

Multi-Exciter INFINITY-ME

SPECTRA

T

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TBD



Cable type

Features

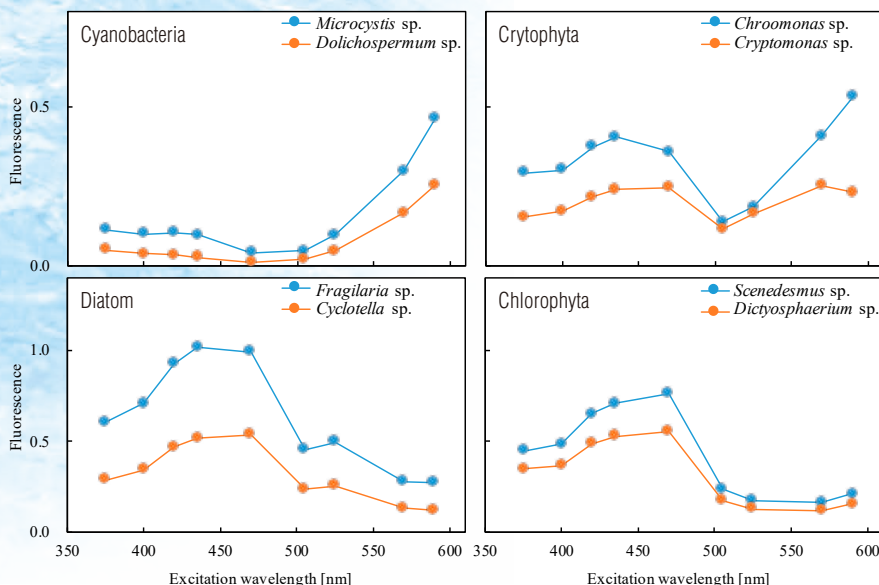
1. Multi-wavelength excitation using 9 wavelengths
2. High-sensitivity fluorescence measurement even in high-concentration environments
3. Automatic species composition analysis via software
4. Fluorescence characteristics library function for species composition analysis
5. Standard equipped with biofouling prevention wiper
6. Equipped with turbidity, water temperature, and depth sensors
7. Enables simultaneous observation of "biomass and species composition," which was not possible with conventional chlorophyll fluorometers
8. Equipped with wavelengths suitable for the observation of algae (such as cyanobacteria), specifically 570 nm and 590 nm.

Chlorophyll Fluorometer Capable of Species Composition Classification

The multi-wavelength excitation fluorometer measures the fluorescence characteristics of phytoplankton, allowing you to determine not only the biomass but also the species (community) composition that constitutes the biomass. This multi-wavelength excitation fluorometer enables simultaneous measurement of "biomass and species composition," which was not possible with conventional chlorophyll fluorometers.

Measurement Principle

Unlike conventional chlorophyll fluorometers, this instrument excites phytoplankton using nine different wavelengths and measures their fluorescence characteristics (excitation fluorescence spectra). Phytoplankton exhibit characteristic pigment compositions for each community (group) and possess different fluorescence characteristics. Therefore, the measured fluorescence characteristics can provide information on species composition (such as diatom, dinoflagellate, cyanobacteria, cryptophyta, etc.). By inputting the fluorescence characteristics of each species obtained using this instrument into the software and performing mathematical processing, the biomass of each species can be estimated.



Excitation Fluorescence Spectra of Various Phytoplankton

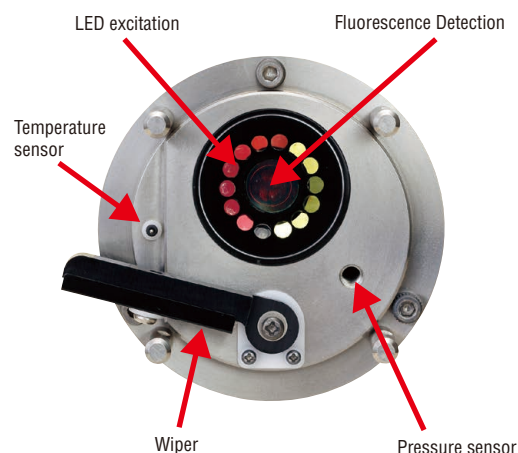
*The basic spectra of plankton in the graph is available

Sensor Specifications

Parameter	Excitation Spectrum	Turbidity	Pressure (Depth)	Temperature
Sensor Type	Fluorescence	Near-Infrared backscatter	Semiconductor Pressure	Thermistor
Excitation Light Wavelengths	375, 400, 420, 435, 470, 505, 525, 570, 590 nm	—	—	—
Range	0 to 400 ppb (Rhodamine WT reference)	0 to 1,000 FTU (Formazin reference)	0 to 50 m, 0 to 100 m, 0 to 500 m (logger type only)	-3 to 45°C
Accuracy (Reproducibility)	± 2%FS (0 to 100 ppb) *1	± 5%	± 0.3%FS	± 0.02°C *2

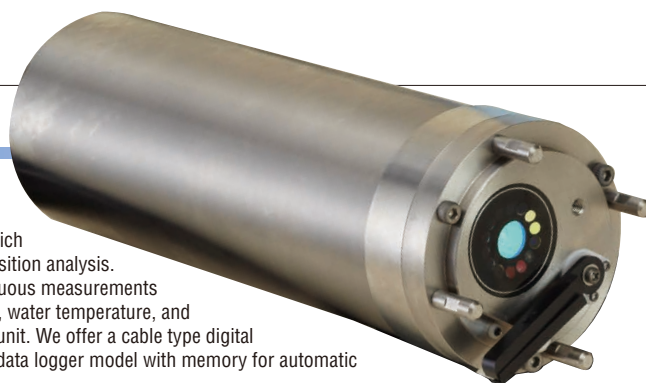
*1 The output at 570 nm excitation light wavelength for 100 ppb Rhodamine WT is set to 100, and other wavelengths are standardized according to the characteristics of Rhodamine WT.

*2 Calibration range is 3°C to 31°C



More Accurate and Versatile

The use of 9 wavelengths for excitation light enhances the wavelength resolution of fluorescence characteristics, significantly reducing the impact of turbidity (scattered light), which can cause noise in fluorescence measurements. This allows for more accurate species composition analysis. The standard-equipped biofouling prevention wiper function ensures reliable long-term continuous measurements even in biologically active coastal areas. Additionally, the instrument is equipped with turbidity, water temperature, and pressure sensors, making it suitable for a wide range of observational purposes with a single unit. We offer a cable type digital output model for real-time observation and easy integration into other platforms, as well as a data logger model with memory for automatic measurement recording, catering to a broad spectrum of observational needs.



Logger type

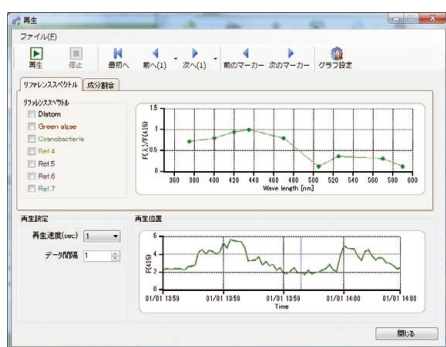
Main Specifications

Type			Logger Type			Cable Type ^{*1}	
Depth Range			0 to 50 m	0 to 100 m	0 to 500 m	0 to 50 m	0 to 100 m
Model			MFL05W-USB	MFL10W-USB	MFL50W-USB	MFL05W-CAD	MFL10W-CAD
Communication Method			USB			RS-485	
Recording Medium			microSD Card (waterproof high-speed type)			Follows external communication device	
Mode			Continuous Mode, Burst Mode				
Observation Conditions	Continuous Mode	Interval	0.1 to 600 sec			Selectable from 0.5 / 1 / 2 / 5 / 10 / 15 / 20 / 30 sec	
	Burst Mode	Interval					
		Burst Duration	1 to 1,440 min (1 min increment)			1 to 1,440 min (1 min increment)	
		Number of Data	1 to 18,000			Selectable from 1 / 10 / 15 / 20 / 30 / 60 / 120 / 180 / 240 / 300 / 600 / 1,200	
Power Supply Voltage			3 V (CR-V3 lithium battery) ^{*1}			DC 12 V to 24 V	
Current Consumption / Power Consumption			Approx. 300 mA			Approx. 900 mW	
Dimensions			φ79 mm × 301 mm			φ79 mm × 244 mm (excluding cable)	
Weight			Approx. 1.8 kg in air / Approx. 0.6 kg in water			Approx. 1.6 kg	
Material			Housing: Titanium Grade 2, Optical Sensor: Transparent Epoxy Resin				
Pressure Resistance			Equivalent to 500 m depth ^{*2}				

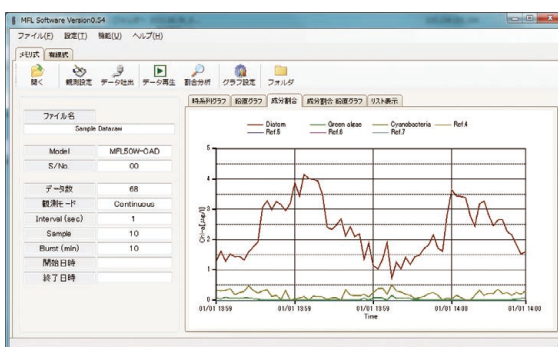
*1 Capacity 3.3 Ah. Up to 4 batteries can be used.

*2 Except for the pressure sensor. The pressure resistance of the pressure sensor follows each measurement depth range.

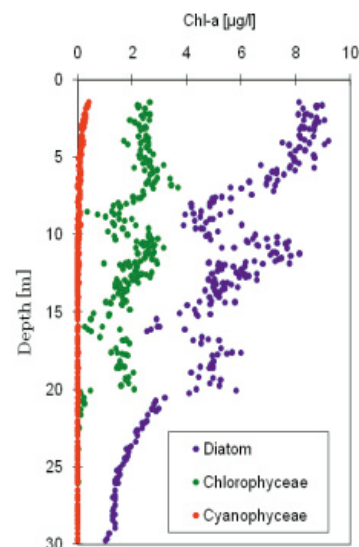
Data Recording Software



Measurement Data Screen
Excitation Spectrum (Top) and Time Series of Chlorophyll Fluorescence (Bottom)
Optimization Method: Non-Negative Least Squares (NNLS)



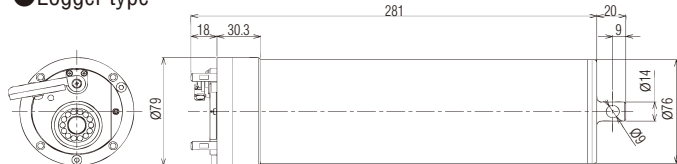
Species Composition Analysis Screen
Estimated Biomass of Diatom, Chlorophyta and Cyanobacteria



Example of Vertical Observation

Drawing

● Logger type



● Cable type

