

Thetis Profiler

Autonomous Moored Profiling Platform

The Thetis Profiler is a submersible vertically profiling platform for use in coastal marine and fresh water environments. The purpose of the platform is to sample the water column distributions of physical, biological, chemical and optical properties at a fixed geographical location over extended periods of time. The system provides sub-meter scale vertical resolution of these properties from 1- 2 m above sea floor to the surface of the air-water interface.

The Thetis design includes:

- Modular, self-contained, winch-driven profiling platform
- Integrated control, power, and telemetry systems
- Full suite of available physical, chemical and biological sensors

The Thetis' self-contained design greatly simplifies deployment, recovery and maintenance, significantly reducing the logistical/manpower burdens of operational observing systems.



Base System Sensors

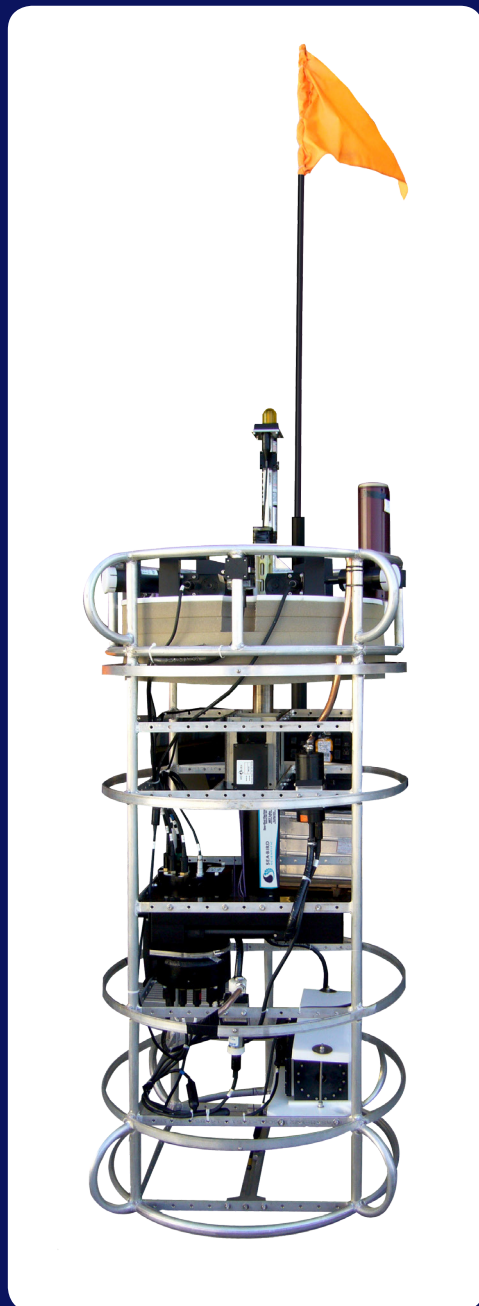
- SBE49 CTD
- ECO-BBFL2-w
- PAR

Base System

- Frame and flotation
- Winch
- Mooring controller
- Battery pack
- GPS and antenna
- Strobe

Software

- Host
- File processor
- Mission planning



Environmental

Operation Temperature Range	0–30 °C
Storage Temperature Range	- 20–50 °C
Max. Working Depth	100 m
Max. Survivable Depth	350 m

Electrical

System voltage max nominal	34 V 30 V
System power*	60 Ah
Internal data logging	Yes
Internal batteries	Yes
System memory	2 GB
Data Memory	2 GB

Mechanical

Diameter	78.75 cm
Length	212 cm
Weight in air	100–159 KG
Weight in water*	9.1 kg
Materials	6061 Aluminum, Titanium, 316 Stainless Steel, Acetal, HDPE
Rope breaking strength	6227.5 N
Max rope length	150 m

System

GPS	Yes
FreeWave	Yes
Telemetry Distance*	3.25 km
Min. Ascent Rate	1 cm/s
Max. Ascent Rate	30 cm/s
Min. Descent Rate	1 cm/s
Max. Descent Rate	35 cm/s

Base Measurements

Scattering EX/EM Range, typical Sensitivity	650 nm 0–5 m-1 0.003 m-1
Chlorophyll EX/EM Sensitivity	470/695 nm 0.025 ug/L
CDOM EX/EM Range, typical Sensitivity	370/460 nm 0–375ppb 0.09 ppb
PAR Collector Area Field of View	86 mm ² Cosine Response (within 3% @ 0–60°C)
Conductivity Range Accuracy Resolution	0–9 S/m +/- 0.0003 S/m +/- 0.00005 S/m
Temperature Range Accuracy Resolution	-5–35 °C +/- 0.002 °C 0.002% F.S.
Pressure Range Accuracy Resolution	0–350 m +/- 0.1 F.S. 0.002% F.S.

*Selected options may affect

** Depends upon # of profiles/day

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