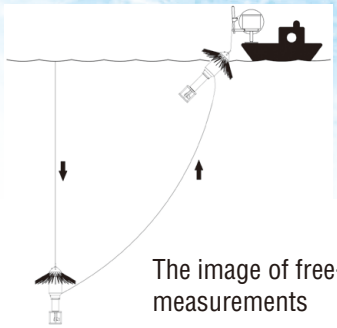
JFE Advantech Co., Ltd.

Yoing Ocean Data Acquisition Profiler

YODA Profiler

C T P DO CHL TBD

ASTD102-SY



The image of free-fall measurements

Overview

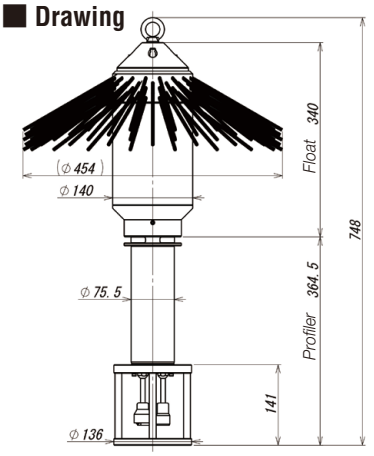
The YODA Profiler (Yoing Ocean Data Acquisition Profiler) is a towed profiling observation system composed of a water quality meter (measuring conductivity, water temperature, depth, DO, chlorophyll, and turbidity) and a winch. The profiler, equipped with a brush, can descend stably at a rate of approximately 0.2 m/sec. Additionally, the winch allows for repeated descending and ascending movements, enabling continuous measurement of water quality parameters. Both the YODA Profiler and the winch are compact and lightweight, making them easy to install on vessels. Observation data is recorded in the internal data logger and can be downloaded to a computer without opening the pressure-resistant case by connecting a communication cable to the immersion-type connector (patented). The YODA Profiler is equipped with a high-speed response DO sensor, providing high-precision and high-resolution spatial distribution of dissolved oxygen through free-fall measurements.

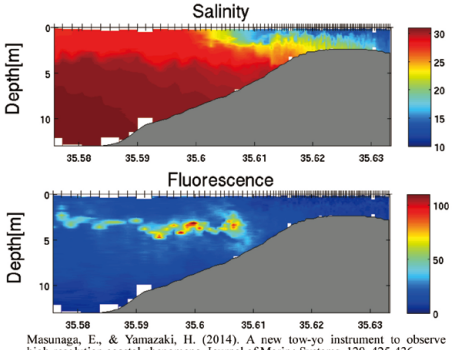
Sensor Specifications

Parmeter	Pressure	Temperature	Electrical Conductivity	Salinity	Chlorophyll	Turbidity	DO
Sensor Type	Semiconductor Pressure	Thermistor	7-Electrode	Practical Salinity	Fluorescence	Infrared Backscatter	Optical
Range	0 to 6 MPa	-3 to 45°C	0.5 to 70 mS cm^{-1}	2 to 42	0 to 400 ppb (Uranine reference)	0 to 1,000 FTU (Formazin reference)	0 to 200% (0 to 20 mg L^{-1})
Resolution	0.0002 MPa	0.001°C	0.001 mS cm^{-1}	0.001	0.01 ppb	0.03 FTU	0.01% (0.001 mg L^{-1})*2
Accuracy	Non-linearity ±0.1% FS, Repeatability ±0.3% FS	±0.01°C (0 to 35°C)	±0.01 mS cm^{-1}*1	—	Non-linearity ±1% FS (0 to 200 ppb)	±0.3 FTU or ±2%	Non-linearity ±2% FS (±0.4 mg L^{-1})
Response Time (typ)	0.2 sec	0.2 sec	0.2 sec	0.2 sec	0.2 sec	0.2 sec	0.4 sec*3

*1 Calibration using seawater (range 28 to 65 mS cm^{-1}). *2 Standard value near 100% saturation.
*3 Standard 63% response value in a gaseous atmosphere (1 atm, 25°C).

Drawing





Masunaga, E., & Yamazaki, H. (2014). A new tow-yo instrument to observe high-resolution coastal phenomena. Journal of Marine Systems, 129, 425-436.

Logger Specifications

Mode	Depth Trigger	Time Trigger
Interval	0.1, 0.2, 0.5, 1 m	0.1 to 600 sec
Memory Type	1GB Internal Memory	
Recording Capacity	Approx. 1,000 times for 100m at 0.1 m intervals	Approx. 8,000,000 data points
Power Supply	Lithium-ion battery (approximately 10 hours of continuous use)	
Pressure-resistant Case Material	Titanium Grade 2	
Dimensions	ϕ454 mm × 748 mm (including brush and float sections)	
Weight	Approx. 6 kg	
Pressure Resistance	Equivalent to 600 m depth	
Accessories	Weight for descent speed adjustment	

Interface Specifications

Model	ASTD-IF
Power Supply	AC 100 to 240 V or 4 AA alkaline batteries
Dimensions	170 mm × 66 mm × 169 mm
Weight	Approx. 1.0 kg

Winch Specifications

Configuration	1) Main Unit, 2) Controller, 3) Bobbin
Lifting Capacity	Maximum 30 kg
Standard Rotation Speed	100 to 160 rpm
Power Supply	DC 24 V
Material	SUS304
Weight	Approx. 15 kg
Dimensions	W360mm × H480 mm (maximum) × D430 mm
Rope	ϕ3 mm × 300 m, Dyneema Rope (Polyethylene Fiber)

- Special software for analysis data is released. The graph shown above is not outputted by this software.
- YODA Profiler is an instrument co-developed with Professor Hidekatsu Yamazaki, Professor Emeritus of Tokyo University of Marine Science and Technology.

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