



Ice Tethered Profiler

Application:

The Ice Tethered Profiler (ITP) is an autonomous time-series instrument that vertically profiles the water column under the ice and collects *in situ* measurements of conductivity, temperature, depth (CTD) data, and other measurements. Data are automatically transmitted near real-time via inductive modem.

Features:

Robust, field-proven drive train, electronics and inductive modem technology. An anodized aluminum housing is similar to the ARGO float. When used with a surface controller, returns daily (near real-time) high-vertical resolution measurements of ocean temperature, salinity and other sensor data.

Sample schedule options:

Data collection is directed by user-defined profiles and scheduled sampling. A Deployment Planner option provides a PC-based application for creating reusable deployment schedules with profiles and patterns.

Deployment:

A drive motor provides smooth, steady ascent/descent. Standard profiling speed is 25cm/sec with 10cm/sec and 33cm/sec motor options. Streamlined shape delivers efficient profiling and long battery life. Depending on installed sensors and profile settings, 240Ah or 360Ah battery makes multi-year deployments possible.

Supported sensors:

CTD sensor is required. Currently integrated sensors are listed below*.

SBE41PLUS CTD	Biospherical PAR
Aanderaa Optode DOX	BBE FluoroProbe Chlorophyll
Wetlabs ECO	ProOceanus CO ₂ or CH ₄
Seapoint Fluorometer, Turbidity	

*Integration of other sensors possible depending on sensor size, battery drain and diameter of ice hole, if applicable.

- 240 Ah or 360 Ah lithium battery pack.
- Time-series vertical profiles at fixed locations.
- Continuous data collection while profiling.
- Near real-time data telemetry with non-volatile flashcard data storage backup.
- Deployed as a stand-alone profiler or used as an integral subcomponent of the WHOI Ice Tethered Profiling system combined with a surface electronics package.
- For more information about this sampler, see the Ice Tethered Profiler pages at mclanelabs.com.

Iced Tethered Profiler Specifications

DIMENSIONS:

Length: 171 cm (67 in)

Width: 26 cm (10 in) (max diameter)

Fits through 27.9 cm (11 in) hole in the ice

WEIGHT (APPROX):

In air with CTD, no battery: 61 kg (134 lbs)

In water: neutrally buoyant

CONTROLLER:

Power supply: Supplied 12V primary lithium battery pack

Power consumption: 120 mA (profiling)

**nominal estimate (power depends on installed sensors)*

OPERATIONS:

Depth: 30m - 1000 m (mooring dependent)

Battery endurance: 240 Ah or 360 Ah lithium battery pack

Minimum water temperature*: -2°C (non freezing)

Profiling speed: 25cm/sec (10cm/sec, 33cm/sec options)

Data storage: Compact flash backup data storage

MATERIALS:

Guide wheels: Ertalyte

Drive wheel: Urethane-coated titanium

Pressure housing: Anodized aluminum

* Contact mclane@mclanelabs.com if deploying in operational conditions (deck, water surface) below freezing.