Save waveform data in real time to the SD memory card or USB drive, numerical value calculations, waveform calculations, 8ch alarm output, voltage output ×2 (5 V /12 V /24 V selectable)
Power supply	[AC adapter] Using the Z1014 (100 V to 240 V AC, 50 Hz/60 Hz), 95 VA Max. (including AC adapter), 28 VA Max. (exclusive of AC adapter) [Battery Pack] Using the Z1007 (accommodates 2 batteries), continuous use 4 hr (reference value for 2 pieces), 20 VA Max. [External power] 10 V to 30 V DC, 28 VA Max. (Please contact your HIOKI distributor for connection cord)
Dimensions and mass	Without any modules: 272 mm (10.71 in) W × 145 mm (5.71 in) H × 43 mm (1.69 in) D (excluding protrusions), 1108 g (39.1 oz) (excluding Battery Pack) With 2 modules: 272 mm (10.71 in) W × 198 mm (7.80 in) H × 63 mm (2.48 in) D (excluding protrusions) With 4 modules: 272 mm (10.71 in) W × 252 mm (9.92 in) H × 63 mm (2.48 in) D (excluding protrusions)
Included accessories	Quick Start Manual ×1, LOGGER Application Disc (Quick Start Manual, Instruction Manual, Logger Utility, Logger Utility Instruction Manual, CAN editor, CAN editor instruction manual, Communication Instruction Manual) ×1, USB Cable ×1, AC Adapter Z1014 ×1, Precautions Concerning Use of Equipment that Emits Radio Waves (LR8450-01 only) ×1

Recorders Data Loggers

Data Loggers/Data Acquisition

Common options for LR8450 and LR8450-01

Plug-in modules

VOLTAGE/TEMP UNIT U8550
Voltage, Temperature (thermocouples), Humidity, 15 ch, 10 ms sampling

UNIVERSAL UNIT U8551
Voltage, Temperature (thermocouples), Humidity, Pt100/1000, JPt100, Resistance, 15 ch, 10 ms sampling

VOLTAGE/TEMP UNIT U8552
Voltage, temperature (thermocouples), humidity, 30 ch, 20 ms sampling, 10 ms when the number of channels used is 15 or less

HIGH SPEED VOLTAGE UNIT U8553
Voltage, 5 ch, 1 ms sampling

STRAIN UNIT U8554
Strain, voltage, strain gauge transducer, 5 ch, 1 ms sampling

CAN UNIT U8555
CAN/CAN FD input and output switchable, 2 ports, max. sampling 10 ms (up to 50 ch), Up to 500 ch (at 100 ms)

CURRENT MODULE U8556
Current 5 ch (instantaneous, RMS values), 1 ms sampling

*Connected only to the LR8450-01

Wireless modules

WIRELESS VOLTAGE/TEMP UNIT LR8530
Voltage and temperature (thermocouples), 15 ch, 10 ms sampling

WIRELESS UNIVERSAL UNIT LR8531
Voltage, Temperature (thermocouples), Humidity, Pt100/1000, JPt100, Resistance, 15 ch, 10 ms sampling

WIRELESS VOLTAGE/TEMP UNIT LR8532
Voltage and temperature (thermocouples), 30 ch, 20 ms sampling, 10 ms sampling when the number of channels used is 15 or less

WIRELESS HIGH SPEED VOLTAGE UNIT LR8533
Voltage, 5 ch, 1 ms sampling

WIRELESS STRAIN UNIT LR8534
Strain, voltage, strain gauge transducer, 5 ch, 1 ms sampling

WIRELESS CAN UNIT LR8535
CAN/CAN FD input and output switchable, 2 ports, max. sampling 10 ms (up to 50 ch), Up to 500 ch (at 100 ms)

WIRELESS CURRENT MODULE LR8536
Current 5 ch (instantaneous, RMS values), 1 ms sampling

Input options

HUMIDITY SENSOR Z2000
3 m (9.84 ft) length

Thermocouple
*For reference only. Please purchase locally.

For CAN modules

NON-CONTACT CAN SENSOR SP7001-95
Supports CAN FD/CAN signals, SP7001, SP9250, SP7150 set

CAN CABLE 9713-01
For U8555/LR8535, unprocessed on one end, 1.8 m (5.91 ft) length

PC peripherals
LOGGER UTILITY and CAN EDITOR are bundled software

LOGGER UTILITY SF1000
Control the measurement of loggers and collect data in real-time

CAN EDITOR SF1002
Software for CAN unit settings

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

Storage media

SD MEMORY CARD 2GB Z4001 2 GB capacity
SD MEMORY CARD Z4003 8 GB capacity
USB DRIVE Z4006 16 GB, Long-life, High-reliability SLC Flash Memory

Precaution on purchasing memory device
Use only the memory device sold by HIOKI. Compatibility and performance are not guaranteed for memory device made by other manufacturers. You may be unable to read from or save data to such devices.

Current sensors

AC/DC CURRENT SENSOR CT7812
2 A AC/DC, φ 5 mm (0.20 in) core dia., cord length 4 m (13.12 ft)(between sensor and multiplexer)

AC/DC AUTO-ZERO CURRENT SENSOR CT7822
20 A AC/DC, φ 5 mm (0.20 in) core dia., cord length 4 m (13.12 ft) (between sensor and multiplexer)

AC/DC AUTO-ZERO CURRENT SENSOR CT7731
100 A AC/DC, φ 33 mm (1.30 in) core dia., cord length 2.5 m (8.20 ft)

AC/DC AUTO-ZERO CURRENT SENSOR CT7736
600 A AC/DC, φ 33 mm (1.30 in) core dia., cord length 2.5 m (8.20 ft)

AC/DC AUTO-ZERO CURRENT SENSOR CT7742
2000 A AC/DC, φ55 mm (2.17 in) core dia., cord length 2.5 m (8.20 ft)

AC LEAKAGE CURRENT SENSOR CT7116
6 A AC, φ 40 mm (1.57 in) core dia., cord length 2.5 m (8.20 ft)

AC CURRENT SENSOR CT7126
60 A AC, φ 15 mm (0.59 in) core dia., cord length 2.5 m (8.20 ft)

AC CURRENT SENSOR CT7131
100 A AC, φ 15 mm (0.59 in) core dia., cord length 2.5 m (8.20 ft)

AC CURRENT SENSOR CT7136
600 A AC, φ 46 mm (1.81 in) core dia., cord length 2.5 m (8.20 ft)

AC FLEXIBLE CURRENT SENSOR CT7044
6000 A AC, φ 100 mm (3.94 in) core dia., cord length 2.3 m (7.55 ft)

AC FLEXIBLE CURRENT SENSOR CT7045
6000 A AC, φ 180 mm (7.09 in) core dia., cord length 2.3 m (7.55 ft)

AC FLEXIBLE CURRENT SENSOR CT7046
6000 A AC, φ 254 mm (10.00 in) core dia., cord length 2.3 m (7.55 ft)

Power supply
*Z1014 is bundled with the LR8450, LR8450-01 *Z1008 is bundled with the wireless modules

BATTERY PACK Z1007
For LR8450, LR8450-01 and wireless modules

AC ADAPTER Z1014
For LR8450 and LR8450-01, 100 to 240V AC

AC ADAPTER Z1008
For wireless modules, 100 to 240V AC

Carrying cases / stands

CARRYING CASE C1012
Holds the main unit, 4 plug-in modules and 7 wireless modules

FIXED STAND Z5040
For installing logger on wall

For wireless modules
Bundled with the Wireless modules

WIRELESS LAN ADAPTER Z3230
Connected to a wireless unit

Featuring USB Flash Drive and Improved Accuracy! Your Personal 10-channel Logger

MEMORY HiLOGGER LR8431

USB2.0

CE

3 year Warranty

HIOKI LR8431-20 MEMORY HILOGGER

- Record measurement data on a USB flash drive for easy transfer to a computer
- Record to reliable Compact Flash cards during long-term measurement applications for increased peace of mind
- Replace storage media during real-time recording
- Improved thermocouple measurement accuracy and reference junction compensation accuracy
- Ten isolated analog input channels
- 10 ms sampling and recording across all channels
- Noise-resistant measurement circuitry for improved readings
- Ultra-compact for convenient portability
- Widescreen, bright LCD gives excellent viewability

Model No. (Order Code) **LR8431-20**   (10 ch, English model)

Note: The LR8431-20 is not bundled with the Battery Pack 9780. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.
Note: Use only HIOKI CF cards, which are manufactured to strict industrial standards, for long-term storage of important data. Correct operation of non-HIOKI CF cards or USB memory sticks is not guaranteed.

■ Basic specifications (Accuracy guaranteed for 1 year)

|	
Analog inputs	[No. of channels] 10 isolated analog channels using scanning input method (M3 mm dia. screw terminal block) [Voltage measurement range] ±10 mV to ±60 V, 1-5V, Max. resolution 500 nV [Temperature : thermocouples] −200 ˚C to 1800 ˚C (depending on sensor), thermocouples (K, J, E, T, N, R, S, B), Max. resolution 0.1 ˚C [Humidity] not available [Max. allowable input] 60 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] 30 AC Vrms, 60 V DC (max. voltage between input channel terminals, and from terminals to chassis ground without damage)
Pulse inputs	[No. of channels] 4 pulse input channels (requires CONNECTION CABLE 9641, all pulse inputs share common ground with the main unit) [Totalized pulses] 0 to 1000M (count) (No-voltage 'a' contact, open collector or voltage input), Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s), Resolution 1/n (r/s) * n = pulses per rotation (1 to 1,000) [Max. allowable input] 0 to 10 V DC [Max. rated voltage between input channels] [Max. rated voltage to earth] Non-isolated
Recording intervals	10 ms to 1 hour, 19 selections (All input channels are scanned at high speed during every recording interval)
Selectable filters	50 Hz, 60 Hz, or OFF (digital filtering of high frequencies on analog channels)
Memory capacity	Internal storage: 3.5 M-words, External storage: CF card or USB memory stick (only HIOKI CF cards are guaranteed for correct operation)
External interface	USB 2.0 mini-B receptacle ×1; Functions: Control from a PC, Transfers files from the installed CF card to a PC (cannot transfer files from the connected USB memory stick to a PC via USB communication), Data copy between CF card and USB memory stick
Display	4.3-inch WQVGA-TFT color LCD (480 × 272 dots)
Functions	Save data to the CF Card or USB memory stick in real time, Numerical Calculations, etc.
Power supply	AC Adapter Z1005: 100 to 240 VAC (50/60 Hz), 30 VA Max. (including AC adapter), 10 VA Max. (main unit only) Battery Pack 9780: Continuous use 2.5 hours (@25°C/77°F), 3 VA Max. External power source: 10 to 16 V, 10 VA Max. (please contact HIOKI distributor for cable; less than 3 m/9.84 ft cable length)
Dimensions and mass	176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 550 g (19.4 oz) (Battery Pack 9780 not installed)
Included accessories	Measurement Guide ×1, CD-R (Instruction manual PDF, Logger Utility Instruction Manual PDF, Data acquisition application program Logger Utility) ×1, USB cable ×1, AC Adapter Z1005 ×1

Recorders Data Loggers

Options

Other options: refer to the detailed catalog

BATTERY PACK 9780
NiMH, Charges while installed in the main unit

SOFT CASE 9812
Includes space for small items, Neoprene rubber

CARRYING CASE 9782
Includes compartment for options, Resin coated

CONNECTION CABLE 9641
For pulse inputs, 1.5 m (4.92 ft) length

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets

Storage media

PC Card Precaution

PC CARD 2G 9830
2 GB capacity

PC CARD 1G 9729
1 GB capacity

PC CARD 512M 9728
512 MB capacity

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.

Fast 10-ms Sampling. Up to 600 Channels of Data Logging

MEMORY HiLOGGER 8423

USB2.0

LAN

CE

3 year Warranty
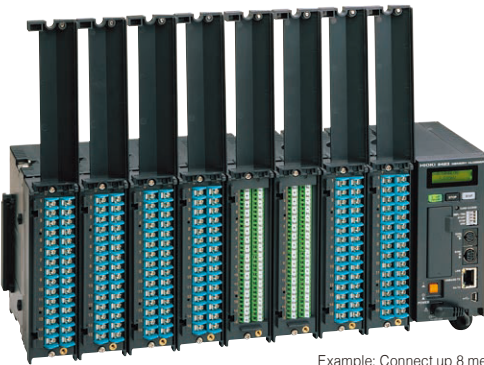
Example: Connect up 8 measurement modules for a 120-channel system

- Capture data with 15 to a maximum of 600 channels
- Send data to the PC in real time
- Isolated to sustain up to 600 V between modules and earth
- USB 2.0, LAN 100BASE-TX, store to 1GB PC Card
- Simultaneous fast- and low-speed sampling allows for media storage space efficiency

Model No. (Order Code) **8423**   (Main unit only)

Note: 8423 cannot operate alone. You must install one or more optional input modules in the unit. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.

■ Basic specifications (Accuracy guaranteed for 1 year)

No. of connectable units	Maximum 8 units (total 120 channels), Bundle 8 Modules together to achieve a 120-channel System, Bundle 5 Systems together to enable a maximum of 600 channels of simultaneous recording
Measurement parameters Model 8948	[No. of channels] 15 analog channels, isolated scanning method input (2 terminals: M3 screw type) [Voltage measurement range] ±150 mV to ±100 V, 1-5V, Max. resolution 5 μV, Max. allowable input: 100 VDC, between channels: 200 VDC, to earth: 600 VAC/DC [Temperature range] −200˚C to 2000˚C (depend on the sensor), thermocouples (K, J, E, T, N, R, S, B, W), Max. resolution 0.01˚C
Measurement parameters Model 8949	[No. of channels] 15 analog channels, isolated scanning method input (4 terminals: push-button type) (not isolated between channels at resistance temperature sensor & humidity sensor) [Voltage measurement range] ±150 mV to ±60 V, 1-5V, Max. resolution 5 μV, Max. allowable input: 60 VDC, between channels: 120 VDC, to earth: 600 VAC/DC [Temperature range] −200˚C to 2000˚C (depend on the sensor), thermocouples (K, J, E, T, N, R, S, B, W), Max. resolution 0.01˚C [Resistance temperature sensor range] −200˚C to 800˚C, (Pt 100, JPt 100), Max. resolution 0.01˚C [Humidity] 5.0 to 95.0% rh, (use with optional sensor 9701), resolution 0.1% rh
Measurement parameters Model 8996	[No. of channels] 15 channels, digital/pulse input (2 terminals: M3 screw type, CH1-5, CH6-10, CH11-15 are common GND, No-voltage 'a' contact, open collector or voltage input) [Totalized pulses] 0 to 1000M pulse, Max. resolution 1 pulse [Rotation count] 0 to 5000/n (r/s), Resolution 1/n (r/s) *n = pulses per rotation (1 to 1,000) [Digital input] Record ON/OFF digital signal per interval [Max. allowable input] 50 VDC, between channels: 33 VACrms or 70 VDC, to earth: 600 VAC/DC, (Upper limit voltage that does not cause damage when applied between CH1-5, CH6-10, CH11-15 each channel and chassis, and between each UNITs)
Recording intervals	10ms to 1hr, 19 ranges (5s to 1hr when combined with humidity measurement), Dual sampling: Recording intervals can be specified for every input module (high-speed and low-speed)
Function	Measurement data are saved to the CF Card in real time, Trigger function, Digital filter (Input unit), Alarm output (use with the Alarm unit 8997, Data acquisition is controlled by the PC data acquisition program, FTP server function, HTTP server function
Interface	LAN: supports 100Base-TX, USB: Ver 2.0, mini-B receptacle, CF card slot
Power supply	Using the AC adapter 9418-15 (100 to 240 V, 50/60 Hz), 55 VA Max. (include AC adapter), 20 VA Max. (main unit only) (when connected with 8 units), External DC Power: 9.6 V to 15.6 VDC, 20 VA Max. (when connected with 8 units) (Please contact HIOKI for connection cord)
Dimensions and mass	67 mm (2.64 in) W × 133 mm (5.24 in) H × 125 mm (4.92 in) D, 600 g (21.2 oz) (main unit 8423 only)
Included accessories	Quick start manual ×1, Instruction manual ×1, AC adapter 9418-15 ×1, USB cable ×1, CD-R (data collection software "Logger Utility") ×1, Connector cover ×1, Ferrite clamp ×1, Connection plate ×1

Input options

Other options refer to the detailed catalog

VOLTAGE/TEMP UNIT 8948
15-channels, Voltage, thermocouple input

UNIVERSAL UNIT 8949
15-channels, Voltage, thermocouple, resistance temperature sensor, humidity measurement

DIGITAL/PULSE UNIT 8996
15-channels, ON/OFF logic signal, Totalized pulses (integrated or instantaneous), rotation count

ALARM UNIT 8997
15-channels, Open-collector output

CONNECTION CABLE 9683
For synchronization, cable length 1.5 m (4.92 ft)

Storage media

* PC CARD 2G 9830 : cannot use with the 8423

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 1G 9729
(1 GB capacity)

PC CARD 512M 9728
(512 MB capacity)

Transfer Data from a LR5000 Series Data Logger to PC

COMMUNICATION ADAPTER LR5091
DATA COLLECTOR LR5092

LR5091
(USB cable is bundled)

LR5092
(USB cable is bundled)

- Bring the data logger LR5000 series back from the field and transfer data to a PC
- Save data from data loggers in the built-in memory or on an SD card (LR5092-20)
- Send settings from a PC to a data logger
- Use the included software to easily graph and print data
- Use the included software to calculate maximum, minimum, and average values and more between cursors

Model No. (Order Code)	LR5091	(For the LR5000 series)
	LR5092-20	(For the LR5000 series)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.
<How to use> Transferring data from the LR5000 series Logger to a PC
(1) Place the LR5000 series Logger on the Communications Adapter LR5091 and connect the adapter to the computer with a USB cable.
(2) Take the Data Collector LR5092 to the location where the Data Mini was placed and capture the data via optical communications. Transfer data from the device to a PC via the SD card or connect with a USB cable.

Storage media

For the LR5092

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

SD MEMORY CARD
2GB Z4001
2GB capacity

LR5000 Utility
(PC communication software; included)

Table and graph display, data analysis, data processing, transmission of settings to data loggers, print functionality, etc.
The utility can also display data collected using the Data Logger 3630 series

■ Basic specifications

	LR5091	LR5092-20
Function	Transfer data from a data logger to a PC Send settings and the time from a PC to a data logger.	Send data from a data logger to the internal memory or an SD card, then display a graph. Send settings and the time from the internal memory or SD card to a data logger. Send data from a data logger to a PC. Send settings and the time from a PC to a data logger.
Communication method	Between data loggers: Infrared communication With PC: USB 2.0	Between data loggers: Infrared communication With PC: USB 2.0
Display	N/A	Data logger setting conditions Collected data (as list, graph, values, etc.)
Internal memory capacity of data	N/A	60,000 data elements ×16ch (instantaneous value mode) 15,000 data elements ×16ch (statistical value mode) Data logger settings (max. 1 set)
Removable storage media	N/A	SD Memory card Save data and max. 16 items configuration
Power supply	USB bus power	DC 3 V (LR6 (AA) Alkaline battery ×2) USB bus power (12 hours or 500 times of data collection)
Dimensions and mass	83 mm (3.27 in)W × 61 mm (2.40 in) H × 19 mm (0.75 in)D, 43 g (1.5 oz)	91 mm (3.58 in)W × 141 mm (5.55 in)H × 31 mm (1.22 in)D, 215 g (7.6 oz) (excluding batteries and SD memory card)
Included accessories	USB cable (1m) ×1, CD (Application software "LR5000 Utility") ×1	Instruction manual ×1, Operation guide ×1, LR6 (AA) Alkaline battery ×2, USB cable (1m) ×1, CD (Application software "LR5000 Utility") × 1

■ LR5000 Utility Specifications

Operating environment	OS: Windows 7 (32/64bit, .NET Framework 2.0 or more), Vista (32bit, SP1 or more), XP (SP2 or more) *USB interface (when using the Communication Base 3910/3911, a COM port is required)
Function	• Settings: Communicates via infrared light with LR5000 series loggers to send and receive settings. • Graph function: Displays graphs of up to 16 channels, displays statistical data, etc. • Print function: Print graphs, Print statistical data. • Export function (data CSV output, paste into Excel) • Import function (loads text files from the Clamp On Power HiTester 3169-20/-21 [only demand parameter with a recording interval of at least 1 sec.]) • Processing of data: Scaling, Power calculation, Energy cost calculation, Operating ratio calculation, Integration, Dew point temperature, Calculate between channels

Easily Record Load Current of 50Hz/60Hz Lines and Leak Current

CLAMP LOGGER LR5051

*Clamp sensor is sold separately
(Sensor warranteed for one year)

- Easily mount the light-weight, pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity compared to predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

Model No. (Order Code)	LR5051	(2ch, clamp sensor is sold separately)

Note: The Clamp Logger LR5051 may be affected by high-frequency noise while measuring leak current. Please contact Hioki for more information if you plan to use the instrument in an environment where it would be subject to the effects of high-frequency noise.

Customers using the previous Model 3636-20 Clamp Logger should note that the LR5051 can only record 15,000 points of average data, vs. 32,000 data points available in the 3636-20.
Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

■ Basic specifications (Accuracy guaranteed for 1 year)

Measurement items	AC Current 2 channels (used with the optional current sensor; load current 2ch, leak current 2ch, or load/leak each 1ch) *Caution: Current and leak current that occur intermittently cannot be measured.*
Measurement range	500.0 mA to 1000 A AC rms, 5 range (depends on current sensor in use)
Basic accuracy	±2.0% rdg ±0.13% f.s. (main unit + current sensor accuracy, at 500.0 A range, 50/60 Hz) *Note: Basic accuracy is typical value, only main unit accuracy: ±0.5 %rdg ±5 dgt, must added clamp sensor accuracy, refer to the detailed catalog*
Storage capacity	Instantaneous value mode: 60,000 data/ch, Statistical value mode: 15,000 data/ch
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced
Waterproof and dust-proof	N/A
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×2, Battery life: Approx. 1 year (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 1 month (Instantaneous recording, with 1-second interval at 20 °C)
Dimensions and mass	79 mm (3.11 in)W × 70 mm (2.76 in)H × 37 mm (1.46 in)D, 165 g (5.8 oz)
Included accessories	LR6 (AA) Alkaline battery (built-in internal) ×2, Instruction manual ×1, Operation guide ×1

Options

For data acquisition to PC

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/SD memory card

For fixing

MAGNETIC STRAP Z5020
Extra strength

Current sensors

Clamp on Leak Sensor 9657-10, 9675: Rated primary current 5 A* AC *Maximum measurable current when used with the LR5051.

AC load current
Approx. 3m (118.1 in)
CLAMP ON SENSOR CT6500 500 A AC

AC load current
Approx. 3m (118.1 in)
CLAMP ON SENSOR 9669 1000 A AC

AC load current
Insulated wire
Not CE marked
CLAMP ON SENSOR 9695-02 50 A AC, Cable 9219 required

CONNECTION CABLE 9219
Connect with the 9695-02/-03, Output BNC terminal, 3 m (9.84 ft) cord length

AC leak current
Insulated conductor
Approx. 3m (118.1 in)
CLAMP ON LEAK SENSOR 9657-10
Rated primary current: *5 A AC

AC leak current
Insulated conductor
Approx. 3m (118.1 in)
CLAMP ON LEAK SENSOR 9675
Rated primary current: *5 A AC

Record Instrumentation Signals and Measure Analog Output from Sensors and other Devices

VOLTAGE LOGGER
(50mV) LR5041, (5V) LR5042, (50V) LR5043

CE

3 year Warranty

*Bundled accessory (LR9802) Not covered by warranty

IP54 (splash-proof construction)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity than predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

■ Basic specifications (Accuracy guaranteed for 1 year)

	LR5041	LR5042	LR5043
Measurement items	DC voltage 1ch	DC voltage 1ch	DC voltage 1ch
Measurement range	−50.00 to 50.00 mV	−5.000 to 5.000 V	−50.00 to 50.00 V
Accuracy	±0.5 %rdg ±5 dgt		
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data		
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections		
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval		
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)		
Other functions	Pre-heat function (requires external power supply during use of function), Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced		
Waterproof and dust-proof	IP54 (EN60529) (with connection cable connected, but not including cable tip)		
Interfaces	Infrared optical communications with LR5091, LR5092-20		
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 2 years (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 2 months (Instantaneous recording, with 1-second interval at 20 °C)		
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)		
Included accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Connection cable LR9802 ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1		

Model No. (Order Code)	
LR5041	(±50mV DC)
LR5042	(±5V DC)
LR5043	(±50V DC)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

Options

For data acquisition to PC

USB2.0 SD

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

USB2.0

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

For fixing

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Bundled accessory

CONNECTION CABLE LR9802
Tips 4 wires, 1 m (3.28 ft) length

For 4-20 mA Instrumentation Measurement

INSTRUMENTATION LOGGER LR5031

CE

3 year Warranty

*Bundled accessory (LR9801) Not covered by warranty

IP54 (splash-proof construction)

- 4 - 20 mA DC measurement only
- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity than predecessor (Record 60,000 data per channel)
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

■ Basic specifications (Accuracy guaranteed for 1 year)

Measurement items	DC current (1 ch), for Instrumentation
Measurement range	-30.00 to 30.00 mA
Accuracy	±0.5 %rdg ±5 dgt
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced
Waterproof and dust-proof	IP54 (EN60529) (with connection cable connected, but not including cable tip)
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 2 years (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 2 months (Instantaneous recording, with 1-second interval at 20 °C)
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)
Included accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Connection cable LR9801 ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1

Model No. (Order Code)	**LR5031**	(mA DC, 1ch)

Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data from the LR5000 series Logger and transfer data to a PC.

Options

For data acquisition to PC

USB2.0 SD

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

USB2.0

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

For fixing

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Bundled accessory

CONNECTION CABLE LR9801
Tips 2 wires, 1 m (3.28 ft) length

Measure Temperature with External Sensor

TEMPERATURE LOGGER LR5011

CE

3year Warranty

*Optional sensor (LR9604)
Not covered by warranty

IP54
(splash-proof construction)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
- 3 times the memory capacity than predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

Model No. (Order Code) LR5011   (Temperature 1ch)

*Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data
from the LR5000 series Logger and transfer data to a PC.*

■ Basic specifications (Accuracy guaranteed for 1 year)

Measurement items	Temperature 1ch (with optional sensor)
Measurement range	−40.0 °C to 180.0 °C *Depends on measurement range of sensor
Basic accuracy	±0.5 °C (main unit + sensor accuracy, at 0.0 to 35.0 °C) Note: Basic accuracy is typical value, refer to the detailed catalog
Storage capacity	Instantaneous value mode: 60,000 data, Statistical value mode: 15,000 data
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low; guarantees approx. 30 sec. of recording operation and clock while battery is replaced
Waterproof and dust-proof	IP54 (EN60529) (with sensor connected, but not including sensor tip)
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 2 years (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 2 months (Instantaneous recording, with 1-second interval at 20 °C)
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)
Included accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1

Options

For data acquisition to PC

USB2.0

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

USB2.0 SD

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

For fixing

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Optional sensors

(Molded plastic type)
Temperature range : -40 to 180 °C (-40 to 356 °F)
Response time : 100 sec (90% response time)
Sensor head size: φ6 × 28 mm (0.24 in × 1.10 in)
LR9601 1 m (3.28 ft) length
LR9602 5 m (16.41 ft)
LR9603 10 m (32.81 ft)
LR9604 45 mm (1.77 in)

(Lug type)
Temperature range : -30 to 180 °C (-22 to 356 °F)
Response time : 45 sec (90% response time)
Outer diameter: φ7 mm (0.26 in)
Inner diameter: φ3.2 mm (0.13 in)
LR9611 1 m (3.28 ft) length
LR9612 5 m (16.41 ft)
LR9613 10 m (32.81 ft)

(Sheathed type)
Temperature range : -40 to 120 °C (-40 to 248 °F)
Response time : 90 sec (90% response time)
Sensor head size: φ4 × 180 mm (0.16 in × 7.09 in)
LR9621 1 m (3.28 ft) length

(Needle type)
Temperature range : -40 to 120 °C (-40 to 248 °F)
Response time : 20 sec (90% response time)
Sensor head size: φ1.3 × 25 mm (0.05 in × 0.98 in)
LR9631 1 m (3.28 ft) length

Record Temperature and Humidity Simultaneously

HUMIDITY LOGGER LR5001

CE

3year Warranty

*Bundled sensor (LR9504)
Not covered by warranty

IP54
(splash-proof construction)

- Easily mount the light-weight , pocket-sized loggers in tight spaces
- Easy-to-see dual display
- Transfer data to PC even during recording
- Replace batteries while recording (30 second limit)
  Note: Recording is interrupted during battery replacement if the battery is very weak. After batteries are replaced, recording resumes automatically. Previously recorded data is not lost during battery replacement.
- 7 times the memory capacity than predecessor (Record 60,000 data per channel)
- Record without missing fluctuations in STAT mode
- Measurement data is preserved even after the battery dies
- Worry-free backup preserves recorded data even if a new measurement is started by mistake

Model No. (Order Code) LR5001   (Temperature / Humidity each 1ch)

*Note: Communication Adapter LR5091 or Data Collector LR5092-20 is necessary to collect data
from the LR5000 series Logger and transfer data to a PC.*

■ Basic specifications (Accuracy guaranteed for 1 year)

Measurement items	Temperature 1ch and Humidity 1ch (Requires included or optional humidity sensor)
Measurement range	Temperature: −40.0 to 85.0 °C, Humidity: 0 to 100 % rh *at sensor environment
Basic accuracy	[Temperature] : ±0.5 °C (main unit + sensor accuracy, at 0.0 to 35.0 °C) [Humidity] : ±5 % rh (main unit + temperature / humidity sensor LR9501/ LR9502/LR9503/LR9504 combination, at 20 to 30 °C / 10 to 50 % rh) *Note: Basic accuracy is typical value, refer to the detailed catalog*
Storage capacity	Instantaneous value mode: 60,000 data/ch, Statistical value mode: 15,000 data/ch
Recording interval	1 to 30 sec., 1 to 60 min., 15 selections
Recording modes	Instantaneous recording: at every recording interval Statistical value recording: Measure at one second intervals, and record the instantaneous, maximum, minimum, and average values within every recording interval
Recording methods	One-time recording: Stop recording when the memory capacity is full Endless recording: Continue recording even when the memory capacity is full (old data is overwritten) Start: Logger button operation or scheduled time Stop: Logger button operation or scheduled time, or auto-stop when the memory capacity is full (at one-time recording)
Other functions	Always backs up last recorded data; backs up recorded data and setting conditions when battery power is low *Note: After batteries are replaced within 30 seconds, recording resumes automatically (Recording is interrupted during battery replacement)*
Waterproof and dust-proof	IP54 (EN60529) (with sensor connected, but not including sensor tip)
Interfaces	Infrared optical communications with LR5091, LR5092-20
Power supply	LR6 (AA) Alkaline battery ×1, Battery life: Approx. 3 months (Instantaneous recording, with 1-minute interval and auto power saving, at 20 °C), Approx. 20 days (Instantaneous recording, with 1-second interval at 20 °C) (typical data: Approx. 1 yeare recording with 10-minutes interval)
Dimensions and mass	79 mm (3.11 in)W × 57 mm (2.246 in)H × 28 mm (1.10 in)D, 105 g (3.7 oz)
Included accessories	LR6 (AA) Alkaline battery (built-in internal) ×1, Humidity sensor LR9504 ×1, Instruction manual ×1, Operation guide ×1, Kickstand ×1

Options

For data acquisition to PC

USB2.0

COMMUNICATION ADAPTER LR5091
Dock logger and transfer data via optical communication

USB2.0 SD

DATA COLLECTOR LR5092-20
Dock logger or transfer data to internal memory/ SD memory card

For fixing

MAGNETIC STRAP Z5004

WALL-MOUNTED HOLDER LR9901
Not compatible with Model LR5051

Optional sensors

Temperature range: -40 to 85 °C
Humidity range: 0 to 100 % rh
Response time: 300 seconds (90 % response time)
Waterproof: None
Sensor size: 13×30 mm (0.51×1.18 in)

LR9504 is bundled accessory

LR9501 1 m (3.28 ft) length
LR9502 5 m (16.41 ft)
LR9503 10 m (32.81 ft)

LR9504 40 mm (1.57 in) length