ΗΙΟΚΙ

MEMORY HILOGGER LR8450



Wireless data logging at 1 ms

330-channel portable logger available with your choice of plug-in and wireless units



Two models: basic and wireless



Up to 120 channels

Basic model

Gain up to 120 channels of input simply by adding a total of four plug-in units

Example unit configuration: 120 channels

Plug-in units

VOLTAGE/TEMP UNIT U8552×4



Each VOLTAGE/TEMP UNIT U8552 accepts 30 channels of input. Add four units for 120 channels of measurement.



Wireless LAN model

Add channels freely via either plug-in or wireless units

Can also be used exclusively with wireless units.



Maximum 330 channels

Wireless LAN model

Add a total of up to 7 wireless units for a maximum of 330 channels

Example unit configuration: 330 channels



Mix plug-in and wireless units

Add plug-in units to the LR8450-01 and place wireless units in measurement locations. With four U8552 VOLT-AGE/TEMP Units and seven LR8532 WIRELESS VOLTAGE/TEMP Units, you can measure a total of 330 channels.

Applications

Sample output from a variety of sensors, including 1 ms pressure sensors





Voltage measurement Fastest sampling rate of 1 ms

HIGH SPEED VOLTAGE UNIT U8553, LR8533

A 1 ms sampling rate is the best match to measure sensor outputs with a frequency response of under 100 Hz, for example pressure and vibration sensors.



Measure strain with a 1 ms sampling rate





Strain measurement

Fastest sampling rate of 1 ms

STRAIN UNIT U8554, LR8534

Connect strain gauges directly and measure at a sampling rate of up to 1 ms. Strain gauges tend to have long, thin wires that are easily broken, but that potential pitfall can be avoided by using wireless units so that wire length is minimized.



Sample input at up to 1 ms, even if you connect additional units

Each unit incorporates its own A/D converter. This design keeps the maximum sampling rate high even when units are added.

Example 1: Use four U8553 High Speed Voltage Units (with 5 channels each) to measure 20 channels at a sampling rate of 1 ms.

Example 2: Use four U8550 Voltage/Temp Units (with 15 channels each) to sample 60 channels at a sampling rate of 10 ms.

Measure temperature near an inverter or battery





Temperature measurement

Fastest sampling rate of 10 ms

VOLTAGE/TEMP UNIT U8550, LR8530 UNIVERSAL UNIT U8551, LR8531

VOLTAGE/TEMP UNIT U8552 and LR8532 (10 ms if using 15 or fewer channels)

Consistent noise resistance, even when units are added

Since adding units doesn't change the cutoff frequency at a sampling rate of 1 s, power supply noise can be rejected without sacrificing noise resistance.

		Sampling rate	
	Number of channels	1 s	
	1ch to 15ch	60 Hz	
Cutoff froquopov	16ch to 30ch	60 Hz	
Cuton nequency	31ch to 45ch	60 Hz	
	46ch to 60ch	60 Hz	
*When using a power supply frequency of 60 Hz.		▲	
		Same cutoff fre-	



Set filters for each unit

The cutoff frequency, which varies with the data refresh interval, can be set separately for each unit. You can use long data refresh intervals, which boost filter effectiveness, and short data refresh intervals for different units at the same time.



Recording interval : 1ms

Measure control signals at maximum speed: Unit 1 (data refresh interval: 1 ms)

- Measure battery voltage fluctuations: Unit 2 (data refresh interval: 1 ms)
- Measure temperature using thermocouples: Unit 3 (data refresh interval: 1 s) with strong filter

Stable measurement, even at high voltages and frequencies

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Reduced effects of noise

Legacy models were incapable of measuring temperature accurately in noisy environments due to the effects of high frequencies, which caused values to shift or fluctuate significantly. The LR8450 uses a revamped design to dramatically reduce the effects of high-frequency noise.

Example: Measure temperature by connecting the tip of a K thermocouple to the screw on an inverter's PWM output terminal (Wphase) when using the Voltage/Temp Unit U8550 (settings: 100 ms sampling in the 100°C f.s. range).



Legacy data logger

LR8450



Legacy models exhibit significant fluctuations when the inverter is operating, but the LR8450 does not.

Easy-to-understand presentation of measured values

Wide screen for easy viewing of waveforms

The LR8450/LR8450-01 features a 7-inch TFT color LCD that makes it easy to view collected data. Easily switch among four screen layouts: a waveform display, which makes it easy to see changes in characteristics; a waveform + numerical value display, which lets you review numerical values while viewing waveform changes; a numerical value display, which lets you check values such as instantaneous and maximum values on a single screen; and an alarm display, which lets you review the conditions under which alarms have occurred.



Check waveforms on a full-screen display.

Recording	interval 10 ms	Horz 10 s 🔹	Display Value	Bauge All t	hannels 🔻 Eje
ATT					< 1/2
Ch	40s	MAX	MIN	AVE	P-P
U1-1	1.255mV	1. 255mV	0, 000mV	0.626mV	1.255mV
01-2	1.255mV	1.255mV	0, 000mV	0.626mV	1.255=V
U1-3	1. 255mV	1. 255mV	0, 000mV	0.626mV	1. 255aV
U1-4	1. 255mV	1.255mV	0. 000mV	0.626mV	1.255mV
01-5	1. 255mV	1.255mV	0, 000mV	0.626aV	1.255mV
U1-6	1.255mV	1. 255mV	0.000mV	0,626mV	1.255mV
	1.255mV	1.255mV	0.000mV	0.626nV	1.255mV
U1-8	1. 255mV	1.255mV	0, 000mV	0.626mV	1. 255aV
U1-9	1. 255mV	1, 255mV	0, 000mV	0, 626mV	1, 255mV
U1-10	1.255mV	1.255mV	0, 000mV	0, 626nV	1.255mV
U1-11	1.255mV	1., 255mV	0, 000mV	0.626mV	1.255mV
01-12	1.255mV	1. 255mV	0.000mV	0.626mV	1. 255mV
U1-13	1. 255mV	1.255mV	0. 000mV	0.626mV	1.255eV
01-14	1. 255mV	1. 255mV	0, 000mV	0.626#V	1.255#V
	1.255mV	1. 255mV	0.000mV	0.626mV	1.255aV

Check maximum, minimum, average, and peak values at the same time on a single screen.

Extensive calculation functionality

Numerical calculation

In addition to the maximum and minimum value calculation functions provided by legacy models, the LR8450/LR8450-01 offers an extensive range of calculations, including on/off time, count, and usage ratio.



Types of calculations

Average value	Peak value	Maximum value	Minimum value
Time at which	Time at which	Usage ratio	Integration
occurred	occurred	On count	Off count
On time	Off time		



Check waveforms along with numerical values and comments at the same time on a single screen.

		Al	arm							
lecordin	g inte	rval 10 ms	Illor	10 s	💌 Disp	lay Alarm		lauge Al	I channels	· Eject
Atam Hold		ON DFF	ALMI	ALM2	ALMO	ALM4	ALME	ALMO	ALW7	ALMB
Bizzo		OFF	QR	DR	OR	OR	OF	OR	OR	ØĤ
Screen	image	ALL		No	1	ump .				
No.	ALM	UNIT-CH		Error	1	ime of ecci	urrence	Time	of cancella	tion
1	ALM1	U1-1	U1-1		500ms			19.501s		
	ALM1	U1-1	U1-1		40.50	10 s		59.501s		
3	ALM1	U1-1	U1-1		1m20	. 500s		1m39.50	15	
	ALM1		U1-1		2m50	ions		2n19.50	115	
5	ALM1	U1-1	U1-1		2n40	. 500s				

Check alarm status and times.

Waveform calculation

Calculate data while measurement continues and display calculated waveforms in real time. Calculation results are saved on dedicated calculation channels that are distinct from measurement channels.



Types of calculations



External control terminals and interfaces to accommodate a broad range of use cases

MEMORY HILOGGER LR8450, LR8450-01





Motor speed, flow rate integration, etc. 8-channel pulse measurement



In "Revolve" mode, monitor production equipment by measuring the variations in revolution speed of motors or drills. In "Count" mode, identify operation status by acquiring integrated power or flow rate.

Useful in preventive maintenance 8-channel alarm output



Configure eight channels of alarm output. You can set level, window, slope, and logic pattern alarms for each channel you wish to monitor.

Two voltage output terminals (5, 12, or 24 V) Sensor power supply functionality



The LR8450/LR8450-01 provides two voltage output terminals, each of which can supply a 100 mA current, eliminating the need for a separate sensor power supply. Select 5, 12, or 24 V for the VOLTOUT1 terminal and 5 or 12 V for the VOLTOUT2 terminal.

External control terminals

channels	
nput terminals	START, STOP, START/STOP, Trigger input, Event input
Output terminals	Trigger output
OLTOUT terminal 1	Select from 5 V, 12 V, or 24 V.
OLTOUT terminal 2	Select from 5 V or 12 V.
	channels put terminals utput terminals OLTOUT terminal 1 OLTOUT terminal 2

Record data for extended periods of time in construction, agriculture, civil engineering, etc.

Replace media during real-time saving No need to stop recording

When you eject the storage media device while recording data, data remaining in the internal buffer memory will be written to a different file once another media device has been inserted.



Save automatically to SD Memory Cards

Repeat recording over extended periods of time without interruption

Collect data on storage media (SD Memory Card or USB Drive) while measuring continues. The ability to segment files by hour or day without stopping measurement is convenient when you need to review data later.



Control the logger remotely and download data files from a computer

HTTP server function

Control the logger remotely

Use a standard browser such as Internet Explorer[®] to control the LR8450/LR8450-01, start and stop measurement, and enter comments.

NTP client function

Set the logger's clock



Set the time from an NTP server every hour or day.

FTP server function

Download data files onto a computer

Download files on an SD Memory Card or USB Drive that's connected to the the LR8450/LR8450-01 to a computer.

		100000000000000000000000000000000000000							
.R8450/LR845	0-01 H	TTP SERVER							
SLAFT/STOP	TTP 54	1001							
	ITARAL	A GET TROM OD DAND &	USB MEXISTY						
DATA GET BY FTP	-						- 0	×	
COMMENT OLT	G	🗃 ng- 182,198,8 1	NAME POTT A PROFESSION	4,00-01-09	+ C Seach		M * 10 14		
COMMENT OLT	() ()	Provident HOL.	Construction and the second	4,00.014.00	+ C Seath		N+1 W H		
COMMENT OLT	G 0100	directory /sd	card/HIOKL	LR8450/I	DATA/20-0	1-20/ at	192.168.1.1		
COMMENT OCT REMOTE CONTROL	G Ørbe FTP	directory /sd	Card/HIOKL	LR8450/1	DATA/20-0	1-20/ at	192.168.1.1		
COMMENT OLT	FTP To view	directory /sd	icard/HIOKL	LR8450/I	DATA/20-0	1-20/ at	192.168.1.1		
COMMENT GET	FTP To view	directory /sd	icard/HIOKL Explorer grass Alt	LR8450/I	DATA/20-0	FTP Site in F	192.168.1.1		0
COMMENT GET	C 1120 FTP To view	directory /sd the FTP site in File	Explorer orace An	LR8450/I	ATA/20-0	FTP Site in F	192.168.1.1 No Explorer	0	1
COMMENT OLT	C 1/25/ 61/25/ 01/25/ 01/25/ 01/25/ 01/25/	entry intersteller directory /sd the FTP site in File entry file intersteller entry file file site intersteller entry file file file site intersteller entry file file file file file file file file	Explorer press Alt	LR8450/I	ATA/20-0	FTP Sitte in F	192.168.1.1	00	· (#
COMMENT OLT	C 1250 FTP To 1000 1/257 01/257 01/257	directory /sd the FTP site in File # 19 ment 10 Million FTP root at	Explorer orea An	/LR8450/I	ATA/20-0	FTP Sits in F	192.168.1.1	00	
COMMENT OCT	Comparison of the second	Appendix A State St	Explorer orace Art	/LR8450/I	• C Seech DATA/20-0 I than slick Open • C	FTP Sits in F State.	192.168.1.1 The Englement D +	00	
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FTP client

Automatically transfer data files to an FTP server



Automatically upload files that were saved automatically on an SD Memory Card or USB Drive in the LR8450/LR8450-01 to an FTP server.

Collect data in real time on a computer

Record data on a computer in real time using the Logger Utility application, a standard accessory. You can even scroll waveforms backwards (to view older data) while recording is in progress.







Wireless data capture for outstanding ease of use

LR8450-01 (wireless LAN model) only

Install in a closed vehicle when you need to separate the internal and external environments

Make measurements in locations where it would be difficult to route wires



With traditional methods, if the testing lab where the object under measurement is located and the monitoring room where data will be reviewed are separated by a door, you'll need to drill a hole in the wall and connect the two locations with a long wiring run. With the LR8450-01 and a wireless unit, you can streamline setup and minimize wire use by eliminating the need to run multiple long wires from the testing lab.

Collect data from dispersed locations all at the same time-



If you've installed multiple legacy data loggers on dispersed testing equipment, measurement results will be collected separately by each logger. With the wireless connectivity of the LR8450-01, you can install a wireless unit on each piece of testing equipment and then collect the data from all the units at once, simultaneously.

Wireless LAN connection to computer

Observe data from remote locations on a computer

STA	AP	STA	Viceicas LAN acting Une wireless function Node Station *		
)))))			SSID HICKI Security WPA-PSK (TKIP) - Password GOGGO II Connect Search	DHCP IP address Subnet mask Port Gateway IP DNS DNS IP	0N H-GX 0. 0. 0. 0 GFF 0. 0. 0. 0
					App1y Cancel

LR8450-01 settings screen

The LR8450-01 wireless LAN model can connect to commercially available access points (APs). By activating the LR8450-01's station (STA) function and connecting to an AP, you can control the logger remotely via its HTTP server and acquire data via its FTP server.

Mix and match an array of measurement units

VOLTAGE/TEMP UNIT U8550

LR8530

Plug-in units

Wireless units





Measurement targets	Voltage, Thermocouples, Humidity* (use sensor Z2000) * U8550 only
Maximum input voltage	±100 V DC
Number of input channels	15ch
Fastest sampling	10 ms
Input terminals	M3 screw-type terminal block

VOLTAGE/TEMP UNIT

U8552

Plug-in units

LR8532







Measurement targets	Voltage, Thermocouples, Humidity* (use sensor Z2000) * U8552 only
Maximum input voltage	±100 V DC
Number of input channels	30 ch
Fastest sampling	20 ms (10 ms if using 15 or fewer channels)
Input terminals	Push-button type terminal block

STRAIN UNIT U8554

Plug-in units

LR8534



Wireless units



Measurement targets	Voltage, Strain Strain gauge-type converter Strain gauge 1-gauge method (2-wire setup), 1-gauge method (3-wire setup), 2-gauge method (adjacent sides), 4-gauge method
Adaptive gauge resistance	1-gauge method, 2-gauge method: 120 Ω (external bridge box required for 350 $\Omega)$ 4-gauge method: 120 Ω to 1 k Ω
Bridge voltage	2 V ±0.05 V DC
Number of input channels	5ch
Fastest sampling	1 ms
Input terminals	Push-button type terminal block

UNIVERSAL UNIT U8551

LR8531

Wireless units

Plug-in units





Measurement targets	Voltage, Thermocouples, Humidity* (use sensor Z2000), Resistance bulb (Pt100, Pt1000, JPt100), Resistor
Maximum input voltage	±100 V DC
Number of input channels	15 ch
Fastest sampling	10 ms
Input terminals	Push-button type terminal block

HIGH SPEED VOLTAGE UNIT

U8553

Plug-in units

LR8533

Wireless units





Measurement targets	Voltage
Maximum input voltage	±100 V DC
Number of input channels	5ch
Fastest sampling	1 ms
Input terminals	M3 screw-type terminal block

Connect strain gauges directly

The Strain Unit has a built-in bridge box, allowing you to connect strain gauges directly to its input terminals.



Specifications

LR8450, LR8450-0 ⁷ General specificati	1 Memory HiLogger ions, Basic specifications
Product warranty period	3 years
Accuracy guarantee period	1 year
Maximum number of connectable modules	4 plug-in modules + 7 wireless modules* *: LR8450-01 only
Connectable modules (Plug-in modules)	U8550 Voltage/Temp Unit U8551 Universal Unit U8552 Voltage/Temp Unit U8553 High Speed Voltage Unit U8554 Strain Unit
Connectable modules (Wireless modules) (LR8450-01 only)	LR8530 Wireless Voltage/Temp Unit LR8531 Wireless Universal Unit LR8532 Wireless Voltage/Temp Unit LR8533 Wireless High Speed Voltage Unit LR8534 Wireless Strain Unit * Available at future firmware updates
Internal buffer memory	Volatile memory, 256 Mwords
Clock functionality	Auto-calendar, automatic leap year recognition, 24-hour clock
Clock precision (Precision of clock dis- played by instrument as well as start/stop times)	±1.0 s/day (at 23°C) Time can be synchronized with an NTP server to which instrument is connected.
Time axis accuracy	±0.2 s/day (at 23°C)
Backup battery service life	At least 10 years for clock (reference value at 23°C)
Operating environment	Indoors, Pollution Degree 2, altitude up to 2000 m
Operating temperature and humidity range	-10°C to 50°C (14°F to 122°F), 80% RH or less (non-condensing) (Charging temperature range: 5°C to 35°C)
Storage temperature and humidity range	-20°C to 60°C (-4°F to 140°F), 80% RH or less (non-condensing)
Dimensions	Without any modules: 272W × 145H × 43D mm (10.72"W × 5.71"H × 1.69"D) (excluding protrusions) With 2 modules:272W × 198H × 63D mm (10.71"W × 7.8"H × 2.78"D) (excluding protrusions) With 4 modules:272W × 252H × 63D mm (10.71"W × 9.92"H × 2.48"D) (excluding protruding parts)
Mass	Approx. 1108 g (39.08 oz.) (excluding battery pack)
Standards	Safety: EN61010 EMC: EN61326 Class A
Vibration resistance	JIS D 1601:1995:1995 5.3 (1) Class 1: Passenger vehicles; conditions: Class A equivalent (4 h along X-axis and 2 h along Y- and Z-axes at a vibration ac- celeration of 45 m/s2 [4.6 G])
Display	

Display	7-inch TFT color LCD (WVGA 800 × 480 dots)
Display resolution (with waveform display selected)	Max. 20 divisions (horizontal axis) × 10 divisions (vertical axis) (1 division = 36 dots [horizontal axis] × 36 dots [vertical axis])
Display language	Japanese and English
Backlight service life	Approx. 100,000 h (Reference value at 23°C)
Backlight saver	Turns off backlight when no key is operated for a set amount of time.
Backlight brightness	5 levels (user-selectable)
Waveform background color	Dark/light (user-selectable)

Power supply

-		
Power supply	AC adapter	Z1014 AC Adapter (12 V DC \pm 10%) AC Adapter rated supply voltage: 100 V to 240 V AC (as- suming voltage fluctuation of \pm 10%) AC Adapter rated power supply frequency: 50 Hz/60 Hz
	Battery	LR8450 accommodates 2 batteries Z1007 Battery Pack (When used with AC Adapter, AC Adapter has priority) Li-ion, 7.2 V, 2170 mAh
	External power supply	10 V to 30 V DC
Power con- sumption	Normal power consumption	Using Z1014 AC Adapter or 12 V DC external power sup- ply, without Battery Pack With LCD at maximum brightness: 8.5 VA (instrument only) With LCD backlight off: 7 VA (instrument only)
	Maximum rated power	When using the Z1014 AC Adapter 95 VA (including AC Adapter) When using a 30 V DC external power supply 28 VA (while charging battery with LCD at maximum brightness) When using the Z1007 Battery Pack 20 VA (with LCD at maximum brightness)
Continuous operating time	Battery	With one Z1007 Battery Pack:Approx. 2 h (reference value at 23°C) With two Z1007 Battery Packs:Approx. 4 h (reference value at 23°C Conditions: With one U8551 Universal Unit connected, backlight on, voltage output off, and Z4006 connected
Charging functionality	Charging is available when the Z1007 Battery Pack is attached and the AC Adapter is connected. Charging time: Approx. 7 h (reference value at 23°C)	

Interface	specifications			
The LAN	interface and USB interface (function) cannot be used at the same tin			
LAN	IEEE 802.3 Ethernet, automatic 100Base-TX/1000Base-T detection			
Interface	Connect	tor: R.I-45		
	Maximur	m cable length: 100 m		
	LAN fun	ctionality:	tinge used with the Legger Litility software	
	(supplied	duisition, condition set	lings used with the Logger Othity Software	
	Configuri	ng settings and controll	ing recording using communications commands	
	Manually	acquiring data using	the FTP server (Acquiring files from a con-	
	Automat	ically sending data via	a FTP (FTP client)	
	(Transfe	rring files saved on a	connected SD Memory Card or USB Drive)	
	While Re	ecord is in progress: V	Vaveform files (binary, text)	
	Remote	operation using the H	TTP server	
	NTP clie	nt function		
14 <i>1</i>	Time syr	hchronization with an I	NIP server	
I AN	IEEE 80	2.11D/g/n	line of eight	
interface	Encrypti	on function: WPA-PSk	(WPA2-PSK_TKIP/AES	
(LR8450-01	Usable	channels: 1 to 11		
only)	Auto-cor	nnect function		
	Wireless	LAN function can be	toggled on and off.	
	Wireless	LAN functionality:		
	Configuri	ng settings and controll	ing recording using communications commands	
	Manually	/ acquiring data using	the FIP server	
	Automat	Ig tiles from a connected SD Memory Card or USB Drive)		
	(Transfe	rring files saved on a connected SD Memory Card or USB Drive)		
	Remote	operation using the H	TTP server	
	NTP client function			
USB	Standar	1 compliance: USB 2 () compliant	
interface	Connect	ors: Series A receptad	sle × 2	
(host)	Guaranteed-operation options: Z4006 USB Drive (16 GB) File system: FAT16, FAT32			
1105	Connect	nnectable devices: Keyboard, hub (1 layer), USB Drive		
USB	USB sta	ndard: USB 2.0 comp	liant	
(function)	USB fun	ctionality: Data acquis	sition condition settings used with the Logger	
		Utility software (bundled)		
		Configuring settings and controlling recording using com-		
	USB driv	munications commands		
		computer		
SD card	Standard compliance: SD		dard-compliant slot × 1 (with SD Memory	
slot	Cuarant	Card/SI	DHC Memory Card support)	
	File syst	.eeu-operation options. 2400 r (2 GB), 24003 (0 GB) tem: FAT16_FAT32		
1 110 3y310111. 1 AT 10, 1 AT 32				
External of	control te	rminals		
Terminal b	lock	Push-button type terminal block		
External N	lumber of	4. Non-isolated (sam	e GND as instrument)	
I/O terminals		.,		
h	nput	Input voltage	0 V to 10 V DC	
		Slope	Rising/falling (user-selectable)	
		Response pulse	High period: 2.5 ms or greater; low period:	
		width	2.5 ms or greater	
		Functionality	ger input, event input.	
C	Dutput	Output format	Open-drain output (with 5 V voltage output)	
		Maximum switching	5 V to 10 V DC, 200 mA	
		capacity	10	
		Output pulse width (Trigger output)	10 ms or greater	

Functionality

Output format

Output voltage

Alarm output

Voltage output

GND terminal

Trigger output

 Output pulse width
 10 ms or greater

 Number of terminals
 8, Non-isolated (same GND as instrument)

Number of terminals 2, Non-isolated (same GND as instrument)

Maximum switching capacity 5 V to 30 V DC, 200 mA

Number of terminals 10 (common GND)

Open-drain output (with 5 V voltage output)

Off, 5 V ±10%, 12 V ±10%, 24 V* ±10% (user-selectable) Supply current: Max. 100 mA each *: 24 V output can be selected for the VOUTPUT1 terminal only. 11

Recording	
Recording mode	Normal
Recording intervals	1 ms*, 2 ms*, 5 ms*, 10 ms, 20 ms, 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s, 5 s, 10 s, 20 s, 30 s, 1 min., 2 min., 5 min., 10 min., 20 min., 30 min., 1 h *. Setting available only when using a module with data refresh intervals that include 1 ms
Data refresh interval	Automatically- or user-selected value per module Automatically-selected value:Optimal data refresh interval is automatically selected based on recording interval setting. User-selected value:Available settings depend on module specifi- cations.
Repeat recording	ON/OFF (user-selectable)
	OFE: Decording is performed ance until it stops
Specified	Specified time: Recording time is set in days, hours, minutes, and
time/continuous	Time can be set up to maximum capacity of internal buffer memory (total of 256 M data points). Continuous: Recording is performed once until it is stopped. If maximum capacity of internal buffer memory is exceeded, memory will be overwritten.
Waveform recording	Last 256 M data points are saved in internal buffer memory. Scroll through and view data stored in internal buffer memory. Alarm source data recording can be toggled on and off.
Backup of recorded data	None

Display

Sheet function	Display sheets can be switched between all channels and indi- vidual modules. All-channel display sheet: Maximum 120 analog channels, 30 waveform calculation channels, 8 pulse/logic channels, 8 alarm channels		
Waveform display screen	Time-axis waveform display: Simultaneous display of gauges and settings (channel representative settings and display settings) Simultaneous display of time-axis waveforms and values: Instan- taneous values, cursor values, or numerical calculation values (user-switchable) Numerical display: Simultaneous display of instantaneous values and statistical values Alarm display: Display of alarm status and alarm history		
Display format	Time-axis waveform display: 1 screen		
Numerical display format	SI units, decimal, or exponent (user-selectable) When decimal is selected, number of decimal places to display can be set (values will then be rounded to set number of places).		
Waveform colors	24 colors		
Zooming in and out on the	Horizontal axis	2 ms to 1 day/division	
waveform display	Vertical axis	Number of divisions per screen: 10 Setting method Select position or upper and lower limits for each channel. (Waveform calculation channels: upper and lower limits only) When setting by position: Set zoom factor and zero position. Zoom factor: 1/2×, 1×, 2×, 5×, 10×, 20×, 50×, 10× Zero position: -50% to 150% (with a zoom factor of 1×) When setting by upper/lower limit. Set upper and lower limit.	
Waveform scrolling	Display can be scrolled left and right both during recording and while recording is stopped (during waveform rendering only).		
Monitor display	Check instantaneous values and waveforms without recording data to memory (values and waveforms can be displayed while waiting for a trigger).		

Files			
Save	SD Memory Card/USB Drive (user-selectable)		
uestinations	(Only storage media sold by HIOKI are guaranteed for operation		
File names	Up to 8 single-byte Automatic number	e characters ing/dating (user-selectable)	
Auto saving	Waveform data (real-time saving): Off, binary format, or text format (user-selectable) Numerical calculation results (saved after recording): Off or text format (user-selectable) When text format is selected, choose whether to save all calculations in one file or to save each calculation in its own file.		
	Priority save destination	SD Memory Card/USB Drive (user-selectable) Choose whether to give priority to SD Memory Card or USB Drive for saving data when both are inserted.	
	Delete and save	On/Off (user-selectable) Off: System will stop saving data when SD Memory Card or USB Drive starts to run out of available space. On:When SD Memory Card or USB Drive starts to run out of available space, system will delete oldest waveform file (binary or text) and then continue sav- ing data. When both an SD Memory Card and USB Drive are inserted, system will perform delete and save on media that has been set as priority save destination only.	
	Folder segmentation	No segmentation, 1 day, 1 week, or 1 month (user-selectable)	
	File segmentation	Enable/disable (user-selectable) Disabled: Data for each recording session is saved in its own file. Enabled: Data for each set period of time is saved in its own file, starting with the start of measurement. Seamentation time: Day, hour, or minute (user-selectable)	

	External media eject (SD Memory Card/USB Drive)	External media can be ejected during real-time saving by activating a button on the screen and confirming a message. When both an SD Memory Card and USB Drive are inserted and media set as priority save destination is ejected, system will continue to save data on other media. When either an SD Memory Card or a USB Drive is inserted and media set as priority save destination is ejected, system will stop saving data. If external media is reinserted under these conditions, system will continue saving data remaining in internal buffer memory to a different file.
	Data protection	Yes (valid only when Z1007 Battery Pack is installed) If remaining battery life declines during real-time saving, system will close file and stop saving data (although measurement operation will continue).
Manual saving	Data is saved whe Choose either sele when SAVE key is	n SAVE key is pressed. ective save or immediate save as operation to perform pressed.
	Selective save	User will be prompted to choose information to save: settings, waveform data (binary format), waveform data (text format), numerical calculation results (all calculations in one file or each calculation in its own file), display image (PNG format).
	Immediate save	Data will be saved immediately when SAVE key is pressed. Type of data to save is set in advance along with format and range. Filenames can be entered when saving data.
Decimation (text format only)	Decimate and save	Off or a value from 1/2 to 1/100,000 (user-selectable)

Loading data

Loading saved data Specify a position and then load up to 256 M data points of previously saved text-format data (when recording 1 analog channel; if recording *n* channels, 256 M/n data points).

Calculations

Numerical calcula- tions	Number of calcula- tions	Up to 10 calculations simultaneously
	Calculation content	Average value, peak-to-peak value, maximum value, maximum value time, minimum value, minimum value time, integration*1, ag- gregation*1, moving average*2, on time*2, off time*2, on count*2, off count*2 *1: Total, positive, negative, or absolute value (user-selectable) *2: Threshold values can be set for individual channels.
	Calculation range	During recording: Calculations performed for all data during recording After recording has stopped: Calculations performed for all data in internal buffer memory, or for data in a calculation range specified by A/B cursors (on vertical axis)
	Time seg- mentation calcula- tions	Enable/disable (user-selectable) Disabled: Calculations performed for all data during recording Enabled: Data for each segment of time, starting with start of measurement Segmentation time: Day, hour, or minute (user-selectable)
Waveform calculations	Calculation content	Ability to set the following calculations: Four arithmetic operations* among channels Moving average, simple moving average, aggregation, and integration of any channel Calculated values are recorded as data for calculation channels (W1 through W30). (Calculations are performed at same time as measurement. Values cannot be recalculated after measurement.) *: Calculation equation (A*CHa □ B*CHb □ C*CHc □ D*CHd) ■ E where A, B, C, D, E: User-specified constants CHa, CHb, CHc, CHd: User-specified measurement channels □: Plus (+), minus (-), multiplication (*), or division(/), or exponentiation (^) (one operation)

Triggers				
Trigger method	Digital comparison method			
Trigger timing	Start, stop, or	start & stop		
Trigger conditions	AND/OR operation performed on trigger source, interval trigger, or external trigger When triggers are disabled, free run			
Trigger sources	Analog, pulse	Analog, pulse, logic, waveform calculations		
Trigger types	Analog, pulse Waveform calculations	Level triggers: Trigger activated by rising or falling edge at set level Window triggers: Set by trigger level upper limit and lower limit. Trigger activated when value leaves area or when value enters area		
	Logic	Trigger activated when patterns of 1/0/X match (where "X" indicates either)		
Interval triggers	Trigger activated for set recording interval after setting days/hours/ minutes/seconds			
External triggers	Trigger activated by rising or falling edge at set level in external input signal. Rising/falling (user-selectable)			
Trigger level	Analog	0.1% f.s. (f.s. = 10 divisions)		
resolution	Pulse	Count 1c, rotational speed 1/n (where n = pulse count per rotation setting)		
Pre-triggers	Set day/hours/minutes/seconds. Can be set during real-time saving.			

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Alarms			
Alarm conditions	Set separately for ALM1 to ALM8 System will output an alarm when any of the following conditions are satisfied:		
Alarm sources	Analog, pulse	e, logic, waveform calculations	
Wireless error (LR8450-01 only)	Alarm output when a wireless communication error with a wireless module is detected		
Low remaining battery life	Alarm output when instrument's remaining battery life declines		
Thermocouple burnout	Alarm output when a thermocouple burnout occurs (when Tc burn- out detection setting is enabled)		
Types of alarms	Analog, pulse, waveform calculations	Level: System will output an alarm following a rising or falling edge at set level	
		Window: Set upper limit and lower limit System will output an alarm when value leaves area or when value enters area	
		Slope: System will output an alarm when rate of change exceeds set value	
	Logic	System will output an alarm when patterns of 1/0/X match (where "X" indicates either)	
Alarm filter	Apply a filter to results of AND/OR operations performed on alarm sources. Set based on sample count (Off, 2 to 1000). System will output an alarm if alarm state continues for set number of samples		
Alarm retention	On/Off (user-selectable) Clear alarms: When alarm retention is On, alarms will be cleared without stopping recording.		
Alarm tone	On/Off (user-selectable)		

Other functionality

Even mark function Number of inputs Up to 1000 inputs per measurement

Waveform search function	Search waveforms and display target location in center of waveform screen.		
	Search conditions	Search by choosing level, window, maximum value, minimum value, local maximum value, or local minimum value.	
	Search range	All data in internal buffer memory or data between A/B cursors (on vertical axis)	
	Search targets	Analog, pulse, logic, waveform calculations	
Jump function	Specify event mark, A/B cursor position, trigger point, or waveform display position to display in center of waveform screen.		
Cursor	Cursor display	All channels or specified channels (user-selectable)	
measurement function	Cursor movement	A, B, or simultaneous (user-selectable)	
Infiction	Types of cursors	Vertical or horizontal (user-selectable)	
Scaling function	Scaling settings can be configured separately for each channel.		
Comment entry function	Enter titles and channel-specific comments		
Start state retention function	On/Off (user-selectable)		
Prevention of inadvertent START/	When START or STOP key is pressed, system will display a message asking if user wishes to start or stop measurement.		
STOP key operation	Confirmation message: Enable/disable (user-selectable)		
Key lock function	Disables operation keys		
Beep tone	On/Off (user-selectable)		
Self-check function	Can check keys, LCD, ROM/RAM, LAN, media, and modules.		
Display of horizontal axis (time values)	Horizontal axis (time value) display can be set to time, date, or data point count. Setting is applied when text data is saved.		
Configuration naviga- tion (Quick Set) function	Connection diagram display (Strain gauge, external terminals)		
Power supply fre- quency filter function	50 Hz/60 Hz selection		

Inp	nput			
Pu	lse/logic input			
Number of channels 8 channels (common GND, non-iso Exclusive setting for pulse/logic inp		8 channels (common GND, non-isolated) Exclusive setting for pulse/logic input for individual channels		
	Ferminal block	Push-button type terminal block		
i	Adaptive nput format	Non-voltage contact, open collector (PNP open collector requires external resistor), or voltage input		
i	Maximum nput voltage	0 V to 42 V DC		
Ī	nput resistance	1.1 MΩ ±5%		
]	Detection evel	2 levels (user-selectable) High: 1.0 V or greater; low: 0 to 0.5 V High: 4.0 V or greater; low: 0 to 1.5 V		

Pulse input

Measurement	range	e, resolution		
Measurement target		Range	Maximum resolution	Measurable range
Count		1000 M pulse f.s.	1 pulse	0 to 1000 M pulse
Rotational spe	ed	5000/n (r/s) f.s.	1/n (r/s)	0 to 5000/n (r/s)
		300,000/n (r/min.) f.s.	1/n (r/min.)	0 to 300,000/n (r/min.)
		n: Number of pulses per r	otation (1 to 1000)	
Pulse input period	With With	filter off: 200 μs or greater (100 μs or greater during high and low interval) filter on: 100 ms or greater (50 ms or greater during high and low interval)		
Slope	Set r	ising/falling for each ch	annel.	

Measure- ment mode	Integration (addition, instantaneous), rotational speed		
Integration	Addition: Counts number of pulses input from start of measurement. Instantaneous: Counts number of pulses input within each recording interval (integrated value is reset for each rotational interval).		
Rotational speed	r/s: Counts number of input pulses during 1 s and calculates rota- tional speed. r/min.: Counts number of input pulses during 1 min. and calculates rotational speed.		
Smoothing function	Select value from 1 s to 60 s (valid only when set to rotational speed and r/min.).		
Chatter pre- vention filter	Set to On/Off for each channel.		
ogic input			
Measure- ment mode	Records 1 or 0 for each recording interval.		
ccessories	Quick Start Manual, LOGGER Application Disk (Quick Start Manual, Instruction Manual, Logger Utility, Logger Utility Instruc- tion Manual, Communication Instruction Manual), USB Cable, AC Adapter Z1014, Precautions Concerning Use of Equipment that Emits Radio Waves (LR8450-01 only)		
	Measure- ment mode Integration Rotational speed Smoothing function Chatter pre- vention filter regic input Measure- ment mode ccessories		

Software Logger Utility specifications

Operating Environment	Windows7(32bit/64bit) Windows8(32bit/64bit) Windows10(32bit/64bit)
Overview	Control PC-connected logger to receive, display and save measured waveform data sequentially. (Total recording samples: maximum 10 million data. Data exceeding this number will be segmented into separate measurement files while recording continues.)
Function	Controllable loggers: 5 (Only 1 logger when recording interval is 1 ms to 5 ms) Data Collection System: 1 system Display Format: • Waveforms (split time-axis display is possible) • Numerical values (logging) Numerical display can be enlarged • Alarms Above items can be displayed simultaneously Numerical Value Monitor Display: Display in a separate window is possible. Scroll: Waveforms can be scrolled during measurement.
Data Collection	Settings: Data collection settings of logger unit can be configured Monitor function can be checked before measurement. Save: Save settings from multiple devices supporting real-time measurement (LUS format) and measurement data (LUW format) as one file. Data Save Destination: Real-time data collection file (LUW format), transfer data in real-time or non-real-time to Microsoft Excel®, Excel® template can be specified Event Mark: Recording during measurement is possible
Waveform Display	Supported Files: Waveform data file (LUW format, MEM format) Display Format: Waveforms (split time-axis display available), Simultaneous display of numerical values (logging) available Maximum Number of Channels: 675 channels (measured) + 60 channels (waveform calculation) Waveform Display Sheets: Waveform of each channel can be displayed on any of the ten sheets Scroll: Available Event Mark Recording: Available Cursors: Cursors A and B can be used to display voltage values at cursor positions. Hard Copy: Hard copy of waveform display available
Data Conversion	Applicable Files: Waveform data file (LUW format, MEM format) Conversion Section: All data, specified section Conversion Format: CSV format (comma delimited, space delimited, tab delimited), transfer to Excel® sheet, LR5000 format (hrp2,hrp) Data Thinning: Simple thinning with any thinning number
Waveform Calculation	Calculation items: Four arithmetic operations Number of calculation channel: 60 channels
Numerical Calculations	Applicable Data: Waveform data file (LUW format, MEM format), real-time measurement data, Waveform calculation Calculation Items: Average value, peak value, maximum value, time to maximum value, minimum value, time to minimum value, On time, Off time, On count, Off count, standard deviation, ag- gregation, area value, and integration Save calculation: Perform numerical calculation and save to file
Search	Applicable Data: Real-time data collection file (LUW format), Main unit measurement file (MEM format), Waveform calculation data Search Mode: Event mark, date and time, maximum position, minimum position, local maximum position, local minimum posi- tion, alarm position, level, window, and variation
Print	Applicable printer: Printer compatible to the OS in use Applicable data: Waveform data file (LUW format, MEM format) Print format: Waveform image, Report print, List print (Channel settings, Event, Cursor value) Print area: All area, Specified area by A-B cursor Print preview: Available

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Option specifications (sold separately)

Voltage/Temp Un (Accuracy guaranteed	it U8550, Universal Unit U8551, Voltage/Temp Unit U8552 d for 1 year, Post-adjustment accuracy guaranteed for 1 year)
General specificatio	ins
Number of input channels	U8550: 15 (Set voltage, thermocouple, or humidity for each channel) U8551: 15 (Set voltage, thermocouple, humidity, RTD, or resistor for each channel) U8552: 30 (Set voltage, thermocouple, or humidity for each channel)
Input terminals	U8550: M3 screw-type terminal block (2 terminals per channel) U8551: Push-button type terminal block (4 terminals per channel) U8552: Push-button type terminal block (2 terminals per channel) outfitted with terminal block cover
Measurement target	U8550, U8552: Voltage, thermocouples, humidity U8551: Voltage, thermocouples, humidity, RTD, resistor
Input type	Scanning by semiconductor relays All channels isolated (Not isolated when measuring with temperature with thermocouple, resistance or humidity)
A/D resolution	16 bits
Maximum input voltage	$\pm 100 \; \text{V} \; \text{DC}$ (maximum voltage between input terminals without causing damage)
Maximum channel- to-channel voltage	300 V DC (maximum voltage that can be applied between each input channel without causing damage; not isolated when measuring with RTD, resistance or humidity)
Maximum rated terminal-to-ground voltage	300 V AC, DC (maximum voltage that can be applied input channel and chassis without causing damage; not isolated when measuring humidity)
Input resistance	10 M Ω or greater (10 mV f.s. to 2 V f.s. voltage ranges, thermocouple ranges, RTD and resistor ranges) 1 M Ω ±5% (10 V f.s. to 100 V f.s. voltage range, 1-5 V f.s. voltage range, humidity measurement)
Allowable signal source resistance	1 kΩ or less
Data refresh interval	10 ms to 10 s (10 selectable levels)
Digital filters	Digital filter cutoff frequency is automatically set to data refresh interval, burnout setting, and power supply frequency filter setting
Operating temperature and humidity range	-10°C to 50°C (14°F to 122°F), 80% RH or less (non-condensing)
Dimensions	Approx. 134W × 70H × 63D mm (5.28"W × 2.76"H × 2.48"D) (including cover)
Mass	U8550: Approx. 345 g (12.2 oz.), U8551: Approx. 318 g (11.2 oz.), U8552: Approx. 319 g (11.3 oz.)
Accessories	Instruction Manual. Installation screws × 2

Analog input specifications (23 \pm 5 °C/73 \pm 9 °F, 80% rh or less, after 30 minutes of warm-up and zero-adjustment, with the 50 Hz/60 Hz cut-off setting selected)

Voltage

Range	Maximum resolution	Measurable range	Measurement accuracy
10 mV f.s.	500 nV	-10 mV to 10 mV	±10 μV
20 mV f.s.	1 µV	-20 mV to 20 mV	±20 μV
100 mV f.s.	5 µV	-100 mV to 100 mV	±50 μV
200 mV f.s.	10 µV	-200 mV to 200 mV	±100 μV
1 V f.s.	50 µV	-1 V to 1 V	±500 μV
2 V f.s.	100 µV	-2 V to 2 V	±1 mV
10 V f.s.	500 µV	-10 V to 10 V	±5 mV
20 V f.s.	1 mV	-20 V to 20 V	±10 mV
100 V f.s.	5 mV	-100 V to 100 V	±50 mV
1-5 V f.s.	500 µV	1 V to 5 V	±5 mV

Temperature Thermocouple (Not including accuracy of reference junction compensation) Standards: JIS C1602-2015,IEC584

Туре	Range	Measurable range	Measurable range	Measurement accuracy
K	100°C f.s.	0.01°C	-100°C to less than 0°C	±0.7°C
			0°C to 100°C	±0.5°C
	500°C f.s.	0.05°C	-200°C to less than -100°C	±1.4°C
			-100°C to less than 0°C	±0.7°C
			0°C to 500°C	±0.5°C
	2000°C f.s.	0.1°C	-200°C to less than -100°C	±1.4°C
			-100°C to less than 0°C	±0.7°C
			0°C to less than 500°C	±0.5°C
			500°C to 1350°C	±0.7°C
J	100°C f.s.	0.01°C	-100°C to less than 0°C	±0.7°C
			0°C to 100°C	±0.5°C
	500°C f.s.	0.05°C	-200°C to less than -100°C	±0.9°C
			-100°C to less than 0°C	±0.7°C
			0°C to 500°C	±0.5°C
	2000°C f.s.	0.1°C	-200°C to less than -100°C	±0.9°C
			-100°C to less than 0°C	±0.7°C
			0°C to 1200°C	±0.5°C

Туре	Range	Measurable range	Measurable range	Measurement accuracy
Е	100°C f.s.	0.01°C	-100°C to less than 0°C	±0.7°C
			0°C to 100°C	±0.5°C
	500°C f.s.	0.05°C	-200°C to less than -100°C	±0.9°C
			-100°C to less than 0°C	±0.7°C
			0°C to 500°C	±0.5°C
	2000°C f.s.	0.1°C	-200°C to less than -100°C	±0.9°C
			-100°C to less than 0°C	±0.7°C
			0°C to 1000°C	±0.5°C
Т	100°C f.s.	0.01°C	-100°C to less than 0°C	±0.7°C
			0°C to 100°C	±0.5°C
	500°C f.s.	0.05°C	-200°C to less than -100°C	±1.4°C
			-100°C to less than 0°C	±0.7°C
			0°C to 400°C	±0.5°C
	2000°C f.s.	0.1°C	-200°C to less than -100°C	±1.4°C
			-100°C to less than 0°C	±0.7°C
			0°C to 400°C	±0.5°C
Ν	100°C f.s.	0.01°C	-100°C to less than 0°C	±1.1°C
			0°C to 100°C	±0.9°C
	500°C f.s.	0.05°C	-200°C to less than -100°C	±2.1°C
			-100°C to less than 0°C	±1.1°C
			0°C to 500°C	±0.9°C
	2000°C f.s.	0.1°C	-200°C to less than -100°C	±2.1°C
			-100°C to less than 0°C	±1.1°C
			0°C to 1300°C	±0.9°C
R	100°C f.s.	0.01°C	0°C to 100°C	±4.4°C
	500°C f.s.	0.05°C	0°C to less than 100°C	±4.4°C
			100°C to less than 300°C	±2.9°C
			300°C to 500°C	±2.2°C
	2000°C f.s.	0.1°C	0°C to less than 100°C	±4.4°C
			100°C to less than 300°C	±2.9°C
			300°C to 1700°C	±2.2°C
S	100°C f.s.	0.01°C	0°C to 100°C	±4.4°C
	500°C f.s.	0.05°C	0°C to less than 100°C	±4.4°C
			100°C to less than 300°C	±2.9°C
			300°C to 500°C	±2.2°C
	2000°C f.s.	0.1°C	0°C to less than 100°C	±4.4°C
			100°C to less than 300°C	±2.9°C
			300°C to 1700°C	±2.2°C
В	2000°C f.s.	0.1°C	400°C to less than 600°C	±5.4°C
			600°C to less than 1000°C	±3.7°C
			1000°C to 1800°C	±2.4°C
С	100°C f.s.	0.01°C	0°C to 100°C	±1.7°C
	500°C f.s.	0.05°C	0°C to 500°C	±1.7°C
	2000°C f.s.	0.1°C	0°C to 2000°C	±1.7°C

Other specifications about thermocouple measurement

Reference junction compen- sation: Internal/external	At INT RJC, total accuracy = add $\pm 0.5^{\circ}$ C
Thermocouple burnout detection: ON/OFF	System will check for burnout at each data refresh inter- val during thermocouple measurement. (10 ms interval not available)

Humidity (use Humidity Sensor Z2000)

Range	Maximum resolution	Measurable range
100% rh f.s.	0.1% rh	5.0% rh to 95.0% rh
	Humidity sensor Z200 (100 (H2 %) Abjuunut sensor Z200 (H2	D accuracy 1 ±10% rh ±6% rh ±8% rh ±5% rh ±6% rh 20 30 40 50 85 Temperature (°C) 50 85

Universal Unit U8551 Only Input specifications

Temperature Connection: 3-wire/4-wire, Measurement current: 1mA (Pt100, Jpt100), RTD 0 1mA (Pt1000) Standards: Pt100,Pt1000:JIS C1604-2013,IEC751 JPt100:JIS C1604-1989

Туре	Range	Maximum resolution	Measurable range	Measurement accuracy
	100°C f.s.	0.01°C	-100°C to 100°C	±0.5°C
Pt100	500°C f.s.	0.05°C	-200°C to 500°C	±0.7°C
	2000°C f.s.	0.1°C	-200°C to 800°C	±0.9°C
	100°C f.s.	0.01°C	-100°C to 100°C	±0.5°C
JPt100	500°C f.s.	0.05°C	-200°C to 500°C	±0.7°C
	2000°C f.s.	0.1°C	-200°C to 500°C	±0.9°C
	100°C f.s.	0.01°C	-100°C to 100°C	±0.5°C
Pt1000	500°C f.s.	0.05°C	-200°C to 500°C	±0.7°C
	2000°C f.s.	0.1°C	-200°C to 800°C	±0.9°C

*When using Pt1000, data refresh intervals of 10ms, 20m, and 50ms are not available. Resistance

Connection: 4-wire: measurement current: 1 mA

Range	Maximum resolution	Measurable range	Measurement accuracy
10Ω f.s.	0.5 mΩ	0Ω to 10Ω	±10 mΩ
20Ω f.s.	1 mΩ	0Ω to 20Ω	±20 mΩ
100Ω f.s.	5 mΩ	0Ω to 100Ω	±100 mΩ
200Ω f.s.	10 mΩ	0Ω to 200Ω	±200 mΩ

High Speed Voltage Unit U8553 (Accuracy guaranteed for 1 year, Post-ad

djustment accuracy guaranteed for 1 year)

General specifications

Number of input channels	5 (voltage only)
Input terminals	M3 screw-type terminal block (2 terminals per channel), outfitted with terminal block cover
Measurement target	Voltage
Input type	Scanning by semiconductor relays, all channels isolated
A/D resolution	16 bits
Maximum input voltage	±100 V DC (maximum voltage between input terminals with- out causing damage)
Maximum channel-to- channel voltage	300 V DC (maximum voltage between input channels without causing damage)
Maximum rated termi- nal-to-ground voltage	300 V AC, DC (maximum voltage between input channel and chassis, or between modules, without causing damage)
Input resistance	1MΩ±5%
Allowable signal source resistance	100Ω or less
Data refresh interval	1 ms to 10 s (13 selectable levels)
Digital filters	Digital filter cutoff frequency is automatically set to data refresh interval, burnout detection setting, and power supply frequency filter setting.
Operating temperature and humidity range	-10°C to 50°C (14°F to 122°F), 80% RH or less (non-con- densing)
Dimensions	Approx. 134W × 70H × 63D mm (5.28"W × 2.76"H × 2.48"D) (including cover)
Mass	Approx. 237 g (8.4 oz.)
Accessories	Instruction Manual, Installation screws × 2

Analog input specifications (23 ±5°C/73 ±9°F, 80% rh or less, after 30 minutes of warm-up and zero-adjustment, with the 50 Hz/60 Hz cut-off setting selected)

Measurement target	Range	Maximum resolution	Measurable range	Measurement accuracy
Voltage	100 mV f.s.	5 µV	-100 mV to 100 mV	±100 μV
	200 mV f.s.	10 µV	-200 mV to 200 mV	±200 μV
	1 V f.s.	50 µV	-1 V to 1 V	±1 mV
	2 V f.s.	100 µV	-2 V to 2 V	±2 mV
	10 V f.s.	500 µV	-10 V to 10 V	±10 mV
	20 V f.s.	1 mV	-20 V to 20 V	±20 mV
	100 V f.s.	5 mV	-100 V to 100 V	±100 mV
	1-5 V f.s.	500 µV	1 V to 5 V	±10 mV

curacy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year) General specifications Number of input 5 (Set voltage or strain for each channel.) channels Push-button type terminal block (5 terminals per channel), outfitted with terminal block cover Input terminals Set DIP switches according to measurement target Measurement Voltage target Strain gauge-type converter Strain gauge 1-gauge method (2-wire setup), 1-gauge method (3-wire setup), 2-gauge method (adjacent sides), 4-gauge method Strain Adaptive gage 1-gauge method, 2-gauge method: 120 Ω (external bridge box required for 350 Ω) 4-gauge method: 120 Ω to 1 k Ω resistance 2 V ±0.05 V DC Bridge voltage Method Electronic auto-balancing Balance Voltage: ±20 mV or less (1 mV f.s. to 20 mV f.s. range), ±200 mV or less (50 mV f.s. to 200 mV f.s. range) Strain: ±20,000 με or less (1000 με f.s. to 20,000 με f.s. range), ±200,000 με or less (50,000 με f.s. to 200,000 με f.s. range) adjustment Range Input type Simultaneous sampling of all channels (non-isolated channels) ±0.5 V DC (maximum voltage between input terminals without caus-Maximum input voltage ing damagè) Maximum channel-Non-isolated (all channels share common GND) to-channel voltage 30 Vrms AC or 60 V DC Maximum rated terminal-to-(maximum voltage between input channel and chassis without ground voltage causing damage) Input resistance 2 MΩ ±5% Data refresh interval 1 ms to 10 s (13 selectable levels) Cutoff frequency: -3 dB ±30% Auto, 120, 60, 30, 15, 8, 4 (Hz) Auto: Cutoff frequency of low-pass filter is automatically set based Low-pass filter on set data refresh interval Attenuation characteristics: 5th-order Butterworth filter, -30 dB/oct Operating temperature -10°C to 50°C (14°F to 122°F), 80% RH or less (non-condensing) and humidity range

Approx. 134W × 70H × 63D mm (5.28"W × 2.76"H × 2.48"D) (including cover) Dimensions Mass Approx. 236 g (8.3 oz.)

Accessories Instruction Manual, Installation screws × 2, Connection confirmation label

STRAIN UNIT U8554

Analog input specifications (23 $\pm5\,^\circ\text{C}/73\,\pm0\,^\circ\text{F},\,80\%$ rh or less, auto-balance at least 30 minutes after power on, with LPF set at 4 Hz)

Measure- ment target	Range	Maximum resolution	Measurable range	Measurement accuracy
Voltage	1 mV f.s.	50 nV	-1 mV to 1 mV	±9 μV
	2 mV f.s.	100 nV	-2 mV to 2 mV	±10 μV
	5 mV f.s.	250 nV	-5 mV to 5 mV	±25 μV
	10 mV f.s.	500 nV	-10 mV to 10 mV	±50 μV
	20 mV f.s.	1 µV	-20 mV to 20 mV	±100 µV
	50 mV f.s.	2.5 µV	-50 mV to 50 mV	±250 µV
	100 mV f.s.	5 µV	-100 mV to 100 mV	±500 μV
	200 mV f.s.	10 µV	-200 mV to 200 mV	±1 mV
Strain	1,000 με f.s.	0.05 με	-1,000 με to 1,000 με	±9 με
	2,000 µɛ f.s.	0.1 με	-2,000 με to 2,000 με	±10 με
	5,000 με f.s.	0.25 με	-5,000 με to 5,000 με	±25 με
	10,000 με f.s.	0.5 με	-10,000 με to 10,000 με	±50 με
	20,000 µɛ f.s.	1 με	-20,000 με to 20,000 με	±100 με
	50,000 με f.s.	2.5 με	-50,000 με to 50,000 με	±250 με
	100,000 µɛ f.s.	5 με	-100,000 με to 100,000 με	±500 με
	200,000 µɛ f.s.	10 με	-200,000 με to 200,000 με	±1000 με

*Internal bridge resistance precision tolerance: ±0.01%; temperature characteristics: ±2 ppm/°C *Measurement accuracy does not include internal bridge resistance tolerance and temperature characteristics

Detailed specifications for wireless units will be made available when units launch.

Maximum recording time (Rough estimate)

Example: Recording 2 units (30 analog) (no alarm output or waveform processing)

Because header portion of waveform files is not included in capacity calculations, expect actual maximum times to be about 90% of those in table. Maximum recording time is inversely proportional to number of recording channels.

Recording intervals	Internal buffer memory (512 MB)	Z4001 (2 GB)
100 ms	10 d 8 h	38 d 18 h
200 ms	20 d 17 h	77 d 12 h
500 ms	51 d 18 h	193 d 19 h
1 s	103 d 13 h	387 d 15 h
5 s	500 d	1162 d 21 h
10 s	500 d	3876 d 8 h

Model: MEMORY HILOGGER LR8450



Model No. (Order code)	Specifications
LR8450	Standard model, main unit only
LR8450-01	Wireless LAN equipped model, main unit only

Note) The LR8450 and LR8450-01 cannot perform measurement on their own. One or more plug-in units or wireless units are required (sold separately). Note) The LR8450-01 and each wireless unit 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) Wireless certification countries: Japan, United States, Canada, and European Union. *For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

Option



All information correct as of Jan. 31, 2020. All specifications are subject to change without notice.

information