



## MBARI – ISUS V2 Chemical free Nitrate sensor



Satlantic's ISUS V2 nitrate sensor, the latest version of the original MBARI-ISUS nitrate sensor, now has faster sampling rates, lower power consumption and increased data download capabilities. The original chemical-free design has not changed and still overcomes the traditional challenges associated with nitrate analysis in coastal, estuarine and freshwater environments. ISUS V2 provides easy, accurate, and continuous nitrate concentration measurements that are essential to the study of physical, chemical, and biological processes.

ISUS Was developed at the Monterey Bay Aquarium Research Institute (MBARI) in California and is based upon the absorption characteristics of inorganic compounds in the UV spectrum. Chemicals absorb light in the UV and each has a unique absorption spectrum. By using advanced UV absorption technology, the ISUS yields 256 wavelengths of the nitrate spectrum and computes concentration directly, without the use of chemicals.

ISUS has been successfully utilized in a number of studies, including large-scale experiments such as the 2002 Southern Ocean Iron Experiment (SOFeX) and our own internal Validation Program for coastal and estuary waters.

**Profiling system** – High-resolution nutrient profiles, which were previously unattainable at this rate, have been used in the field to gain insight into nutrient structures.

**Fixed platform/moored** – ISUS has a flexible sampling schedule and internal storage to allow autonomous data collection.

**Towed vehicles** – ISUS can be integrated into a towed vehicle where the signal is collected by the vehicles data system or using the integral logger.

**Bench top** – Whether you are in the lab or in the field, retrieve real time, continuous nitrate measurements easily and accurately.

### Features:

- Real-time Nitrate
- Requires no reagents
- Fast sample frequency
- Low power, compact size
- High data precision and accuracy
- Correction for CDOM and turbidity
- Unique bio-fouling guard for long term deployments
- Analog port for easy integration with CTD and other sensors

### Applications:

- Water quality
- Eutrophication
- Phytoplankton blooms
- Coastal and inland waters
- Monitoring groundwater run-off
- Detection of environmental change

ISUS works in a range of environments - ocean, coastal, estuary! Please contact us for a copy of our new freshwater analysis. ISUS is available for use as a profiler, on fixed platforms, in towed vehicles or as a bench top device.

# Specifications:

## Performance

Accuracy:  $\pm 2 \mu\text{M}$  (0.028 mg/l) or  $\pm 10\%$  of reading which ever is greater.  
Detection range: 0.5 to 2000  $\mu\text{M}$  \* (0.007 to 28 mg/l)  
Thermal compensation: 0 - 40°C \*  
Salinity compensation: 0 - 40 psu \*

## Optics

Path length: 1 cm  
UV spectrum: 200 - 400 nm  
Lamp type: Deuterium  
Lamp life time: 1000 h

## Electrical

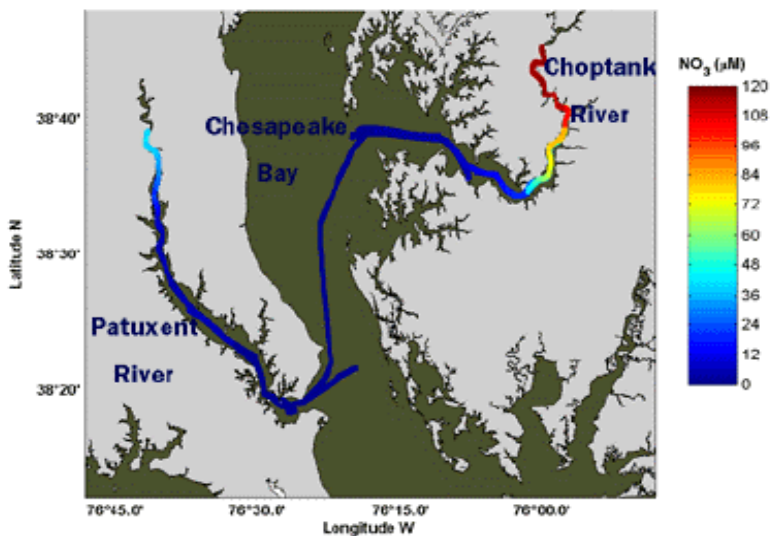
Input voltage: 6 - 18 V (Non-isolated power input from batteries)  
19 - 75 V (Isolated power input)  
11 - 36 V (Optional isolated power input)

Power consumption: 6.5W (0.54A@12V)  
Data storage: 256 MB  
Sample rate: 1 Hz  
Telemetry options: Analog output 0 – 4.096 VDC  
RS-232 - RS-485 serial output  
User selectable baud rates available  
(Default 38,400 bps)

Download options: USB or RS-232

## Dimensions:

Depth rating: 1000 m  
Length: 24 inches (608 mm)  
Diameter: 4.5 inches (114 mm)  
Weight: 11 lbs in air (5 kg)  
1.5 lbs in water (0.7 kg)  
Housing material: Anodized Aluminum  
Operating temperature: 0° to 40°C



ISUS Nitrate sensor in a Water Quality Monitor application.

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