

MICRO DATA LOGGER

The best logging tag ever! Authentic measurement data from the unexplored world is now yours.

Large Capacity/High Resolution; outstandingly small-sized tag



Bland-new, appealing information is now being collected by many researchers using our tags.

In the studies of sea animals, researchers have long been struggling to learn how sea creatures are actually behaving and moving freely around in the 3-dimensional water world under the sea. Most part of this water world, however, has not yet been revealed because of a vast amount of water that prevents further discoveries.

This device, our Micro Data Logger, is an outstandingly small, tag-shaped logger that is capable of standing the pressure of 400 m depth under the sea. By releasing and retrieving small animals or fish tagged with this logger, you can access the information measured under the sea by various sensors. The key advantage of this probe is the high-resolution feature with its large-capacity memory, which enables capturing detailed information about the behavior of various creatures.



Track a penguin's behavior under water with W380M-DT.



Analyze the upstream behavior of a salmon caught in a gulf.

FEATURES

● Capable of measuring and logging data at a depth of 400 m.

Its cylinder, which contains the logger and battery, has a waterproof and rust-resistance structure that stands a depth of 400 m.

● Stores data for a long time, until you retrieve it.

Equipped with flash memory enabling long-term data storage. It keeps logged data even after the battery runs down.

● Extremely small; can be attached to small animals.

This compact logger can be tagged to a wide range of animals, from penguins or dolphins to seabirds or fish, such as flounder, salmon, or trout.

● Collects high-quality data.

With its 1/4096 resolution by a 12-bit AD conversion, the device provides you with high-quality data.

● Memory capacity of 1 million data or more.

It offers you up to 8 million data, enabling a long-term measurement from 1 month to 1 year.

● Raw data can be analyzed with your computer.

You can operate the logger and make collected data into a chart by using the software to control it.

Fastening

Releasing

Measurement

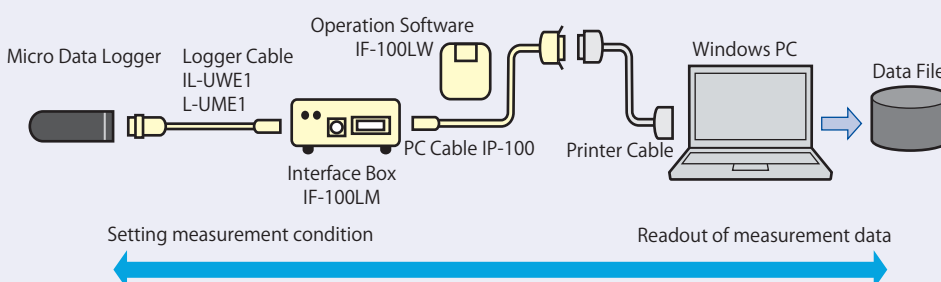
Retrieving

USES

Exploring unknown fields of the ecology of animals ... penguins, turtles, and dolphins.

Research of the ecology of marine resources ... salmon's swim speed/studies on the ecology of flounder.

Measurements in wide application ... improvements to fishing nets/equipment, unmanned environmental researches of inland waters, studies of kinetic physiology.



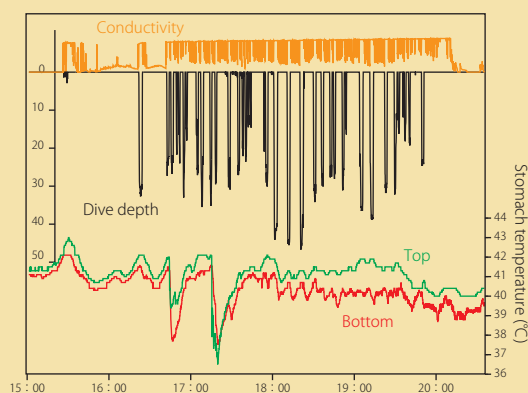
Micro Data Logger Measurement System

Interface Box IF-100LM

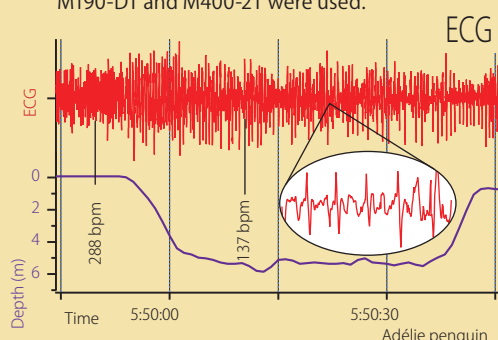
Dimensions : W90×D135×H35 mm

Power : AC100V 50/60 Hz AC adaptor or 9V (6AM6) battery

Accessories : operation software IF-100LW V1.0
PC cable IP-100 (to be attached to the end of the printer cable)



Changes in the gastric temperature of a blue-eyed cormorant while it is diving. M190-DT and M400-2T were used.



ECG waveform monitored during a penguin's dive. Two loggers, W380M-DT and the W380L-ECG designed for ECG chart, were tagged.

Whatever you need for your studies should be found in the options we offer.

- ▶ Ask us for what you need. We have wide experience of manufacturing various sensors.
- ▶ can also be manufactured to enable a higher rust- and pressure-resistance performance.
- ▶ The capacity of our logger's flash memory can be upgraded to 32, 64, or 128 Mbit.
- ▶ We are always ready to deal with any other requests of yours, including those stem from the purpose of measurement or how you intend to use our loggers.

Basic Specifications

| Models | W-M series | W-L series | M series |
|-----------------------------------|---|--|--------------------------------------|
| Measurement Channels | Analog 8-channel; Digital 4-channel | | Analog 4-channel (digital available) |
| AD Converter | 12-bit, resolution: 1/4096 | | |
| Sample Rate | from 1 to 255 sec; can be set for each individual channel by 1 sec. | | |
| Operation Setting | instant/after set time (0-99 h) /after set days and time | | |
| Storage Capacity | approximately 1 million data (when not compressed); approximately 2 million data when compressed* Built-in 16M bit flash memory (can be enhanced up to 128M bit) | | |
| Logging Time (approximate)** | 1 month or more | 12 months or more (PDT 3 months or more) | 1 month or more |
| Lithium Battery | CR1025×2 | CR1/3×2 | CR1025×2 |
| Pressure-resistance Capability | 400m depth under water | 400m depth under water | 400m depth under water |
| Housing | rust-resistance aluminum cylinder | | |
| Dimensions | DT φ20×67mm PDT φ20×102mm 4T φ20×87mm | DT φ20×82mm PDT φ20×110mm 4T φ20×102mm | DT φ15×48mm 2T φ15×70mm |
| Weight (atmospheric, approximate) | 30g | 40 g (PDT 75 g) | 19 g (2T 24 g) |

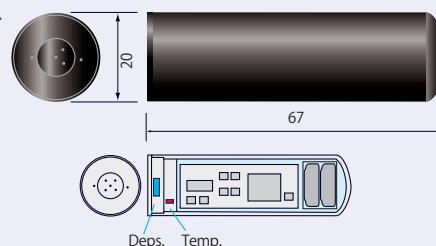
*Compression rate varies with data conversion rate.

**Varies with the actual battery usage in each given measurement condition.

Standard Models W-M series

Our standard model series, the housing of which is 20 mm in diameter, operates with a wide range of sensors. This series consists of three standardized models, DT (for depth/temperature monitoring), PDT (DT plus speed monitoring), and 4T (external thermometry from four points).

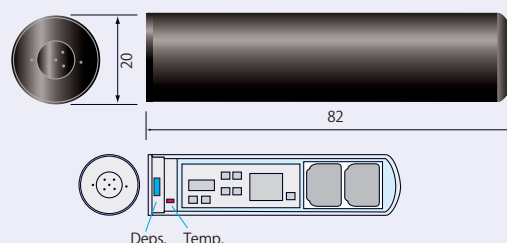
W380M-DT Standard Model



Deps. Temp. W-L series

These models feature a lengthened housing to contain a larger battery, as well as some added functions to facilitate a long-term monitoring and/or a measurement by faster sample rate.

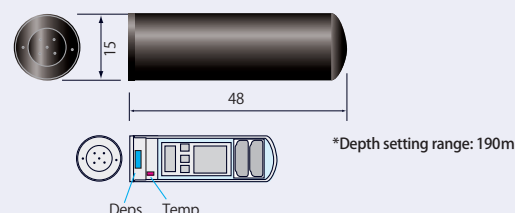
W380L-DT Enhanced Lifetime Model



Micro Models M series

Although the number of sensors that can be used with the Micro models is limited, the usefulness of these models should be found, especially when you study smaller animals. Two models, i.e. DT (for depth/temperature monitoring) and 2T (external thermometry from two points), are available.

M190-DT Micro Model



*Depth setting range: 190m

Measurement Capability

| Sensors | Measurement Capability |
|-------------------|---|
| D (depth) | 0-380 m (M190-DT 190m); semiconductor pressure sensor Resolution: 12 bit (380 or 190/4096 m) |
| T (temperature) | from -22 to 50°C; thermistor Resolution: 12 bit (approximately 0.018°C) |
| P (distance swum) | 0.5-5 m/sec; rotation counter (propeller rotation) |
| Options | G (acceleration); L (illuminance); HR (heart rate); ECG (electrocardiogram) |

Models

Standard Models (M) / Enhanced Lifetime Models (L)

- W380M-DT depth (380 m); temperature
- W380L-DT depth (380 m); temperature
- W400M-T4 temperature from 4 points
- W400L-T4 temperature from 4 points
- W380M-PDT depth (380 m); temperature; distance swum
- W380L-PDT depth (380 m); temperature; distance swum

Micro Models

- M190-DT depth (190 m); temperature
- M380-DT depth (380 m); temperature
- M400-TT temperature from 2 points

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