



Capture high- to low-voltage signals in a single device
Rugged, Professional and Ready for the Field

■ **CAT III 600 V insulation performance**

- Maximum 600V AC/DC input - no need for a differential probe
- 4 completely isolated channels let you simultaneously record data on a 3-phase power line plus have one extra channel

■ **Tough against harsh environments**

- Operating temperature range: **-10°C to 50°C**
- Built to withstand mechanical shocks and vibrations (ships standard with side protectors)

■ **Make settings easily with PRESETS**

Simply select what you'd like to measure and follow the on-screen instructions to select the appropriate settings. The recorder can be easily configured to measure voltage drops and power outages.



Safe & Reliable Measurement

The MR8880 offers safe, reliable operation featuring CAT III 600 V isolated inputs in a compact yet durable design that excels at taking measurements in harsh environments.

Direct input and measurement of 3-phase power lines

CAT III 600 V isolated inputs (4 channels)

- 4 analog + 8 logic channels
- Directly input 600 V AC/DC (CAT III) and 300 V AC/DC (CAT IV) input. Measure up to 2000 V DC / 1000 V AC (CAT II) with the DIFFERENTIAL PROBE 9322 (separate power supply required.)

Don't let extreme temperatures keep you from taking measurements!

Built to withstand harsh environments

- Extensive operating temperature range [-10°C(14°F) to 50°C(122°F)]
Even when operating on battery power, the MR8880 can take measurements from 0°C(32°F) to 40°C(104°F).
- Rugged, damage-resistant design features standard side protectors that guard the instrument's case.



Shown with optional printer unit.

Tough & Professional

MR8880

Settings are as Easy as 1-2-3 with PRESETS

To configure the MR8880, you need only select what you'd like to measure—"Measure a commercial power supply," "Monitor a power source for a voltage drop," etc.—and follow the on-screen instructions to select the appropriate settings.

Example: Configuring the MR8880 to monitor a power source for a voltage drop:

Press the "PRESETS" key.

Select what you'd like to measure with the cursor keys.

Select "Measurement Guide"

- Basic Guide
- Measurement Guide**
- Load Set.

Select "Voltage drop of power outage, etc."

- Measure Power Supply on INSTNT
- Measure Power Supply on RMS
- Voltage drop of power outage, etc.**
- Save data to media

"Voltage drop of power outage, etc." settings screen

1. Channel Settings

| Channel | Use | Start when | 100Vrms (141.4Vpeak) | 50Hz drops to | 90Vrms (127.2Vp) |
|---------|-----|------------|----------------------|---------------|------------------|
| CH1 | Use | Start when | 100Vrms (141.4Vpeak) | 50Hz drops to | 90Vrms (127.2Vp) |
| CH2 | Use | Start when | 100Vrms (141.4Vpeak) | 50Hz drops to | 90Vrms (127.2Vp) |
| CH3 | Use | Start when | 100Vrms (141.4Vpeak) | 50Hz drops to | 90Vrms (127.2Vp) |
| CH4 | Use | Start when | 100Vrms (141.4Vpeak) | 50Hz drops to | 90Vrms (127.2Vp) |

2. Recording Length Settings
Measure for **25ms** after voltage drops

3. Pre-trigger Settings
Do not record waveform before voltage drop

4. Repeat & Save Settings
Measure **only once** in accordance with the set values.
Save measured data **Do not save**

Start measurement

1. Select the channel you wish to use. **Use · Not Use**

Select the power line voltage. **100V · 200V**

Select the frequency. **50Hz · 60Hz**

Select the threshold. **90/85/80/75/70/65/60 V**

2. Select the recording length. **25ms/50ms/100ms/200ms**

3. Save pre-triggered waveforms. **Record · Do not record**

4. Select whether to repeat measurement. **Only once · Repeatedly**

Select the desired save settings.

- Do not save
- Save to CF card in Binary Format
- Save to CF card in Text Format
- Save to USB memory in Binary Format
- Save to USB memory in Text Format

Start measurement

Press the START key

START

Press START to begin measuring.

Other Convenient Functions

PRESETS ▶ **Basic Guide**

Press the "PRESETS" key and select "Basic Guide"

Select the high-speed or real-time function.
(The auto-range settings can be enabled when using the high-speed function.)

Make the necessary settings in accordance with information provided by the guide.
(Settings can be configured while checking the measurement waveform.)

Start measurement

PRESETS ▶ **Loading settings**

Press the "PRESETS" key and select "Loading settings"

Select the source from which to load settings.
(Memory / CF card / USB memory)

Select the settings file to load from a list of settings stored on the selected source and press the "Load" key.

Start measurement

Applications

The MR8880 provides a turnkey solution for both high-speed measurement at 1 MS/s and long-term measurement. Its ability to measure everything from high- to low-voltage signals allows it to play an important role in a variety of measurement scenarios.

1

Measure the instantaneous waveform at startup or a suddenly generated abnormal waveform.

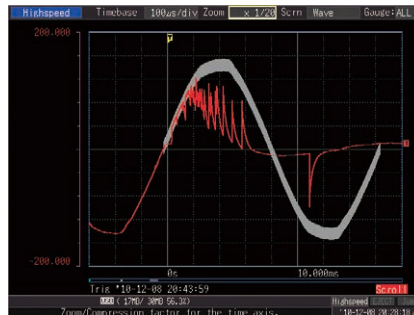
High-speed measurement using the high-speed function

- Fastest sampling period of 1 μ s (measuring all channels simultaneously)
- Measurement data is recorded in the instrument's internal memory (1 MW).

Recording Time (Internal memory)

| All channels (4 analog + 8 logic channels) | | | |
|--|----------------|--------------------|---------------------|
| Time Axis Range | Sampling Speed | Recording Interval | Max. Recording Time |
| 100 μ s/DIV | 1 MS/s | 1 μ s | 1 s |
| 200 μ s/DIV | 500 kS/s | 2 μ s | 2 s |
| 500 μ s/DIV | 200 kS/s | 5 μ s | 5 s |
| 1ms/DIV | 100 kS/s | 10 μ s | 10 s |
| 2ms/DIV | 50 kS/s | 20 μ s | 20 s |
| 5ms/DIV | 20 kS/s | 50 μ s | 50 s |
| 10ms/DIV | 10 kS/s | 100 μ s | 1m 40 s |
| 20ms/DIV | 5 kS/s | 200 μ s | 3m 20 s |
| 50ms/DIV | 2 kS/s | 500 μ s | 8m 20 s |
| 100ms/DIV | 1 kS/s | 1 ms | 16m 40 s |

The maximum recording length is fixed regardless of the number of channels in use.



Example record of an abnormal waveform

A waveform recorded using a waveform judgment trigger. The judgment area can be displayed simultaneously.

2

Measure RMS value fluctuations for a power line over an extended period of time

Long-term measurement and recording using the real-time function

Recording Capacity

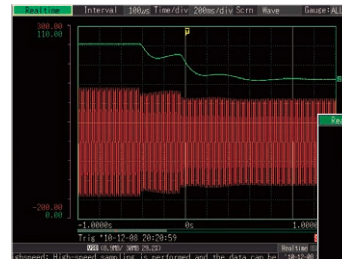
Note: Use only Hioki CF cards that are guaranteed to operate with the HiCorder for continuous long-term recording.

| Recording Interval | All channels (4 analog + 8 logic channels), recording waveform (binary) data only | | | |
|--------------------|---|------------------|------------------|------------------|
| | Internal memory (8MB) | 512MB (9728) | 1GB (9729) | 2GB (9830) |
| 100 μ s | 1m 40s | 1h 25m 20s | 2h 46m 40s | 5h 33m 20s |
| 200 μ s | 3m 20s | 2h 50m 40s | 5h 33m 20s | 11h 6m 40s |
| 500 μ s | 8m 20s | 7h 6m 39s | 13h 53m 19s | 1d 3h 46m 39s |
| 1ms | 16m 40s | 14h 13m 19s | 1d 3h 46m 39s | 2d 7h 33m 19s |
| 2ms | 33m 20s | 1d 4h 26m 38s | 2d 7h 33m 18s | 4d 15h 6m 38s |
| 5ms | 1h 23m 20s | 2d 23h 6m 34s | 5d 18h 53m 14s | 11d 13h 46m 34s |
| 10ms | 2h 46m 40s | 5d 22h 13m 8s | 11d 13h 46m 28s | 23d 3h 33m 8s |
| 20ms | 5h 33m 20s | 11d 20h 26m 15s | 23d 3h 32m 55s | 46d 7h 6m 15s |
| 50ms | 13h 53m 20s | 29d 15h 5m 39s | 57d 20h 52m 19s | 115d 17h 45m 39s |
| 100ms | 1d 3h 46m 40s | 59d 6h 11m 17s | 115d 17h 44m 37s | 231d 11h 31m 17s |
| 200ms | 2d 7h 33m 20s | 118d 12h 22m 34s | 231d 11h 29m 14s | -*- |
| 500ms | 5d 18h 53m 20s | 296d 6h 56m 26s | -*- | ∴ |
| 1s | 11d 13h 46m 40s | -*- | ∴ | ∴ |
| 2s | 23d 3h 33m 20s | ∴ | ∴ | ∴ |
| ∴ | ∴ | ∴ | ∴ | ∴ |
| 1 min | 694d 10h 40m | -*- | -*- | -*- |

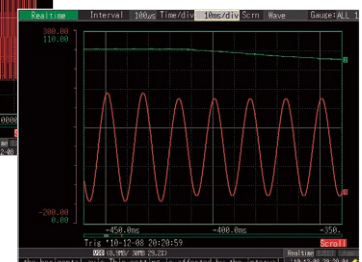
- Maximum recording time is inversely proportional to number of recording analog channels.
- Because the actual capacity of a CF card is less than that indicated, expect actual maximum times to be about 90% of those in the table.
- "*" exceeds 1 year.
- Proper operation is not guaranteed for extended recording periods (one year or longer). This type of operation impacts the product's warranty period and service life.

- Recording interval of 100 μ s to 1 min

- Waveform data is saved directly in a binary format to a CF card or USB memory.



Record RMS values and instantaneous waveforms simultaneously.



3

Measure the phase voltages for all three phases of a three-phase motor simultaneously.

Four channels of isolated CAT III 600 V input

The MR8880 can measure the voltages at different contacts without the need for a differential probe.



4

Check for fluctuations in low-voltage signals such as instrumentation or sensor output.

Thanks to its 14-bit, high-resolution A/D converter and the combination of a high-sensitivity 10 mV/div range and a 5 Hz filter (for noise rejection), the MR8880 can deliver stable measurement of sensor output.

5

Investigate why your office's power supply occasionally exhibits instability.

The MR8880 is capable of mixed recording of RMS values, DC voltage, and logic signals, allowing it to simultaneously record data describing the interrelationships between equipment power supplies and UPS output and control signals.

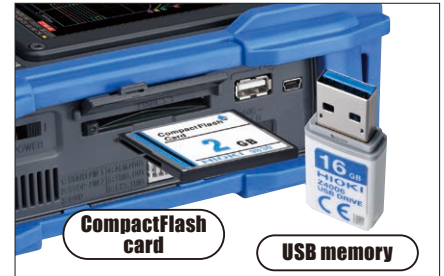
Functionality and Performance

The MR8880 delivers convenient functionality designed to maximize ease of use along with exceptional performance. See how this instrument can transform your concern and discontent to peace of mind and satisfaction.

1 Take home data for later viewing on a computer

Data can be saved directly to external media.

- In addition to CF cards, the MR8880 can store data on handy USB memory sticks.
- Data can be saved in real time to external media (at up to 10 kS/s).
- External media can be switched while measurement continues.
If the recording interval is set to 100 μ s, media must be swapped out within 20 seconds.
- External media is protected in the event of an unexpected power outage during measurement.
By backing up the internal power supply until processing to save data to the external media completes, the instrument enables highly reliable data collection.



Use only HIOKI CF cards, which are manufactured to strict industrial standards, for long-term storage of important data.
Note: Operation of non-HIOKI CF cards is not guaranteed

2 Can the MR8880 withstand the vibrations in a moving vehicle?

The instrument complies with JIS automotive vibration standards.

Thanks to its ability to withstand a high level of vibration, the MR8880 can be used to collect data in moving vehicles. Included side protectors further increase the device's durability.



3 Will the screen be hard to read while taking measurements outdoors?

The MR8880 features a 5.7-inch TFT color LCD that offers excellent visibility, even while taking measurements in an outdoor setting. The display is even engineered for easy viewing in the presence of reflections.



4 What if there's no power available in the vehicle being tested?

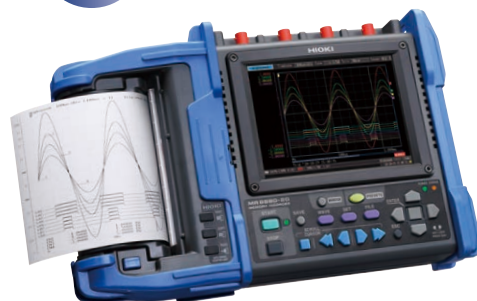
A high-capacity battery is available. The MR8880 can be used continuously for 4 hours on battery power.



5 Is the printer easy to use?

Loading recording paper is a snap thanks to the MR8880's one-touch loading mechanism.

Quickly print data on-site.
(Real-time print function: 1s/div ~)

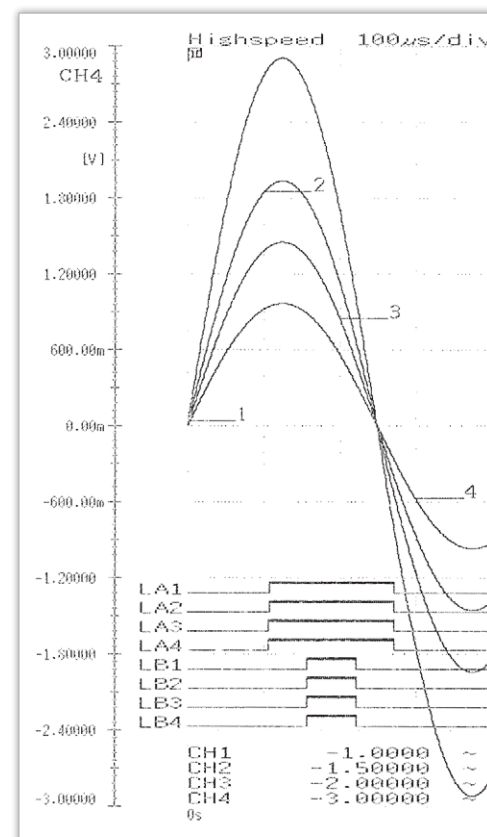


Shown with optional printer unit.

Simply load the recording paper roll and close the cover.



Example printout (actual size)



Specifications (Accuracy guaranteed for 1 year)

| Basic specifications | |
|--|--|
| Measurement functions | High-speed function (high speed recording) Real-time function (actual time recording) |
| Number of channels | 4 analog + 8 logic Isolated analog channels, isolated input and outputs, logic has common GND. |
| Maximum sampling rate | 1M samples/s (1 μ s cycle, all channels simultaneously) |
| Memory capacity | 14bit \times 1 M words/ch (1 word = 2 bytes, not expandible) |
| External memory | CF card slot \times 1 (Up to 2 GB, supports FAT16 and FAT32 formats) USB memory \times 1 (USB 2.0 -A receptacle) |
| Time accuracy (at 23°C) | Sampling time accuracy: \pm 0.0005 %, Clock precision: \pm 3s/day |
| Backup function (reference value at 23°C) | Clock and settings: 10 years or more (at 25°C / 77°F) Waveform backup function: Approx. 40 minutes • When instrument is powered off at least 3 minutes after being turned on |
| External control | External trigger input, Trigger output, external start input, external stop input, status output, ground pin |
| Interface | USB: 1 port USB 2.0 High Speed mini-B receptacle Functions: Configure settings/performance measurement using communications commands: transfer file stored in CF/USB memory to computer (USB drive mode) |
| Environmental conditions for use (no condensation) | Temperature range: -10°C (14°F) to 50°C (122°F) Humidity range: -10°C (14°F) to 40°C (104°F), 80% rh or less 40°C (104°F) to 45°C (113°F), 60% rh or less 45°C (113°F) to 50°C (122°F), 50% rh or less When powered by BATTERY PACK Z1000: 0°C (32°F) to 40°C (104°F), 80% rh or less When recharging the Z1000: 10°C (50°F) to 40°C (104°F), 80% rh or less |
| Environmental conditions for storage (no condensation) | Temperature range: -20°C (-4°F) to 60°C (140°F) Humidity range: 80% rh or less (-20°C (-4°F) to 40°C (104°F)), 60% rh or less (40°C (104°F) to 45°C (113°F)), 50% rh or less (45°C (113°F) to 60°C (140°F)) BATTERY PACK Z1000: -20°C (-4°F) to 40°C (104°F), 80% rh or less |
| Compliance standard | Safety: EN61010 EMC: EN61326, EN61000-3-2, EN61000-3-3 Vibration resistance: JIS D 1601, Type 1: passenger vehicle, Conditions: equivalent to Type A |
| Power requirements | 1) AC ADAPTER Z1002: 100 to 240V AC (50/60 Hz) 2) BATTERY PACK Z1000: 7.2V DC Note: LR6/AA alkaline batteries are not sufficient to power the unit when it is connected with the Printer Unit MR9000. Use of other power supplies is required. (Continuous operating time is given as a reference value at 23°C.) |
| Charging functions (reference value at 23°C) | Charging time is about 3 hours (can be charged by connecting the AC adapter while the Z1000 battery pack is attached) |
| Max. rated power | 1) When instrument is powered with the Z1002 AC adapter or an external DC power supply: 11 VA ^{*1} , 10 VA ^{*2} , 40 VA ^{*3} 2) When instrument is powered with the Z1000 battery pack; 9 VA ^{*1} , 8 VA ^{*2} , 22 VA ^{*3} ^{*1} Real-time data storage, backlight on ^{*2} Real-time data storage, backlight off ^{*3} Real-time data storage, backlight on, with printer used |
| Dimensions, mass (including battery pack) | 205 mm (8.07 in)W \times 199 mm (7.83 in)H \times 67 mm (2.64 in)D, 1.66 kg (58.6 oz) (printer detached) 303 mm (11.93 in)W \times 199 mm (7.83 in)H \times 67 mm (2.64 in)D, 2.16 kg (76.2 oz) (printer attached) |
| Accessories | Instruction manual \times 1, AC adapter Z1002 \times 1, Alkaline battery box \times 1, Strap \times 1, USB cable \times 1, Application disk (Wave viewer Wv, Communication commands table) \times 1 |
| Function | |
| Presets | Select from basic measurement guide, example measurement guide, and commands for loading internally stored settings. |
| Scaling function | Select decimal or scientific notation for each channel. 1) Scaling ratio: Select scaling ratio, offset value, and units. 2) Two-point configuration: Set input values, post-scaling values, and units. 3) HIOKI sensor: Set HIOKI clamp-on probe and range value. 4) Output rate setting: Select scaled value per 1 V from a list. |
| Data protection | Open files are closed before the instrument turns itself off when a power outage occurs while saving data to recording media. When powering the instrument with a battery, open files are closed and access to the media is stopped when remaining battery power falls below a certain level. *Valid when at least 3 minutes has elapsed since the instrument was turned on. |
| Reservation function | Up to 10 measurement start and measurement stop conditions can be set. |
| Other | Settings can be automatically loaded from internal memory or media when the instrument is turned on. Up to 10 settings can be saved in the instrument's internal memory. |
| Printer (Printer Unit MR9000 docks onto the main device) | |
| Features | Printer paper one-touch loading, high-speed thermal printing |
| Printer paper | 112 mm (4.4 in) \times 18 m (59.06 ft), thermal paper roll (using 9234) Recording width: 100 mm, 10 div f.s., 1 div=10 mm (80 dot/div) |
| Recording speed | Max. 10 mm/s (0.39 inch/s) (Printing is not supported when using alkaline batteries.) |

| High-speed function (high speed recording) | |
|--|---|
| Time axis | 100 μ s to 100ms/div, 10 range, resolution: 100 points/div |
| Sampling period | 1/100 of time axis ranges (minimum sampling period 1 μ s, all channels simultaneously) |
| Recording length | 5 to 10000 divisions fixed (5division steps) |
| Automatic save function | Binary data, text data, calculation results, binary + calculation results, text + calculation results, or NONE |
| Other save functions | Save and delete function: ON/OFF |
| Screen settings | Split screen (1, 2, or 4 segments), X-Y waveform compositing (1 screen) |
| Pre-trigger | Can record data from before the trigger point, 0 to 100 % of recording length; 13 settings, or user-configured |
| Waveform scrolling | Backwards scrolling through past waveform data both during and after measurement |
| Calculation functions | Up to four arithmetic operations simultaneously Average value, effective (RMS) value, peak to peak value, maximum value, time to maximum value, minimum value, time to minimum value, period, and frequency, area, X-Y area. |

| Real-time function (actual time recording) | |
|--|---|
| Recording interval | 100 μ s to 500 μ s, 1ms to 500ms, 1s to 1min, 19 settings Display time axis: 10ms to 1day/div, 22 ranges |
| Real-time printing (with optional MR9000) | ON/OFF *Simultaneous printing: Supported when using a time axis slower than 1 s/div. |
| Recording time | Continuous save to CF card or USB memory can be set ON/OFF |
| Envelope mode | ON/OFF |
| Waveform recording | The last 1 M words (before measurement was stopped) are saved in the instrument's internal memory (when envelope mode is on, 500 kwords). |
| Real-time save function | Binary data, text data, calculation results, binary + calculation results, text + calculation results, or NONE |
| Other save functions | Split save: ON/OFF/fixed time Save and delete: ON/OFF Eject media: Media can be ejected while saving data in real time. |
| Event marks | 1) Event marks can be input during measurement (up to 100 marks). 2) Can move to waveform before or after an event mark based on specified event number input. |

| Trigger function | |
|--------------------------|--|
| Repeat recording | Single/Repeat |
| Trigger timing | High-speed function: Start Real-time function: Start, Stop, Start & Stop |
| Trigger conditions | AND/OR supported for all trigger sources Trigger sources can be selected for each channel. Instrument enters free-run mode when all trigger sources are off. |
| Trigger source | 1) Analog input CH1 - CH4 2) Logic input LA1 - LA4, LB1 - LB4 (4ch \times 2 probes) 3) External trigger 4) Interval trigger: Fixed-time recording for specified measurement interval (month/day/hours/minutes/seconds) |
| Trigger types | 1) Level 2) In 3) Out 4) Voltage drop (High-speed function) : For AC 50/60 Hz power lines 5) Waveform judgment (High-speed function): For AC 50/60 Hz power lines 6) Logic 7) External: Rising edge/falling edge |
| Level setting resolution | 0.1 % f.s. (f.s.=10 div) |
| Trigger filter | High-speed function: 7 settings from 10 to 1000 samples or OFF Real-time function: ON/OFF |
| Trigger output | Open collector (5 V output, active Low) |

| Analog input (Accuracy defined at 23 \pm 5°C, 80% rh or less, for measurements taken following zero adjustment 30 minutes after instrument is turned on) | |
|--|--|
| Measurement functions | 4-channel voltage measurement; switchable between instantaneous value (waveform) and RMS value |
| Input connectors | Isolated BNC connector (input impedance 1 M Ω , input capacitance 7 pF) |
| Max. rated voltage to earth | 600 V AC, DC CAT III / 300 V AC, DC CAT IV (with input isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage) |
| Measurement range | 10 mV to 100 V/div, 13 ranges, full scale: 10 div, AC voltage that can be measured and displayed using high-speed function: 600 Vrms Low-pass filter: 5 Hz/50 Hz/500 Hz/5 kHz/50 kHz |
| Measurement resolution | 1/640 of measurement range (using 14-bit A/D conversion, at \times 1) |
| Highest sampling rate | 1 MS/s (simultaneous sampling in 4 channels) |
| Instantaneous value measurement accuracy | \pm 0.5% f.s. (after zero-adjust) |
| RMS measurement | RMS accuracy: \pm 1.5% f.s. (30Hz to 1kHz) \pm 3% f.s. (1kHz to 10kHz) Response time: 300ms (rising edge 0 to 90% of full scale with filter off) Crest factor: 2 |
| Frequency characteristics | DC to 100 kHz \pm 3dB |
| Input coupling | DC/GND |
| Max. rated voltage between terminals | 600 V AC, DC (maximum voltage which when applied to between input terminals does not damage them) |

| Screen display | |
|-----------------------------|---|
| Display | 5.7-inch VGA-TFT color LCD (640 × 480dot) |
| Waveform display scale | Time axis: × 10 to × 2 (zoom view supported for high-speed recording only), × 1, × 1/2 to × 1/2,000 Voltage axis: × 20 to × 2, × 1, × 1/2 to × 1/10 |
| Comment input | Titles and comments input for individual channels |
| Logic waveform display | Select 2 recording widths; display positions can be set separately |
| Display items | Waveform display; simultaneous display of waveform and gage; simultaneous display of waveform, gage, and settings; simultaneous display of waveform and calculation results; simultaneous display of waveform and cursor values (A/B cursor values) The following display items are supported when using real-time functionality: |
| Monitor function | Value (instantaneous value or RMS value) and measured waveform (monitor screen display with refresh rate of 0.5 sec) Display digits: 5 |
| Instantaneous value display | Time: Display of time elapsed since start of measurement or trigger point Date: Display of date and time at which data was captured Number of data points: Display of number of data points captured since start of measurement |
| Other display functions | <ul style="list-style-type: none"> • Cursor measurement (two cursors [A/B], support for all channels) • Upper and lower limits can be set (to align waveform amplitude with upper and lower limits). • The zero position of the analog waveform can be moved in 1% steps. • The waveform display can be set to any of 24 colors. • Zero adjustment can be performed for all channels and ranges at once. |

PC Software Specifications Bundled with the MR8880 in the CD-R

| Wave Viewer (Wv) Software | |
|---------------------------|---|
| Functions | <ul style="list-style-type: none"> • Simple display of waveform file • Text conversion: convert binary data file to text format, with selectable space or tab separators in addition to CSV, and specifiable section, thinning available • Display format settings: scroll functions, enlarge/reduce display, display channel settings • Others: voltage value trace function, jump to cursor/trigger position function |
| Operating environment | Windows 10/8/7 (32/64-bit) |

Specifications of Options (sold separately)

Cable length and mass: Main unit cable 1.5 m (4.92 ft), input section cable 30 cm (0.98 ft), approx. 150 g (5.3 oz)
Note: The unit-side plug of the 9320-01 is different from the 9320.



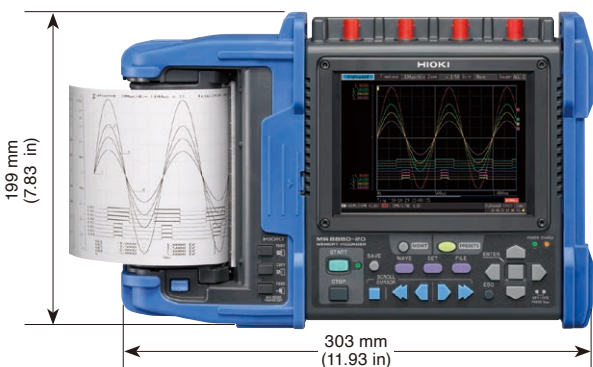
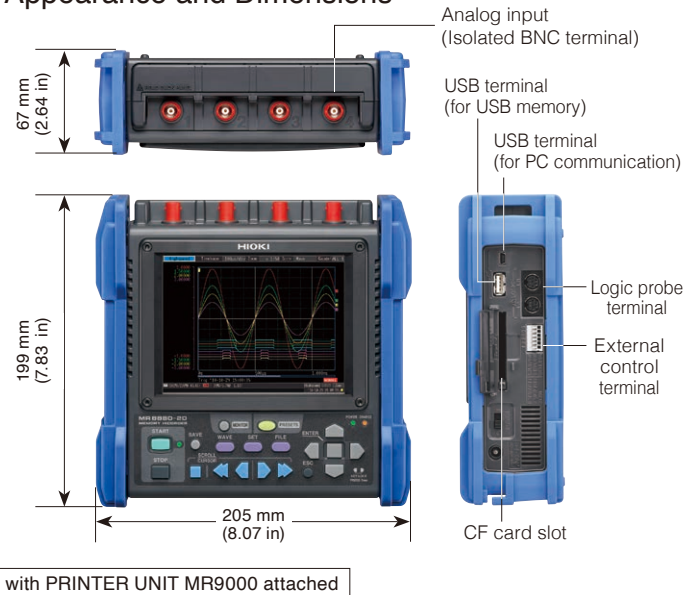
| LOGIC PROBE 9320-01 | |
|------------------------------------|--|
| Function | Detection of voltage signal or relay contact signal for High/Low state recording |
| Input | 4 channels (common ground between unit and channels), digital/contact input, switchable (contact input can detect open-collector signals) Input 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) |
| Detectable pulse width | 500 ns or longer |
| Max. allowable input | 0 to +50V DC (the maximum voltage that can be applied across input pins without damage) |

Cable length and mass: 70 cm (2.30 ft), Output side: 1.5 m (4.92 ft), 170g (6.0 oz)



| DIFFERENTIAL PROBE P9000 (Accuracy guaranteed for 1 year) | |
|---|--|
| Measurement modes | P9000-01: For waveform monitor output, Frequency properties: DC to 100 kHz -3 dB P9000-02: Switches between waveform monitor output/AC effective value output Wave mode frequency properties: DC to 100 kHz -3 dB, RMS mode frequency properties: 30 Hz to 10 kHz, Response time: Rise 300 ms, Fall 600 ms |
| Division ratio | Switches between 1000:1, 100:1 |
| DC output accuracy | ±0.5 % f.s. (f.s. = 1.0 V, division ratio 1000:1), (f.s. = 3.5 V, division ratio 100:1) |
| Effective value measurement accuracy | ±1 % f.s. (30 Hz to less than 1 kHz, sine wave), ±3 % f.s. (1 kHz to 10 kHz, sine wave) |
| Input resistance/capacity | H-L: 10.5 MΩ, 5 pF or less (at 100 kHz) |
| Maximum input voltage | 1000 V AC, DC |
| Maximum rated voltage to ground | 1000 V AC, DC (CAT III) |
| Operating temperature range | -40°C to 80°C (-40°F to 176°F) |
| Power supply | (1) AC adapter Z1008 (100 to 240 V AC, 50/60 Hz), 6 VA (including AC adapter), 0.9 VA (main unit only) (2) USB bus power (5 V DC, USB-microB terminal), 0.8 VA (3) External power source 2.7 V to 15 V DC, 1 VA |
| Accessories | Instruction manual ×1, Alligator clip ×2, Carrying case ×1 |

Appearance and Dimensions

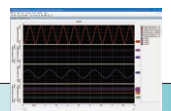


Cable length and mass: Main unit cable 1.5 m (4.92 ft), input section cable 1 m (3.28 ft), approx. 320 g (11.3 oz)
Note: The unit-side plug of the MR9321-01 is different from the MR9321.



| LOGIC PROBE MR9321-01 | |
|-----------------------|---|
| Function | Detection of AC or DC relay drive signal for High/Low state recording Can also be used for power line interruption detection |
| Input | 4 channels (isolated between unit and channels), HIGH/LOW range switching Input 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) |

| WAVE PROCESSOR 9335 | |
|-----------------------|--|
| Distribution media | One CD-R |
| Operating environment | Computer running under Windows 10/8/7 (32/64-bit) |
| Display functions | Waveform display, X-Y display, Digital value display, Cursor function, Scroll function, Maximum number of channels (32 channels analog, 32 channels logic), Gauge display (time, voltage axes), Graphical display |
| File loading | Readable data formats (MEM, REC, RMS, POW), Maximum loadable file size: Maximum file size that can be saved by a given device (file size may be limited depending on the computer configuration) |
| Data conversion | Conversion to CSV format , Tab delimited, Space delimited, Data culling (simple), Convert for specified channel, Batch conversion of multiple files |
| Print functions | Printing image file output (expanded META type, "EMF"), Supported printer: usable on any printer supported by operating system Print formatting: (1 up, 2-to-16 up, 2-to-16 rows, X-Y 1-to-4 up, preview, hard copy) |
| Other | Parameter calculation, Search, Clipboard copy, Launching of other applications |



MR8880 Options in Detail

***Voltage is limited to the specifications of the input section**

Input cable (A)

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.

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.

***Voltage is limited to the specifications of the input section**

Input cable (B)

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

GRABBER CLIP L9243
Attaches to the tip of the banana plug cable, CAT II 1000 V, 185mm (7.28 in) length

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

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

Input cable (D)

DIFFERENTIAL PROBE P9000-01
Waveform only, up to 1 kV AC/DC, band width up to 100kHz

DIFFERENTIAL PROBE P9000-02
Waveform/RMS value switchable, up to 1 kV AC/DC, band width up to 100kHz

AC ADAPTER Z1008
100 to 240 V AC

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

Input cable (E)

DIFFERENTIAL PROBE 9322
For up to 1 kV AC or 2 kV DC, frequency band width up to 10MHz

AC ADAPTER 9418-15
100 to 240 V AC.

*** Only the small terminal types can be used.**

Logic signal measurement

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

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



Model : MEMORY HiCORDER MR8880
Model No. (Order Code) (Note)

MR8880-20 (4ch, printer unit option)
*Test leads are not included. Purchase the leads appropriate for your application separately

Printer options

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

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

MR8880 + MR9000

Storage media

Use only PC Cards or USB drive sold by HIOKI. Compatibility and performance are not guaranteed for PC cards/USB memory stick made by other manufacturers. You may be unable to read from or save data to such cards.

PC CARD 2G 9830
2 GB capacity

PC CARD 1G 9729
1 GB capacity

PC CARD 512M 9728
512 MB capacity

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

***Z1002 is a bundled accessory**

Power supply

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

Power Cable L1012
With one end terminating in bare wires, approx. 2 m (6.6 ft). Powers the logger using an external power supply (DC power)

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

Other options

CARRYING CASE C1003
Includes compartment for options, soft case type

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

PC software

WAVE PROCESSOR 9335
Convert data, print and display waveforms

*A separate power supply (CT955x) is required in order to use a high-precision current sensor.
*Only sensors with ME15W (12-pin) terminals (-05 type) can be connected to the CT955x.
*The separately available Conversion Cable CT9900 is required in order to use a sensor with PL23 (10-pin) terminal.

POWER SUPPLY for Current Sensors

SENSOR UNIT CT9555 1ch, with Waveform output

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

PL23 (10-pin) - ME15W (12-pin) conversion

CONVERSION CABLE CT9900
Convert PL23 (10-pin) terminal to ME15W (12-pin) terminal

Up to 1000 A (High precision) *ME15W (12-pin) terminal type

High-precision pull-through current sensors, observe waveforms from DC to distorted AC

AC/DC CURRENT SENSOR CT6875A, 2 MHz, 500 A

AC/DC CURRENT SENSOR CT6876A, 1.5 MHz, 1000 A

Observe waveforms from DC to distorted AC

AC/DC CURRENT PROBE CT6844A, 500 kHz, 500 A

AC/DC CURRENT PROBE CT6845A, 200 kHz, 500 A

AC/DC CURRENT PROBE CT6846A, 100 kHz, 1000 A

Precautions when connecting a high-precision current sensor to a Memory HiCORDER

Connecting to the MR8880/MR8875/MR8870

- High-precision current sensor (ME15W) + CT9555 + BNC cable \rightarrow MR8880
- High-precision current sensor (PL23) + CT9900 + CT9555 + BNC cable \rightarrow MR8880

Other current sensor types

The MR8880 can be used with various types of current sensors and probes. For details, see product information on Hioki's website.

The CM7290 (available separately) is required in order to use these current sensors.

100 A to 2000 A (Medium speed)

AC/DC CURRENT SENSOR CT7631, (Auto zero CT7731)
DC, 1 Hz to 10 kHz (-3dB), 100 A, 1 mV/A output

AC/DC CURRENT SENSOR CT7636, (Auto zero CT7736)
DC, 1 Hz to 10 kHz (-3dB), 600 A, 1 mV/A output

AC/DC CURRENT SENSOR CT7642, (Auto zero CT7742)
DC, 1 Hz to 10 kHz (5 kHz), 2000 A, 1 mV/A output

DISPLAY UNIT CM7290
Provides measurement, display, and output functionality when used with the CT7000s.

OUTPUT CORD L9095
Connect to BNC terminal, 1.5 m (4.92 ft) length

500 A to 5000 A *For commercial power lines, 50/60 Hz

CLAMP ON PROBE 9018-50
Good phase characteristics, Frequency characteristics: 40 Hz to 3 kHz, 10 to 500 A AC range, output 0.2 V AC f.s.

CLAMP ON PROBE 9132-50
Frequency characteristics: 40 Hz to 1 kHz, 20 to 1000 A AC range, output 0.2 V AC f.s.

AC FLEXIBLE CURRENT SENSOR CT9667-01/-02/-03
10 Hz to 20 kHz, 5000 A / 500 A AC, 500 mV/f.s. output, ϕ 100 to 254 mm (3.94 to 10.00 in), 3 loop diameters

Leak Current * For commercial power lines, 50/60 Hz

AC LEAKAGE CLAMP METER CM4003
6 mA range (1 μ A resolution) to 200 A range, with WAVE/RMS output, CONNECTION CABLE L9097 (output terminal: BNC, power terminal: USB-C, 1.5 m (4.92 ft) length) is included

AC ADAPTER Z1013
100 V to 240 V AC

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