LR8514 WIRELESS HUMIDITY LOGGER

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

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

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.

ES France - Département Tests & Mesures
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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.

*Settings cannot be changed directly on the logger.

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.

USB

■ 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
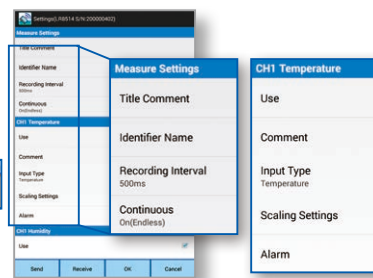
Waveform monitoring

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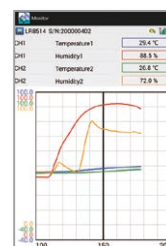
Portable and convenient

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.

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.
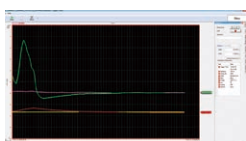
*Settings cannot be changed directly on the logger.

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 10/ 8 / 7 / Vista (32/64bit)
Number of available registrations	Max. 100 units
Software	Collection: Wireless Logger Collector Analysis: Logger Utility

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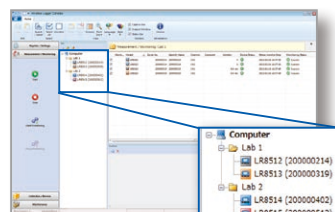
Here's why the "WIRELESS MINI" is for you

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.
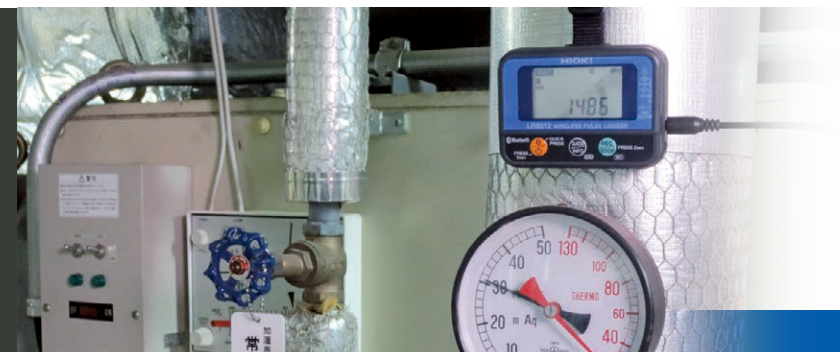
Pulse: LR8512

Load/leakage current: LR8513

Temperature/humidity: LR8514

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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.

30m

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.
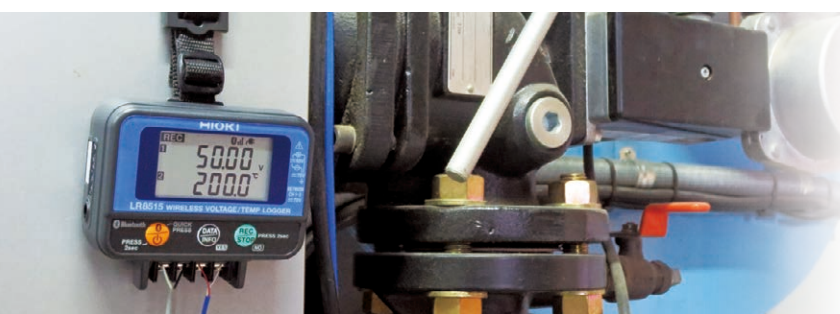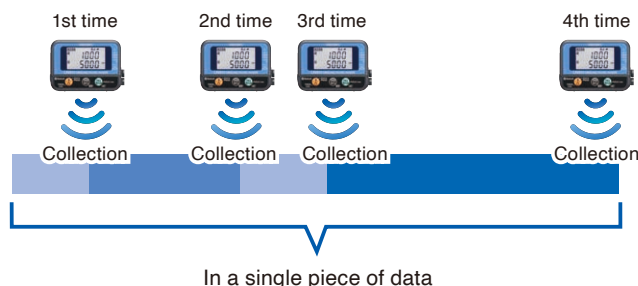
Automatic synthesis of acquired data into a single piece of data

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.

| 1st time | 2nd time | 3rd time | 4th time |

| Collection | Collection | Collection | Collection |

In a single piece of data

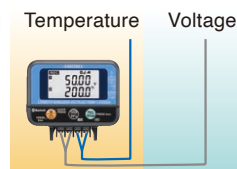# Compact with Built-in High-capacity Memory

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.

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
1 sec	5 days, 18 hr, 53 min, 20 sec
10 sec	57 days, 20 hr, 53 min, 20 sec
1 min	347 days, 5 hr, 20 min, 00 sec
2 min to 60 min	Over 365 days

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.

Temperature   Voltage

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.

Free Run NEW

Excluding LR8512

Update the current value display even while measurement is stopped

ON/OFF selection. The measurement value is indicated every 1 second while measurement is stopped. (the data is not saved in the memory.) The measurement value is saved in the memory every recording interval and indicated every 1 second regardless of recording interval setting while measuring. (when the setting of recording interval is less than 1 second, the measurement value is indicated every recording interval)

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.

Example: To configure the instrument so that Bluetooth® is automatically turned on from 9:00 am to 12:00 pm every day, allowing data to be captured during that time period
[Settings] Schedule: Daily, Data reception start time: 9:00 am, Reception time: 3 hr.

0:00   9:00   12:00   0:00   9:00   12:00   0:00

■ Continuous operating time (Battery)

Detailed conditions: Recording interval, Bluetooth® on/off

Conditions	LR8512	LR8513	LR8514	LR8515
1 min, OFF	2 months	3 months	3.5 months	2.5 months
1 sec, OFF	2 months	1 months	3 months	10 days
1 sec, ON	14 days	10 days	20 days	7 days

*When Bluetooth® is constantly on or constantly off.

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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.

Model: WIRELESS PULSE LOGGER LR8512

Model No. (Order Code): 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

Exclusive options   *Please see last page for shared options.

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

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 60 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 ℃ f.s.	0.1 ℃	-200 ℃ to -100 ℃	±1.5 ℃
				-100 ℃ to 999.9 ℃	±0.8 ℃
	T	1000 ℃ f.s.	0.1 ℃	-200 ℃ to -100 ℃	±1.5 ℃
				-100 ℃ to 0 ℃	±0.8 ℃
				0 ℃ to 400 ℃	±0.6 ℃

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.

Model: 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

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 and maximum value recording modes

The logger can record the average or maximum value for each recording interval using RMS values measured at a 0.5 sec. interval. Average and maximum values are useful when assessing 30 min. demand and peak leakage current, respectively.

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.
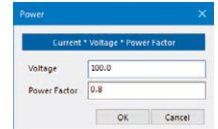
Power		✕
Current * Voltage * Power Factor		
Voltage	100.0	
Power Factor	0.8	
	OK	Cancel

■ 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, Maximum value recording
Dimensions, Weight	85W×75H×38D mm (3.35W×2.95H×1.50D in) mm, 130 g (Not including the battery)

Models and accessories
*Current sensor and AC Adapter are not included.

Model: WIRELESS CLAMP LOGGER LR8513

Model No. (Order Code): 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

Differences between the CT77□□ and the CT76□□
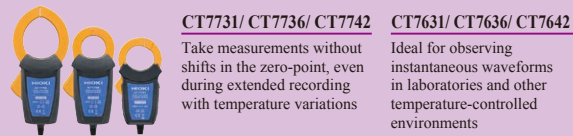
CT7731/ CT7736/ CT7742
Take measurements without shifts in the zero-point, even during extended recording with temperature variations

CT7631/ CT7636/ CT7642
Ideal for observing instantaneous waveforms in laboratories and other temperature-controlled environments

⚠ **Connecting the Current Sensor CT7□□□**

Use with Display Unit CM7290 and Output Cord L9095 to connect with CT7□□□ sensor.

L9095 CM7290 CT7□□□ sensor
LR8513

[Compatible models]
**CT7731, CT7736, CT7742
CT7631, CT7636, CT7642
CT7044, CT7045, CT7046**
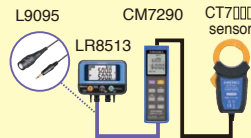
Exclusive options *Please see last page for shared options.

■ Current sensor specifications when used with the LR8513

AC leak current AC load current FLEXIBLE CURRENT SENSOR AC/DC load current

Image	Sensor used	Core jaw diameter	Range	Max. Resolution	Measurable Range
	9675	φ30 mm	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
	9657-10	φ40 mm	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
9219 required	9695-02	φ15 mm	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	φ46 mm	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	φ55 mm	1000 A	1A	AC 10 A to 1000 A
	CT9667-01 CT9667-02 CT9667-03	-01: φ100 mm -02: φ180 mm -03: φ254 mm	500.0 A	0.1 A	AC 1.0 A to 500.0 A
			5000 A	1 A	AC 10 A to 5000 A
CM7290, L9095 required	CT7044 CT7045 CT7046	-44: φ100 mm -45: φ180 mm -46: φ254 mm	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
			5000 A	1 A	AC 10 A to 5000 A
CM7290, L9095 required	CT7631 CT7731	φ33 mm	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)
CM7290, L9095 required	CT7636 CT7736	φ33 mm	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)
CM7290, L9095 required	CT7642 CT7742	φ55 mm	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)
	CONNECTION CABLE 9219		For connecting the 9695-02, cord length 3 m		
	DISPLAY UNIT CM7290		For connecting the CT7□□□ sensor		
	OUTPUT CORD L9095		For connecting the CT7□□□ sensor		

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℃ (-4°F 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℃ to 60℃, 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, Free Run (excluding LR8512)

Applicable standards	Safety	EN61010
	EMC	EN61326 classA, EN61000-3-2, EN61000-3-3
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

Wireless loggers emits 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.

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°C % 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.

In addition, the LR8514 can simultaneously record the temperature and humidity in 2 locations, allowing you to compared conditions inside and outside a piece of equipment, for example. (With 2 sensors installed)

Recording temperature and humidity in a server room

■ Specifications

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

	LR8514
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. Hysteresis: ±1% rh (Added to the humidity measurement accuracy) Environmental effects and ageing changes: add the below to the accuracy of the humidity measurement ±12% RH (10% RH ≤ humidity <30% RH) ±6% RH (30% RH ≤ humidity <40% RH) ±3% RH (40% RH ≤ humidity <90% RH)
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).

Figure 1: Relative humidity [%rh] vs Temperature [°C] accuracy grid.
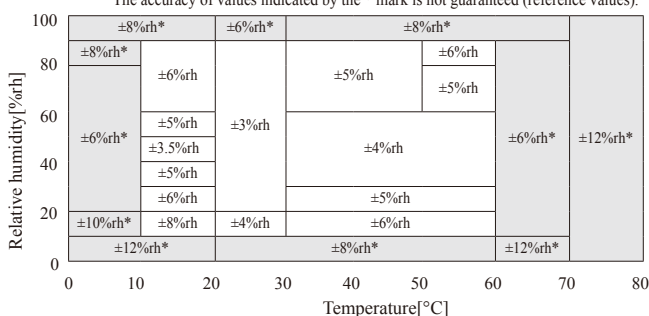
Models and accessories

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

Model: WIRELESS HUMIDITY LOGGER LR8514

Model No. (Order Code): 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

Exclusive options

*Please see below for shared options.

HUMIDITY SENSOR Z2010
50 mm (0.16 ft)

HUMIDITY SENSOR Z2011
1.5 m (4.92 ft)

Shared options

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

MAGNETIC STRAP Z5004

MAGNETIC STRAP Z5020
Extra strength

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