

TidBit temperature sensors

The Onset Stowaway TidBit sensor is a completely sealed underwater temperature logger with optic communication and will be used during BOHAB in the focal bays in Killary Harbour and Bantry Bay to provide hourly temperature data at several depths in the water column. The TidBit optic shuttle is required to download the data (Figure 1). The TidBit features and specifications are shown below.

Tidbit Temperature Probes:

The Marine Institute maintains a network of internal logging temperature sensors at 18 locations around the Irish coast. The loggers record hourly at each site providing comprehensive time series of temperature around Ireland. Several of these loggers are deployed specifically for the BOHAB project, namely those in Killary Harbour and Bantry. A combination of aquaculture platforms (mussel lines and salmon farms) are used to deploy the instruments from. Oceanographic buoys offshore are also utilised as platforms.

In most instances there are 4 temperature sensors on each rig from near surface to near bottom in water depths ranging from 10m inshore to 100m offshore.



Figure 1. Picture of a Stowaway TidBit sensor and optic shuttle.

Stowaway TidBit features and specifications

- Waterproof to 1000 feet
- 5 year non-replaceable battery (typical use*)
- Completely sealed in epoxy; very durable
- Capacity: 32,520 measurements
- Small size: 1.2" wide x 1.6" tall x 0.65" thick (30 x 41 x 17 mm) and 0.8 oz.
- Two measurement ranges†: +24°F to +99°F (-4°C to +37°C) and -4°F to +122°F (-20°C to +50°C)
- User-selectable sampling interval: 0.5 seconds to 9 hours, recording times up to several years

- Blinking LED light shows if temperature goes out of user-determined limits
- Readout and re-launched in the field with optional [Optic Shuttle](#)
- Precision components eliminate the need for user calibration
- Programmable start time/date
- Triggered start with coupler or magnet
- Memory modes stop when full or wrap-around when full
- Non-volatile EEPROM memory retains data even if battery fails
- Multiple sampling with minimum, maximum or averaging
- Blinking LED light confirms operation
- Time accuracy: ± 1 minute per week at $+68^{\circ}\text{F}$ ($+20^{\circ}\text{C}$)
- Mounting tab
- Compliance certificate available
- NIST-traceable temperature accuracy certification available

Uses optic communications through optic base station for launch and readout of the sensor.

Table 1. Stowaway TidBit Measurement specifications.

		Temperature Accuracy and Resolution -5°C to +37°C Models
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•	Range†: $+24^{\circ}\text{F}$ to $+99^{\circ}\text{F}$ (-4°C to $+37^{\circ}\text{C}$)	
•	Accuracy: $\pm 0.4^{\circ}\text{F}$ ($\pm 0.2^{\circ}\text{C}$) at $+70^{\circ}\text{F}$, see plot at right	
•	Resolution: 0.29°F (0.16°C) at $+70^{\circ}\text{F}$, see plot at right	
•	Response time in water: 5 min. typical to 90%	
•	Response time in still air: 50 min. typical to 90%	
•	Response time in air moving 1 meter/second: 18 min. typical to 90%	