



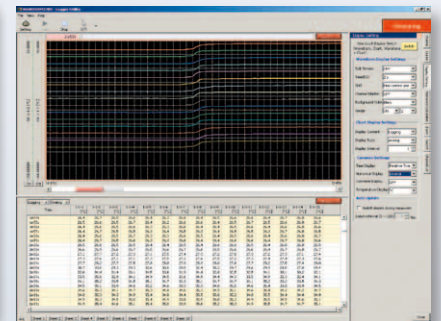
Featuring USB flash drive support and improved accuracy Your Personal 10-channel Logger



Real-time recording of up to 10ms/
sample data to USB or CF memory
devices



Small and light enough for the palm
of your hand - yet completely isolated



Logger Utility program supports
multi-channel measurements via PC

Lightest weight in its class and Easy Operation

Featuring USB flash drive support, faster performance, and more accurate thermocouple measurement



Redesigned to be even more capable, Hioki's 10-channel logger still fits in the palm of your hand.

- ■ **Ultra-compact for convenient portability**
 - Dimensions and mass (HiLOGGER only) :
Approx. 176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 550 g (19.4 oz)
- ■ **Provides ten electrically isolated analog input channels for measuring voltage and temperature, plus four pulse-counting input channels.**
 - The isolated inputs alleviate constraints while minimizing interchannel interference.
- ■ **10 ms scanning of all channels provides rapid sampling capabilities**
 - Track waveforms to meet demands for measuring sudden changes in loads
- ■ **Widescreen, bright LCD gives excellent viewability**
 - The beautiful, wide QVGA-TFT display is ideal for waveform monitoring.

Featuring USB flash drive support



The LR8431-20 can record measurement data on a USB flash drive for easy transfer to a computer. In long-term measurement applications, it can also record to reliable Compact Flash cards for increased peace of mind.

1

Replace storage media during real-time recording

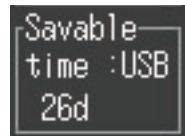
Switch out fully loaded storage media with new ones while recording without stopping the measurement so that you can analyze any data recorded so far.

Note: During high-speed recording, be sure to insert the new storage media within 2 minutes of removing the former.

2

Display remaining recording time

The LR8431-20 lets you check the remaining recording time based on the available capacity on your CF card or USB flash drive.



Setting screen

3

Load data from previous MEMORY HILOGGER 8430-20 models

The LR8431-20 can load waveform and settings data from previous MEMORY HILOGGER 8430-20 models, allowing it to make measurements using the same settings and display past data.

4

Copy data between storage media

The LR8431-20 can copy recorded data between the CF card and USB flash drive.

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

The LR8431-20 delivers improved thermocouple measurement accuracy and reference junction compensation accuracy.

Example: When measuring 50°C water with a type-K thermocouple

The LR8431-20 provides improved accuracy of $\pm 1.5^\circ\text{C}$, whereas previous models provided accuracy of $\pm 3^\circ\text{C}$.

50°C



Improved Accuracy!

Previous
MEMORY HILOGGER
(8430-20)
 $\pm 3^\circ\text{C}$

**LR8431-20
Accuracy
 $\pm 1.5^\circ\text{C}$**

Measurement Accuracy: $\pm 2^\circ\text{C}$
Reference junction compensation accuracy: $\pm 1^\circ\text{C}$

Measurement Accuracy: $\pm 1^\circ\text{C}$
Reference junction compensation accuracy: $\pm 0.5^\circ\text{C}$

Evaluating motors and inverters used in electric and hybrid vehicles

The LR8431-20 enables stable, low-noise measurement of high-speed, high-resistance targets.

Efficiency measurement and performance evaluation of air conditioning equipment

The LR8431-20 supports simultaneous, multi-point measurement, for example of input and output at multiple air conditioning registers or the temperature of internal components.

Temperature measurement and performance evaluation of internal components in electronic equipment

Used with a wind velocity converter, the LR8431-20 can measure cooling efficiency inside equipment enclosures.



Isolated

10ms

10ch

This compact logger excels in a broad range of settings, from production lines to research and development.

Key
Point

Ten Isolated Analog Input Channels

There's no need to worry about differing potentials of measurement objects when measuring temperature and voltage. All ten analog channels are isolated. Even when measuring temperature and voltage at the same time, interchannel interference and electric shock hazards are eliminated. The four pulse channels are ideal for counting revolution pulses to measure rotation speed. (Pulse inputs share common ground.)

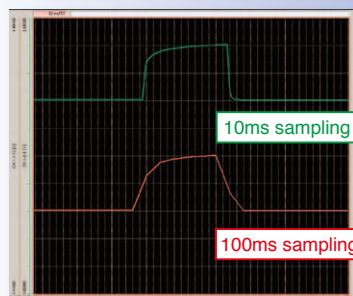
Note: Isolation between channels is possible through the use of semi-conductor relays. Voltage exceeding the product specifications, such as that originating from lightning surges or other sources, should never be applied between each channel; otherwise the relays will short and the recorder will be damaged.

Key
Point

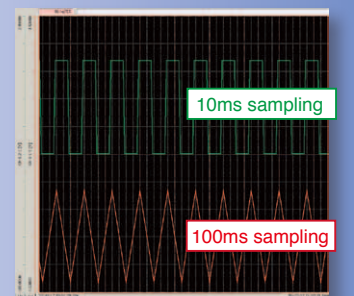
High-Speed Sampling

10 ms Sampling and Recording
Across All Channels

Abrupt changes in load need to be measured during development of EV • HV • PHV, for which multi-channel, 10 ms sampling is essential. This HiLOGGER can track waveforms that could not be followed with the 100 ms sampling interval previously available.



Measurement comparison of abrupt load change in waveform with 10 ms (upper trace) and 100 ms sampling



Measurement comparison of 5 Hz square pulse waveform with 10 ms (upper trace) and 100 ms sampling

(using the supplied Logger Utility program)

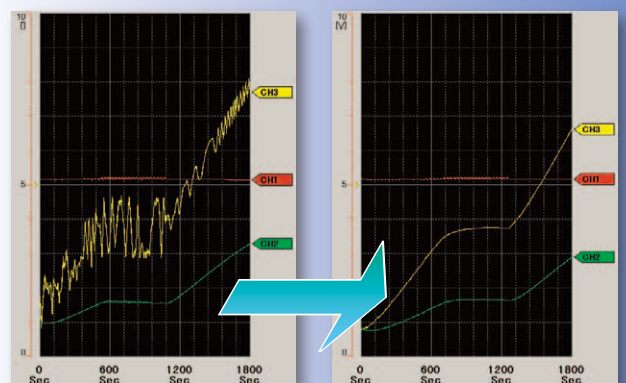
Key
Point

Enhanced Noise Suppression

Noise-resistant measurement circuitry for improved readings

Measurement involves the deployment of a delta-sigma type A/D converter. Suppress inverter switching noise and line-frequency hum by digital filtering with the HiLOGGER's proprietary oversampling technology.

Note: Optimum noise suppression is obtained for recordings at least two seconds long.



(using the supplied Logger Utility program)

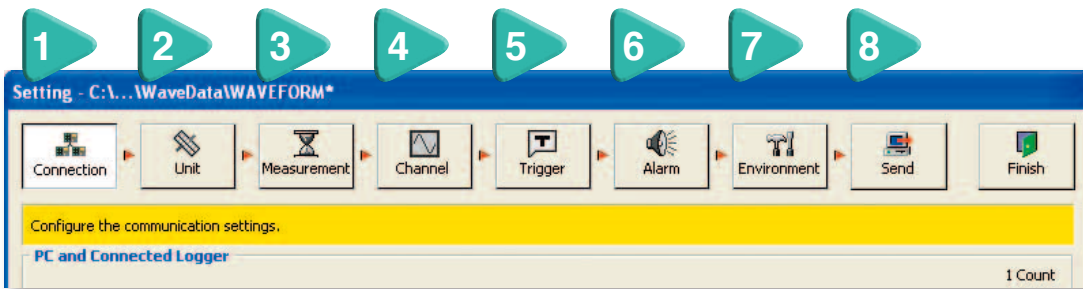
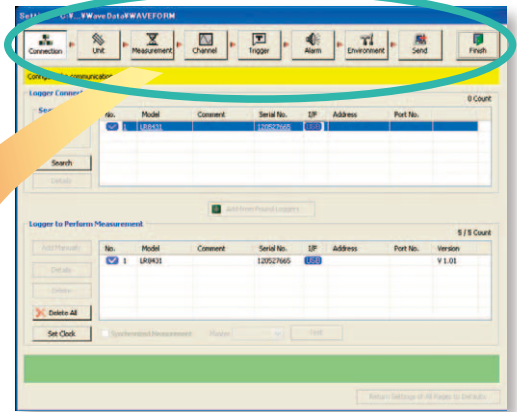
Collect data in real-time with a computer **Logger Utility** (Accessory)

The LR8431-20 ships standard with Logger Utility, a software application that supports multi-channel computer measurement. Simply connect the logger to a computer with a USB cable.

USB connection ensures easy setup

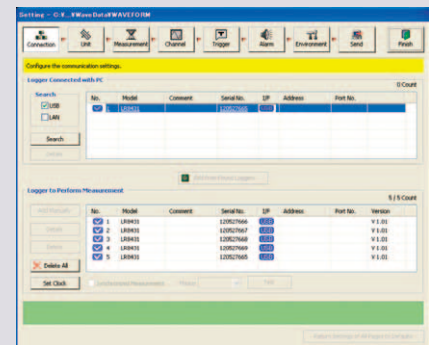
Configure HiLOGGER settings from the Logger Utility. Settings are sequentially ordered and guided from the PC application.

USB receptacle
for data communication



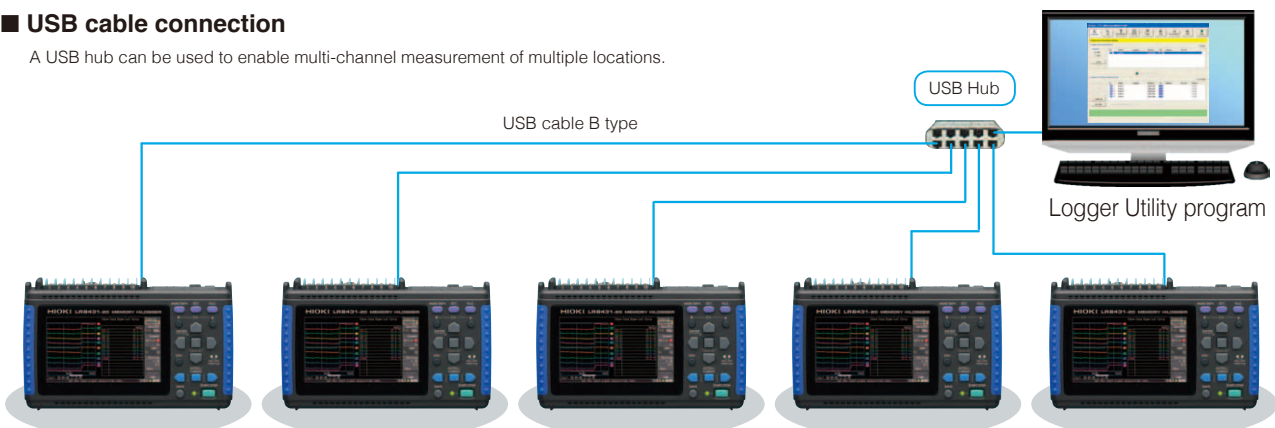
Up to five LR8431-20 instruments can be connected to a single computer with USB cables.

Providing 50 analog and 20 pulse channels that can be graphically displayed together in one window.



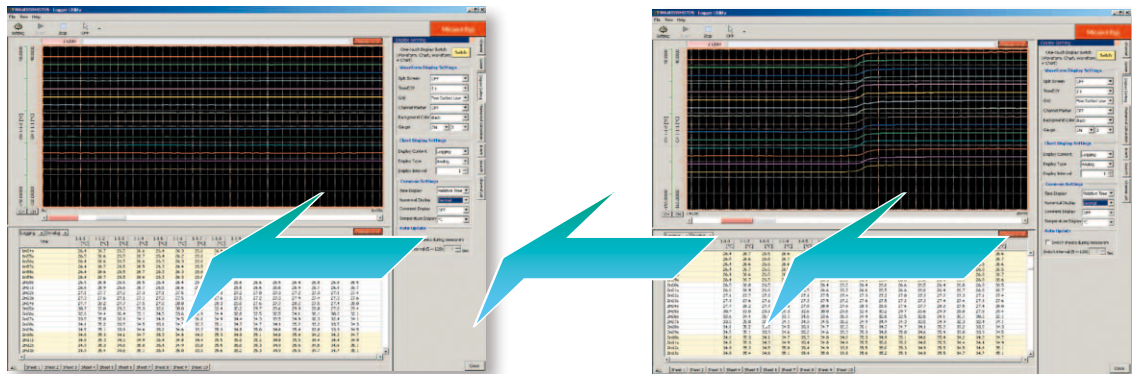
■ USB cable connection

A USB hub can be used to enable multi-channel measurement of multiple locations.



Collect data in real-time with a computer **Logger Utility** (Accessory)

Control measurements from the PC screen

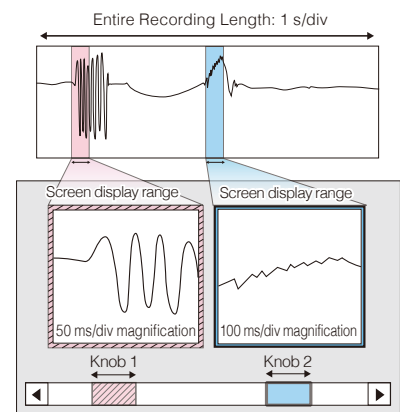


Use the supplied Logger Utility program to control real-time data recording from the PC. Scroll backward through the displayed trend graph window to view past waveforms even while recording.

Up to five LR8431-20 HiLOGGERS can be connected to one PC, providing 50 analog and 20 pulse channels that can be graphically displayed together in one window.

Patented "dual-knob function"

You can use the scrollbar to confirm what the position of the waveform portion displayed on the screen is within the whole recorded waveform. The ability to change the time axis shown on individual windows provides a convenient way to analyze data collected over an extended period of time.



■ Logger Utility (Bundled application software)

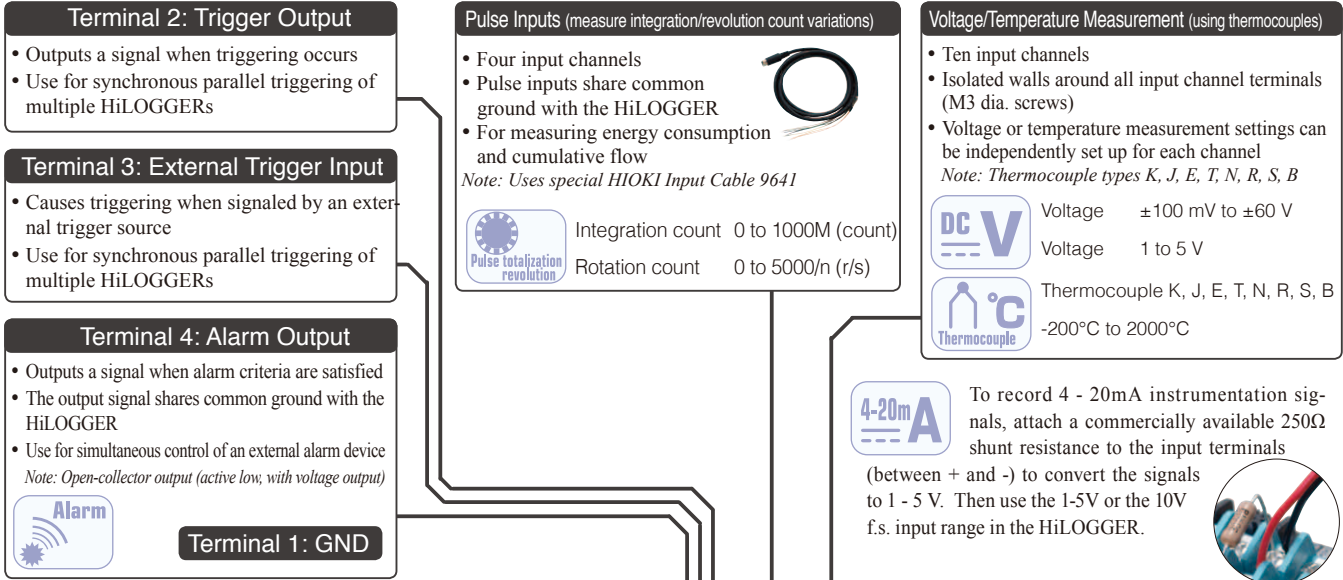
| | |
|-----------------------------------|--|
| Supported units | Model 8423, 8430-20, LR8431-20, LR8432-20, LR8400-20, LR8401-20, LR8402-20, and LR8410-20 |
| Operating environment | Windows 10/8/7 (32bit/64bit), Vista (32bit/64bit), XP (with SP2 or later) (32bit) |
| Real-time data acquisition | Measurements on multiple loggers connected by LAN or USB can be controlled to sequentially acquire, display and save waveform data (for recording up to 10 million samples) Number of controllable instruments: up to 5 units of any combination Display: Waveforms (time-axis divided display possible), numerical values (logging), and alarm status can be displayed at the same time Numerical value display: Can be monitored in a separate window Scroll: Waveform scroll while measuring Data saving destination: Real-time data transfer to Excel, or Real-time data acquisition file (LUW format) Event marks: Can be set while measuring |
| Data acquisition settings | Data acquisition settings for the logger or logging station Saving: The setting for multiple loggers or logging stations can be saved together in one file (LUS format); Instrument configuration settings can be sent and received |
| Waveform display | Processed data file: Real-time data acquisition file (LUW format), Record to internal memory data (MEM format) Display format: Simultaneously display waveform and numerical value, (time-axis divided display possible) Maximum number of channels: 675 channels (measurement data) + 60 channels (waveform processing data) Others: Display each channel's waveform on 10 sheets, scroll, record event mark, cursor, screen hard copy, numerical value display |

| | |
|-------------------------------|---|
| Data conversion | Target data: Real-time data acquisition file (LUW format), record to internal memory data (MEM format) Converted sections: All data, designation section Format: CSV format (separate by comma, space, tab), transfer to Excel spreadsheet, arbitrary data thinning |
| Waveform processing | Processing items: Four arithmetic operations Number of processing channels: 60 channels |
| Parameter calculations | Target data: Real-time data acquisition file (LUW format), record to internal memory data (MEM format), data acquired in real time, waveform processing data Calculation items: Average, peak, maximum values, time to maximum values, minimum values, time to minimum values, ON time, OFF time, count the number of ON time and OFF time, standard deviation, integration, area values, totalization |
| Search functions | Target data: Real-time data acquisition file (LUW format), record to internal memory data (MEM format) Search mode: Event mark, time and date, maximum position, minimum position, maximum pole, minimum pole, alarm position, level, window, amount of change |
| Print functions | Supported printer: Printer compatible with the OS Target data: Real-time data acquisition file (LUW format), record to internal memory data (MEM format) Print format: Waveform image, report format, list print (channel settings, event, cursor value) Print area: The entire area, area between cursors A and B Print preview: Supported |

Functionality

- ▶ A variety of transducer outputs (DC voltage), or thermocouple measurements over 10 channels
- ▶ 4 Pulse (count) Input Channels, 1 Alarm Output Channel
- ▶ Real-time Save & Long-term recording to CF Card or USB memory

For more reliable data protection, we recommend use of HIOKI CF cards, which are manufactured to strict industrial standards, for real-time saving of data or long-term storage of important data. The USB communications function cannot be used while saving data to a USB flash drive. Operation of non-HIOKI CF cards is not guaranteed.



Key Point: Real-time Save to CF Card or USB memory

Save every measurement to CF card or USB memory in real time. Use only HIOKI CF cards, which are manufactured to strict industrial standards, for long-term storage of important data. Operation of non-HIOKI CF cards and USB drives is not guaranteed.

Recording Time (Save to External storage in real-time of binary data) *Note: When saving in CSV data format, total recording time is 1/10 or shorter of the following.*

| Recording intervals | Recording All Channels (ten analog, four pulse and one alarm) | | | |
|---------------------|---|--------------|--------------|--------------|
| | Internal memory (7 MB) | 512 MB | 1 GB | 2 GB |
| 10 ms | 32m | 1d 15h 14m | 3d 06h 29m | 6d 12h 58m |
| 20 ms | 1h 04m | 3d 06h 29m | 6d 12h 58m | 13d 01h 57m |
| 50 ms | 2h 40m | 8d 04h 13m | 16d 08h 26m | 32d 16h 53m |
| 100 ms | 5h 21m | 16d 08h 26m | 32d 16h 53m | 65d 09h 47m |
| 200 ms | 10h 43m | 32d 16h 53m | 65d 09h 47m | 130d 19h 35m |
| 500 ms | 1d 02h 49m | 81d 18h 14m | 163d 12h 29m | 327d 00h 59m |
| 1 s | 2d 05h 39m | 163d 12h 29m | 327d 00h 59m | "★" |
| 2 s | 4d 11h 18m | 327d 00h 59m | "★" | "★" |
| 5 s | 11d 04h 16m | "★" | "★" | "★" |
| 10 s | 22d 08h 33m | "★" | "★" | "★" |
| 20 s | 44d 17h 06m | "★" | "★" | "★" |
| 30 s | 67d 01h 39m | "★" | "★" | "★" |
| 1 min | 134d 03h 18m | "★" | "★" | "★" |
| 2 min | 268d 06h 36m | "★" | "★" | "★" |
| 5 min to 1 hour | "★" | "★" | "★" | "★" |

• Maximum recording time is inversely proportional to number of recording channels.
 • Because the actual capacity of the External storage is less than that indicated, and because the header portion of waveform files is not included in capacity calculations, expect actual maximum times to be about 90% of those in the table.
 • "★" Exceeds 365 days.

Product Specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

| General specifications (product guaranteed for one year) | |
|--|---|
| Input System/Channels | Analog inputs: 10 (M3 mm dia. screw terminal block), electrically isolated between channels, and from chassis ground. Input impedance: 1 M Ω (when voltage input or temperature measuring with thermocouple burn-out detection OFF), 800 k Ω (with thermocouple burn-out detection ON) Pulse inputs: 4 channels (requires HIOKI Input Cable 9641) <i>Note: all pulse inputs share common ground with the HiLOGGER</i> |
| Analog Inputs | Maximum rating: 60 V DC (max. voltage between input terminals without damage) Maximum rated voltage from isolated terminals to ground: 60 V DC (max. voltage between input channel terminals, and from terminals to chassis ground without damage) |
| Pulse Inputs | Input limits: 0 to +10 V DC (max. voltage between input terminals without damage), non-isolated (common ground between pulse input channels, and with chassis) Pulse signal characteristic: No-voltage relay contact "a", open collector or voltage input (High: ≥ 2.5 V, Low: ≤ 0.9 V), Period: at least 200 μ s (both high and low periods at least 100 μ s) |
| Alarm Output | One channel, non-isolated: output from external control connector (common ground) Signal criteria: configurable high/low threshold levels, enter/exit threshold window, logical sum (OR) and logical product (AND) for every input channel. Output is refreshed each time recording starts. Signal characteristic: Open-collector output (active low, with voltage output) Voltage levels: 4.0 to 5.0 V (H) and 0 to 0.5 V (L), Max. sink current: 5 mA DC, Max. applied voltage: 30 V DC |
| Internal storage | 3.5 MWords (7 MB of two-byte data points, or four-byte pulse measurements) |
| External storage | CF card: CF card slot \times 1 (Up to 2GB), Data format: FAT, FAT32 USB memory: USB 2.0 High-speed capable, series mini-B receptacle, Data format: FAT, FAT32 |
| Backup Function (@25°C) | Backup battery life for clock and settings: approx. 5 years For measurement data: 100 hours with fully charged battery pack, or for as long as AC adapter is connected |
| External Control Terminals | External Trigger/Event Mark input (exclusion function), Trigger Output, Alarm Output |
| Display type | 4.3-inch WQVGA-TFT color LCD (480 \times 272 dots) |
| Displayable languages | English, Japanese |
| External Interface | One USB 2.0 series mini B receptacle Functions: Control from a PC (Ver 1.00 or later), Transfers internal data on the CF card to a PC |
| Environmental conditions (no condensation) | Temperature and humidity range for use: 0°C to 40°C (32°F to 104°F), (or 5°C to 30°C, 41°F to 86°F when battery charging), 80% rh or less Temperature and humidity range for storage: -10°C to 50°C (14°F to 122°F), 80% rh or less |
| Compliance standard | Safety: EN61010, EMC: EN61326, EN61000 |
| Power Sources | (1) 100 to 240 V AC, 50/60 Hz using AC ADAPTER Z1005 (2) BATTERY PACK 9780 (when used with the AC Adapter, the AC Adapter has priority) (3) 12 V battery (10 to 16 V DC \pm 10%, Please contact HIOKI for connection cord) |
| Power Consumption | 10 VA |
| Continuous Operating Time | Approx. 2.5 hours (with Battery Pack Model 9780 while saving to the CF card) Charging time: Approx. 200 minutes (@5°C to 30°C ambient) |
| Dimensions and mass | Approx. 176 mm (6.93 in) W \times 101 mm (3.98 in) H \times 41 mm (1.61 in) D, 550 g (19.4 oz) (HiLOGGER only) |
| Supplied Accessories | Measurement Guide \times 1, AC ADAPTER Z1005 \times 1, USB cable \times 1, CD-R (Instruction Manual, data collection software "Logger Utility") \times 1 |

| Trigger functions | |
|--|---|
| Trigger Source (selectable for each channel) | All analog and pulse channels P1 to P4, external trigger, logical sum (OR) and product (AND) of each trigger source |
| External Trigger | Criteria: Short-circuit between external trigger input and ground, or voltage input (H-L transition from [3.0 - 5 V] to [0 - 0.8 V]) Pulse width: At least 1 ms (H), and 2 μ s (L) Input limits: 0 to 7 V DC |
| Trigger Timing | Start, Stop and Start/Stop (different trigger criteria can be set to start and stop) |
| Trigger Types (Analog, Pulse) | Level: Triggers when rising or falling through preset threshold Window: Triggers when entering or exiting range defined by preset upper and lower thresholds |
| Level Resolution | Analog: 0.025% f.s. (f.s. = 10 display divisions) Pulse: Totalization 1 count, Rotations 1/n [r.s] (n: pulses per rotation) |
| Pre-trigger | Records for a specified period before triggering; can be set for real-time saving |
| Trigger Output | (1) Output signal at trigger occurred, (2) Output signal at start or trigger occurred, (1) or (2) mode selectable Open collector (active low, with voltage output, at least 10 ms pulse width, Voltage levels: 4.0 to 5.0 V (H) and 0 to 0.5 V (L), Max. sink current: 5 mA DC, Max. applied voltage: 30 V DC) |

| Measurement Settings | | | |
|---|--|---|-------------------|
| Recording Intervals (sampling period) | 10 ms to 1 hour, 19 selections <i>Note: All input channels are scanned within each recording interval</i> | | |
| Graph Timebase Scaling | 100 ms to 1 day per division, 21 selections <i>Note: Setting is independent from the recording interval</i> | | |
| Repeating Recording | (ON/OFF) Enable to repeat recording after the specified recording time span has elapsed | | |
| Recording Time | Enable continuous recording ON (records until the Stop key is pressed), OR disable to record for a specified time span (days, hours, minutes and seconds) | | |
| Timer Recording | (ON/OFF) Enable to record for a specified time span, or between specified start and stop times | | |
| Auto Saving | Waveform (Binary or CSV data): stores data to the CF card or USB memory during real-time measurement Numerical value calculations: stores calculated values to the CF card or USB memory when finished measuring <i>Note: Don't shutdown while data saving</i> | | |
| Data Storage Methods | Each recording can be saved in a separate file Overwriting save (endless loop recording): New data overwrites the oldest data when the storage media is full Divided Saving: Enable to save data at a specified interval (days, hours and minutes) Divided Saving: Specified Time (specify a time of day at which to start saving data to files at a specified interval) <i>Note: Don't shutdown while data saving</i> | | |
| Load Stored Data | Stored data can be recalled by the HiLOGGER in 3.5 MWord (7 MB) quantities (for a single channel; less for multiple channels) | | |
| Settable Save/Reload | Configure saving and reloading to and from CF card or USB memory or internal memory Ten types for internal memory, no limit for CF card and USB memory | | |
| Numerical Calculations | Calculations 1 to 4, may be simultaneous Selections: average, peak, maximum and minimum values, time-to-maximum and time-to-minimum | | |
| Selectable Filters | 50Hz, 60 Hz, or OFF (digital filtering of high frequencies on analog channels) | | |
| Channel Settings | | | |
| Channel Settings | Enable/disable measurement (ON/OFF), selectable waveform color Analog channels (10): Voltage (DC only), Temperature (thermocouple only), Thermocouple types K, J, E, T, N, R, S, B Pulse input channels (4): Count Integration or revolutions Alarm output (1): Hold/not-hold, beeper enable/disable (ON/OFF), Show/hide alarm waveform display (ON/OFF) | | |
| Measurement parameters | Ranges | Range of Measurements | Finest Resolution |
| Voltage | 100 mV f.s. | -100 mV to +100 mV | 5 μ V |
| | 1 V f.s. | -1 V to +1 V | 50 μ V |
| | 10 V f.s. | -10 V to +10 V | 500 μ V |
| | 20 V f.s. | -20 V to +20 V | 1 mV |
| | 100 V f.s. | -60 V to +60 V | 5 mV |
| | 1 - 5 V (Note) | 1 V to 5 V | 500 μ V |
| | Accuracy: \pm 0.1 % f.s. (Note: 1 - 5V range's f.s. = 10 V) | | |
| Measurement parameters | Ranges | Range of Measurements | Finest Resolution |
| Temperature (Thermocouples) | 2000°C f.s. | -200°C to 2000°C | 0.1°C |
| Temperature input ranges (JIS C 1602-1995) | (K) -200°C to 1350°C (E) -200°C to 1000°C (N) -200°C to 1300°C (S) 0°C to 1700°C | (J) -200°C to 1200°C (T) -200°C to 400°C (R) 0°C to 1700°C (B) 400°C to 1800°C | |
| Measurement Accuracy (@23 \pm 5°C/73 \pm 9°F, 80% rh or less After 30 minutes warm-up Defined after zero adjustment has been performed) | K, J, E, T, : \pm 1.0°C (-100°C or more), \pm 1.5°C (-200°C to -100°C) N : \pm 1.2°C (-100°C or more), \pm 2.2°C (-200°C to -100°C) R, S: \pm 2.2°C (300°C or more), \pm 4.5°C (0°C to 300°C) B: \pm 2.5°C (1000°C or more), \pm 5.5°C (400°C to 1000°C) Reference junction compensation [RJC] accuracy: \pm 0.5°C (horizontal placement), \pm 1°C (upright placement) Internal [RJC] (internal reference junction compensation at 0°C): Measurement accuracy = (temp. measurement accuracy) + (RJC accuracy) External [RJC] (using external junction compensation at 0°C): Measurement accuracy = temp. measurement accuracy only | | |
| Temperature Other Functions | Thermocouple burn-out detection: ON or OFF | | |
| Measurement parameters | Ranges | Range of Measurements | Finest Resolution |
| Pulse (Totalization) | 1,000 M (count) f.s. | 0 to 1,000 M (count) | 1 (count) |
| | Totalization mode: cumulative (counts from start) Instantaneous value: instantaneous value during each recording period | | |
| Pulse (Rotations) | 5,000/n (r/s) f.s. | 0 to 5,000/n (r/s) | 1/n (r/s) |
| | Settable pulses per rotation: 1 to 1,000 ("n" above is the number of sensor output pulses per rotation) | | |
| Slope Setting | \uparrow (count of L-to-H pulse transitions), \downarrow (count of H-to-L pulse transitions) | | |
| Displayed Range | Specified by position, or by upper/lower display limit values (Upper/lower limit values only at Totalization mode) | | |
| Common Channel Settings | | | |
| Scaling | Decimal (display decimal values), Exponential (display base-10 exponents), or Off Method: Ratio (set by slope and intercept), or 2-point (set by input/output values at two points) | | |
| Other Common Channel Settings | Enter comments for each channel, set start/stop triggers and alarm criteria | | |

Options in Detail



Model: MEMORY HiLOGGER LR8431

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

Supplied Accessories:

Measurement Guide × 1, AC ADAPTER Z1005 × 1, USB cable × 1, CD-R (Instruction Manual, data collection software "Logger Utility") × 1

Supplied Accessories



AC ADAPTER Z1005
100 to 240 V AC

Removable storage (CF card)



Supplied with
PC Card adapter

PC Card Precaution

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

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

Battery Pack



Charges while installed
in the HiLOGGER

BATTERY PACK 9780
Ni-MH, Charges while installed

Input cables



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

Other



To prevent damage to
the instrument's display

PROTECTION SHEET 9809
For LCD protection, pairs of additional sheets
can be purchased separately.

Case

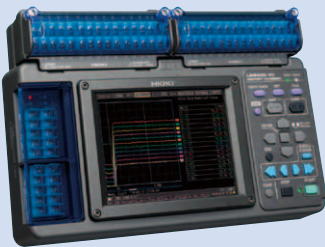


SOFT CASE 9812
Includes space for small items,
Neoprene rubber



CARRYING CASE 9782
Includes compartment for options,
Resin coated

Related Products



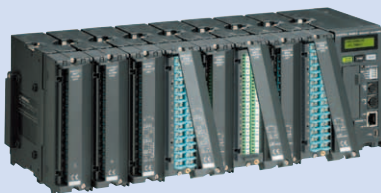
MEMORY HiLOGGER LR8400-20
30 isolated analog input channels
With built-in VOLTAGE/TEMP UNIT × 2 modules



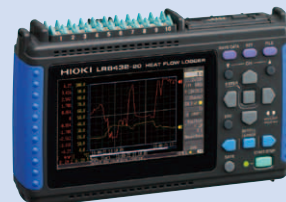
MEMORY HiLOGGER LR8401-20
30 isolated analog input channels
With built-in UNIVERSAL UNIT × 2 modules



MEMORY HiLOGGER LR8402-20
30 isolated analog input channels
With built-in UNIVERSAL UNIT × 1,
VOLTAGE/TEMP UNIT × 1 modules



MEMORY HiLOGGER 8423
15 to 120 isolated analog channels, with up to
600-channel systems available
LAN/USB support, for measuring with a PC



HEAT FLOW LOGGER LR8432-20
10 isolated analog channels
Additional dedicated mode for heat flow testing on top
of LR8431-20 specifications, including the following
functions: Heat flow mode, high-sensitivity ranges (10mV,
20mV), real-time waveform calculation, W gauge, etc.



WIRELESS LOGGING STATION LR8410-20

15 to 105 isolated analog channels
Logging multi-point data has never been so easy
Install logging modules in hard-to-reach locations

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