HIOKI

New

WIRELESS MINI LOGGER
LR8512, LR8513, LR8514, LR8515

Data Loggers

For easy-to-use loggers, look no further!

Connect to a tablet, smartphone,
or PC for easy, wireless data collection

CE Bluetooth

Countries and regions where wireless operation is currently supported: Japan, U.S.A., Canada, EU, Norway, Switzerland, Turkey, Russia, Singapore, Thailand, Vietnam, and India

Connect to a tablet, smartphone, or PC for easy, wireless data collection

Use your tablet or PC to collect data even as signals are being logged.
Check data immediately and on-site.
No more complicated logger registration. Just touch to detect, and touch to register.

Tablet, Smartphone

Android Terminal

■ Operating procedure

1 Setting and measurement

Use your Android terminal to set and send measurement conditions, such as the recording interval, to the logger to begin measurement.

2 Data collection

Collect the data recorded in the logger after or even during measurement.

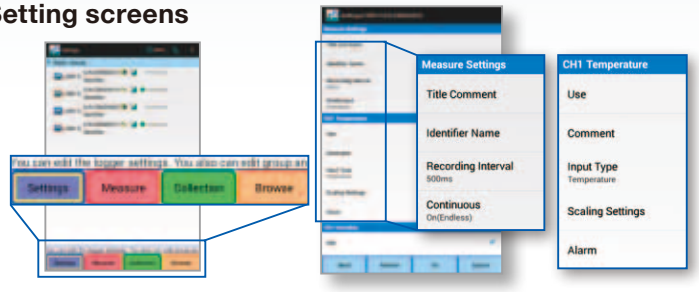
3 Data analysis

Connect a USB cable to transfer the data to a PC. Use the bundled software, "Logger Utility," to perform analysis.

■ Specifications

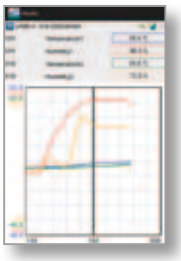
Supported devices	Android tablet / Android smartphone
Communications	Bluetooth®2.1 + EDR
Android OS	4.0.3 or later
Number of available registrations	Max. 100 units
Recommended display size	7 inches or larger
Software	Collection: Wireless Logger Collector for Android Analysis: Logger Utility (PC)
Software acquisition	Collection: Download from Google Play Analysis: Supplied CD-R / Download from HIOKI's website

Setting screens



Waveform monitoring

Even during measurement, you can check recent data trends in waveform and values. This is also convenient for checking the levels before actual recording.



Portable and convenient

The user interface is perfect for the small screens of tablets or smartphones.

Check waveforms on-site

You can check the collected data on your tablet or smartphone.

*Support planned for free updates.

Computer

Windows PC

■Operating procedure

1 Setting and measurement

Use your Windows PC to set and send measurement conditions, such as the recording interval, to the logger to begin measurement.

2 Data collection

Collect the data recorded in the logger after or even during measurement.

3 Data analysis

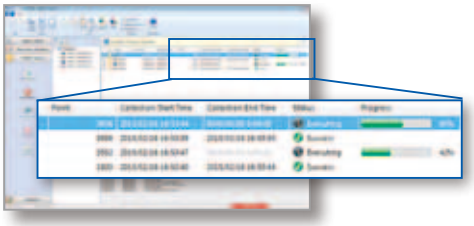
Start "Logger Utility" and perform analysis at the touch of a button.

■ Specifications

Supported devices	Windows PC / Windows tablet
Communications	Bluetooth®2.1 + EDR
OS	Windows 8 / 7 / Vista (32/64bit)
Number of available registrations	Max. 100 units
Software	Collection: Wireless Logger Collector Analysis: Logger Utility
Software acquisition	Supplied CD-R / Download from HIOKI's website

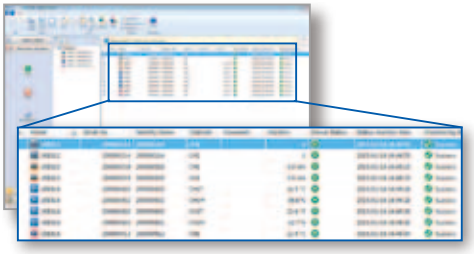
Periodic collection

You can automatically collect data at intervals from 10 minutes to 1 day. Avoid the trouble of going around to collect data.



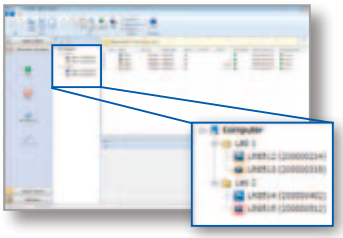
Status monitoring

You can periodically monitor information such as the latest measurement, remaining battery power, and signal strength.



Multi-device management

Centrally manage up to 100 loggers. Since you can group devices in a tree structure, management is very easy.



Here's why the "WIRELESS MINI" is for you

Select from 4 types to match your application.

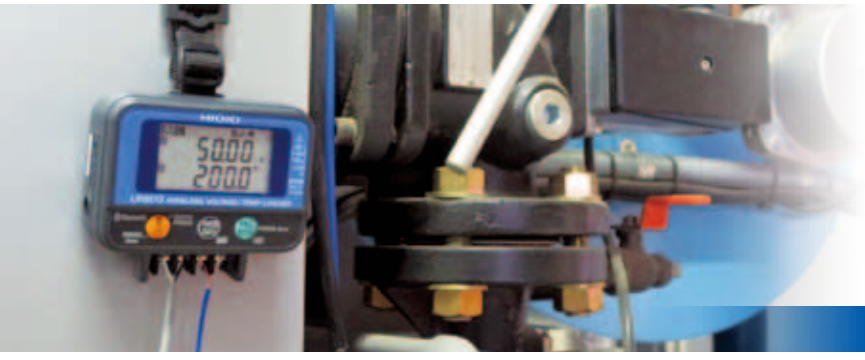
All models have 2 channels, with built-in high-capacity memory for long-term recording.

Compact and space-saving, the mini loggers can be easily installed in locations where wiring is difficult.

Pulse : LR8512

Load/leakage current : LR8513

Temperature/humidity : LR8514

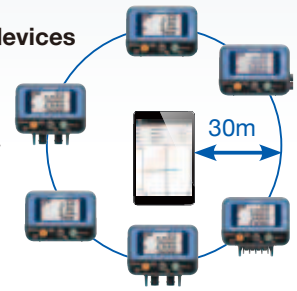


Voltage / temperature : LR8515

Wireless

30 m line-of-sight, up to 100 devices

Built-in Bluetooth® wireless technology.
Communication reaches 30 m, line-of-sight. (This varies depending on the performance of the communicating tablet or PC.)
Manage up to 100 devices.

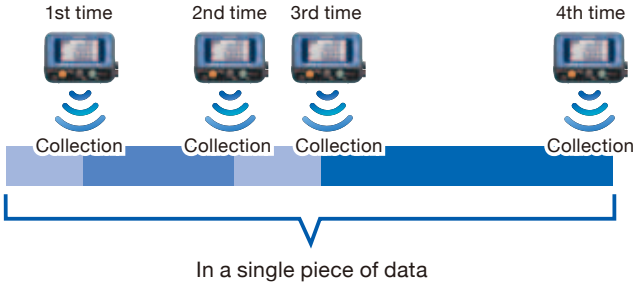


Make measurements inside panels or other difficult-to-wire locations

Installing a data logger in a switchboard or control panel has never been easier. Gone is the need to feed wiring through the panel-data collection is done wirelessly so you can close the panel door for safe measurements.
The loggers are also useful for measuring in difficult-to-wire locations, like high places or on moving machines.

Automatic synthesis of acquired data into a single piece of data

No matter what time during measurement you collect the data, data is automatically merged together into one single file. You don't need to manually synthesize data.



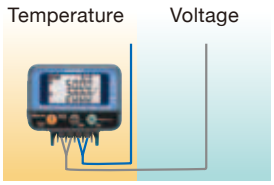
Compact with Built-in High-capacity Memory

Install in tight spaces

Pocket size for installation anywhere.
Use the optional MAGNETIC STRAP to hang it on a wall – solving all of your installation space problems.

2 channels built in all models

All models have 2-channels built in, so you can measure 2 locations simultaneously.
With the LR8515, you can measure both voltage and temperature with a single device.



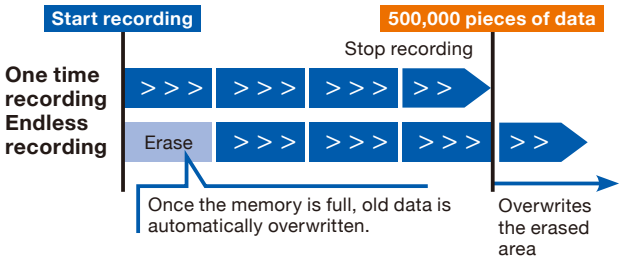
Record up to 500,000 pieces of data per channel

Despite their compact size, the mini loggers' built-in high-capacity memory offers plenty of space for you to perform long-term recording with peace of mind.

Recording intervals	Recordable time
0.1 sec	13 hr, 53 min, 20 sec
0.2 sec	1 day, 3 hr, 46 min, 40 sec
0.5 sec	2 days, 21 hr, 26 min, 40 sec
1 sec	5 days, 18 hr, 53 min, 20 sec
2 sec	11 days, 13 hr, 46 min, 40 sec
5 sec	28 days, 22 hr, 26 min, 40 sec
10 sec	57 days, 20 hr, 53 min, 20 sec
20 sec	115 days, 17 hr, 46 min, 40 sec
30 sec	173 days, 14 hr, 40 min, 00 sec
1 min	347 days, 5 hr, 20 min, 00 sec
2 min to 60 min	Over 365 days

Selectable recording modes

One time recording: Once the memory is full, the logger stops recording. Prevents data from being overwritten and protects important data.
Endless recording: Once the memory is full, the logger begins overwriting old data. You can always keep the latest 500,000 pieces of data.



Power-saving Design

Power-saving function for longer battery life

Set to turn on the Bluetooth® only during a pre-set time period. The shorter the power is on, the longer the battery will last.

Continuous operating time (Battery)	Pulse LR8512	Load/leakage current LR8513	Humidity LR8514	Voltage/ Thermocouple LR8515
Recording interval of 1 min, Bluetooth® OFF	2 months	3 months	3.5 months	2.5 months
Recording interval of 1 sec, Bluetooth® OFF	2 months	1 months	3 months	10 days
Recording interval of 1 sec, Bluetooth® ON	14 days	10 days	20 days	7 days

*When Bluetooth® is constantly on or constantly off. **If recording for a long period of time, we recommend using the AC ADAPTER.**

For pulse totalization and measuring logical ON/OFF signals or revolutions

WIRELESS PULSE LOGGER LR8512

For applications such as:
Air conditioning (flow rate), automobiles (flow rate, vehicle speed), cogeneration (flow rate)

Easily manage and record flow rates

Record and manage flow rates for liquids such as water, gas, and petroleum. You can measure the flow meter's output signal (pulse) to visualize daily fluctuations.

■ Specifications (Accuracy guaranteed for 1 year)

No. of input channels	2 channels (common GND)
Measurement modes	Integrating (cumulative/Instant), Revolution, Logic (Records an 1/0 for each recording interval)
Supported input format	Non-voltage "a" contact (always-open contact point), open collector, or voltage input (DC 0 V to 50 V)
Recording intervals	0.1 to 30 sec, 1 to 60 min, 16 selections
Recording modes	Instantaneous value
Dimensions, Weight	85W×61H×31D mm (3.35W×2.40H×1.22D in), 95 g (Not including the battery)

■ Pulse input

Pulse input cycle	200 µs or higher when the filter is set to OFF (must be 100 µs or higher in H period and L period.) 100 ms or higher when the filter is set to ON (must be 50 ms or higher in H period and L period.)

Measurement objects	Range	Max. Resolution	Measurement Range
Totalization	1000M pulse f.s.	1 pulse	0 to 1000 M pulse
No. of revolutions	5000/n [r/s] f.s.	1/n [r/s]	0 to 5000/n [r/s]

*n is the number of pulses, 1 to 1000, per revolution.

Models and accessories

*AC Adapter is not included.

WIRELESS PULSE LOGGER LR8512

Accessories: CD-R (Instruction Manual, Logger Utility, Wireless Logger Collector) × 1, Measurement Guide ×1, Caution for Using Radio Waves × 1, AA alkaline batteries (LR6) ×2 Connection Cable L1010 × 2

Options

CONNECTION CABLE L1010
1.5 m (4.92 ft)
Bundled and also available for additional purchase

For long-term recording

AC ADAPTER Z2003
100 to 240 VAC, 50/60Hz

MAGNETIC STRAP Z5004

Supports voltage input and thermocouple types K and T with a single device

WIRELESS VOLTAGE/ TEMP LOGGER LR8515

For applications such as:
Various tests for electronics/automobiles/transportation, PV maintenance

Record voltage and temperature with a single device

You can use a single device to measure everything from the minute voltages of pyranometers or heat flow sensors to battery voltage.
Also view the correlation between voltage and temperature.

■ Specifications (Accuracy guaranteed for 1 year)

No. of input channels	2 ch (isolated; select voltage of thermocouple for each channel)
Measurement items	Voltage/Thermocouple (K, T)
Input terminals	M3 screw type terminal block (2 terminals per channel)
Maximum input voltage	DC±50 V
Max. inter-channel voltage	DC 70 V
Recording intervals	0.1 to 30 sec, 1 to 60 min, 16 selections
Recording modes	Instantaneous value
Dimensions, Weight	85W×75H×38D mm (3.35W×2.95H×1.50D in), 126 g (Not including the battery)

■ Measurement ranges

Measurement objects		Range	Max. Resolution	Measurable Range	Measurement Accuracy
Voltage		50 mV f.s.	0.01 mV	-50 mV to 50 mV	±0.05 mV
		500 mV f.s.	0.1 mV	-500 mV to 500 mV	±0.5 mV
		5 V f.s.	1 mV	-5 V to 5 V	±5 mV
		50 V f.s.	10 mV	-50 V to 50 V	±50 mV
Thermocouples	K	1000 °C f.s.	0.1 °C	-200 °C to -100 °C	±1.5 °C
				-100 °C to 999.9 °C	±0.8 °C
	T	1000 °C f.s.	0.1 °C	-200 °C to -100 °C	±1.5 °C
				-100 °C to 0 °C	±0.8 °C
				0 °C to 400 °C	±0.6 °C

Reference junction compensation: Switchable between internal and external
Reference junction compensation accuracy: ±0.5°C
(When using internal compensation, add to thermocouple measurement accuracy.)
Temperature characteristics: Add (measurement accuracy × 0.1)/°C to measurement accuracy.

Models and accessories

*Thermocouples and AC Adapter are not included.

WIRELESS VOLTAGE/TEMP LOGGER LR8515

Accessories: CD-R (Instruction Manual, Logger Utility, Wireless Logger Collector) × 1, Measurement Guide × 1, Caution for Using Radio Waves × 1, AA alkaline batteries (LR6) × 2

Options

For long-term recording

AC ADAPTER Z2003
100 to 240 VAC, 50/60Hz

MAGNETIC STRAP Z5004

For simple measurements such as AC/DC load current or AC leakage current

WIRELESS CLAMP LOGGER LR8513

For applications such as:

PV maintenance, automobile tests, forklifts, railroads, equipment maintenance

Built-in average value recording mode

The logger records the average for each recording interval of the RMS measured at 0.5 sec intervals. This is convenient for grasping the demand for every half hour.

Simple electrical measurement

Set the voltage and power factor for simple electrical measurements. Direct reading on this device is possible for single-phase, two-wire systems.

■ Specifications (Accuracy guaranteed for 1 year)

No. of input channels	2 channels (common GND)
Measurement items	AC load current, DC load current AC leak current (using current sensor)
Effective value calculation	Software calculates the true RMS value
Measurement ranges	AC500.0 mA to 2000 A (with current sensor) DC10.00 A to 2000 A (with current sensor) *Current and leak current that occur intermittently cannot be measured.
Measurement accuracy	±0.5% rdg.±5 dgt. (DC, AC 50/60 Hz) *Add the sensor's accuracy when the current sensor is connected
Recording intervals	0.5 to 30 sec, 1 to 60 min, 14 selections
Recording modes	Instantaneous value, average value
Dimensions, Weight	85W×75H×38D mm (3. 35W×2.95H×1.50D in) mm, 130 g (Not including the battery)

■ Current sensor specifications

Sensor used	Range	Max. Resolution	Measurable Range
9675	500.0 mA	0.1 mA	AC 1.0 mA to 500.0 mA
	5.000 A	0.001 A	AC 0.010 A to5.000 A
9657-10	500.0 mA	0.1 mA	AC 1.0 mA to 500.0 mA
	5.000 A	0.001 A	AC 0.010 A to 5.000 A
9695-02	5.000 A	0.001 A	AC 0.010 A to 5.000 A
	50.00 A	0.01 A	AC 0.10 A to 50.00 A
CT6500	50.00 A	0.01 A	AC 0.10 A to 50.00 A
	500.0 A	0.1 A	AC 1.0 A to 500.0 A
9669	1000 A	1A	AC 10 A to 1000 A
CT9691-90	10.00 A	0.01 A	AC 0.10 A to 10.00 A DC± (0.10 A to 10.00 A)
	100.0 A	0.1 A	AC 1.0 A to 100.0 A DC± (1.0 A to 100.0 A)
CT9692-90	20.00 A	0.01 A	AC 0.10 A to 20.00 A DC± (0.10 A to 20.00 A)
	200.0 A	0.1 A	AC 1.0 A to 200.0 A DC± (1.0 A to 200.0 A)
CT9693-90	200.0 A	0.1 A	AC 1.0 A to 200.0 A DC± (1.0 A to 200.0 A)
	2000 A	1 A	AC 10 A to 2000 A DC± (10 A to 2000 A)

Models and accessories

* Current sensor and AC Adapter are not included.

WIRELESS CLAMP LOGGER LR8513

Accessories: CD-R (Instruction Manual, Logger Utility, Wireless Logger Collector) × 1, Measurement Guide ×1, Caution for Using Radio Waves × 1, AA alkaline batteries (LR6) ×2

Options

AC ADAPTER Z2003
100 to 240 VAC, 50/60Hz
For long-term recording

AC load current

CLAMP ON SENSOR CT6500
φ46 mm, AC 500A, cord length 3 m (9.84 ft)

AC load current

CLAMP ON SENSOR 9669
φ55 mm, AC 1000A, cord length 3 m (9.84 ft)

AC load current

Requires the Connection Cable 9219

Insulated conductor

CLAMP ON SENSOR 9695-02
φ15 mm, AC 50A

CONNECTION CABLE 9219
For connecting the 9695-02, cord length 3 m (9.84 ft)

MAGNETIC STRAP Z5004

Insulated conductor

CLAMP ON LEAK SENSOR 9657-10
φ40 mm, AC 10A, cord length 3 m (9.84 ft)

AC leak current

Insulated conductor

CLAMP ON LEAK SENSOR 9675
φ30 mm, AC 10A, cord length 3 m (9.84 ft)

AC/DC load current

CLAMP ON AC/DC SENSOR CT9691-90, CT9692-90, CT9693-90
CT9691-90: φ35 mm, AC/DC 100A, cord length 2 m (6.56 ft)
CT9692-90: φ33 mm, AC/DC 200A, cord length 2 m (6.56 ft)
CT9693-90: φ55 mm, AC/DC 2000A, cord length 2 m (6.56 ft)

Shared specifications

LR8512, LR8513, LR8514, LR8515

Control and communications	Bluetooth® 2.1+EDR (Communications range: 30 m, line of sight, security: SSP)
Storage capacity	500,000 data items for each channel
Operating temperature and humidity	Temperature: -20 to 60 ˚C (-4 to 140 °F), Humidity: 80%rh or less (non-condensing) (Depends on battery and current sensor specifications when they are in use)
Storage temperature and humidity	-20˚C to 60˚C, 80%rh or less (non-condensing) (With batteries removed)
Functions	Alarm, Scaling, Recording operation hold function, Erroneous operation prevention, Comment recording function, Power saving function, Authentication function
Display items	Measurement value, date, time, number of recorded data, maximum value, minimum value, and average value

Applicable standards	Safety	EN61010
	EMC	EN61326 classA, EN61000-3-2, EN61000-3-3
	Wireless certification	Japan: Incorporates a wireless module that has been certified as compliant with applicable technical standards. US: Part 15.247 (Contains FCC ID: QOQWT11IA) Canada:RSS-210 (Contains IC: 5123A-BGTWT11IA) EU: EN 300 328, EN 301 489-1, EN 301 489-17
Vibration endurance		JIS D 1601:1995 5.3(1), Category 1: Vehicle, Condition: Category A equiv.
Power source	AC adapter	AC ADAPTER Z2003 (sold separately, DC 12 V)
	Battery	AA alkaline batteries (LR6) × 2
	External power	DC 5 V to 13.5 V * can also be supplied from USB bus power, with a conversion cable

Compact with High Accuracy, Convenient for Recording Temperature and Humidity

WIRELESS HUMIDITY LOGGER LR8514

For applications such as:

Environmental testing, construction, factories, storage, agriculture

Conduct surveys and verifications efficiently

Easily record and manage the surrounding temperature and humidity. The logger is helpful for status analysis, improvement, and verification. Also, since it can simultaneously record the temperature and humidity in 2 locations, you can compare conditions inside and outside a device. (With 2 sensors installed)

Recording temperature and humidity in a server room

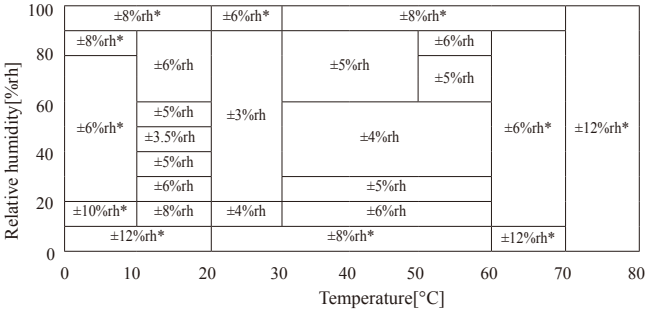
■ Specifications

No. of input channels	2 ch for temperature + 2 ch for humidity (2 sensors can be attached)
Measurement objects	Temperature, Humidity
Temperature measurement accuracy (using Z2010/Z2011)	±0.5˚ C (10 ˚C to 60 ˚C), using Z2010/Z2011 If outside above temperature range: Add 0.015 ˚C/ ˚C (-40 ˚C to 10 ˚C) or 0.02˚ C/ ˚C (60 ˚C to 80 ˚C)
Humidity measurement accuracy (using Z2010/Z2011)	±3% rh (20 ˚C to 30 ˚C, 20% to 90% rh) If outside above range, see Figure 1.
Recording intervals	0.5 to 30 sec, 1 to 60 min, 14 selections
Recording modes	Instantaneous value
Dimensions, Weight	85W×61H×31D mm (3.35W×2.40H×1.22D in), 95 g (Not including the battery)

Measurement objects	Range	Max. Resolution	Measurable Range
Temperature	100 ˚C f.s.	0.1 ˚C	-40˚C to 80 ˚C
Humidity	100%rh f.s.	0.1 %rh	0 %rh to 100 %rh

■ Humidity measurement accuracy (fig. 1)

The accuracy of values indicated by the * mark is not guaranteed (reference values).



*Only the temperature and humidity sensors affect the measurement accuracy and are subject to calibration. The LR8514 logger does not require calibration.

Models and accessories

* Temperature and humudity sensor , AC Adapter are not included.

WIRELESS HUMIDITY LOGGER LR8514

Accessories: CD-R (Instruction Manual, Logger Utility, Wireless Logger Collector) × 1, Measurement Guide × 1, Caution for Using Radio Waves × 1, AA alkaline batteries (LR6) × 2

Options

For long-term recording

AC ADAPTER Z2003
100 to 240 VAC, 50/60Hz

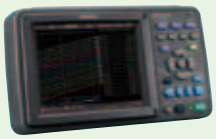
MAGNETIC STRAP Z5004

HUMIDITY SENSOR Z2010
50 mm (0.16 ft)

HUMIDITY SENSOR Z2011
1.5 m (4.92 ft)

Also use the Mini Loggers as Measurement Units for the LR8410-20.

Install the WIRELESS MINIs in each place to be measured. Install up to 7 devices.



WIRELESS LOGGING STATION LR8410-20

Measure waveforms in real-time. Use the trigger function to easily carry out observations when irregularities occur.

*For details, see the product catalog.

Related Products

Fungal growth rate at a glance

WIRELESS FUNGAL LOGGER LR8520

- Prevent fungal damage by predicting the start of fungal growth
- Prevent fungal occurrence in various locations, such as food (grain) storage, document storage, and art galleries or museums

*For details, see the product catalog.

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