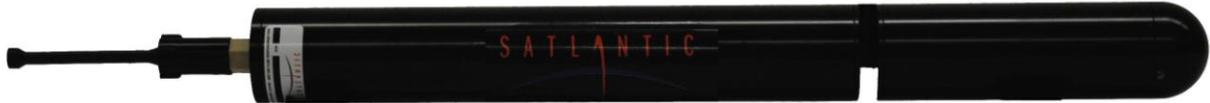




SUNA Deep



The SUNA Deep UV nitrate sensor extends Satlantic's line of *in situ* water quality monitoring sensors to the deep ocean. SUNA Deep is the ultimate solution for real time, chemical-free nitrate analysis in coastal and deep ocean environments. The sensor easily integrates into existing autonomous underwater vehicles and offers reduced frame telemetry options for bandwidth limited applications. SUNA Deep is complemented by SUNACom, a software package enabling easy set up, operation and in-field calibration updates.

SUNA Deep incorporates the proven MBARI-ISUS nitrate measurement technology, which is in extensive use worldwide. This method of nitrate analysis is based on the absorption characteristics of dissolved inorganic compounds in the UV light spectrum. The SUNA Deep uses advanced algorithms to compute the nitrate concentration directly, without the use of reagents. This technology has proven to be robust, sensitive and stable, operating continuously for extended periods of time in remote and harsh environments.

REAL TIME TEMPERATURE SALINITY CORRECTION

The SUNA Deep includes the most accurate optical nitrate algorithm available today. The recently improved nitrate model incorporates real-time temperature and salinity data from AUV or mooring platforms. The improved method of calculating nitrate in seawater includes a temperature-dependent correction to the observed bromide spectrum and the use of corresponding temperature and salinity data to subtract the bromide component from the absorption spectra before calculating nitrate. This process greatly reduces uncertainties in the measurement and significantly improves both the accuracy and precision of the calculation.

SUNA Deep is the latest advance in accurate and cost-effective nitrate monitoring. Features include:

- **Real time nitrate calculation**
- **Full UV spectrum for maximum accuracy**
- **Temperature salinity correction**
- **Simple in-field calibration update**
- **Easy to use Windows software package**

The SUNA Deep is now used for deep nitrate measurements on the following platforms:

- **Profiling floats**
- **Gliders**
- **Autonomous underwater vehicles**

For additional information about SUNA Deep and our range of water quality monitoring equipment, please visit www.satlantic.com.



SUNA SPECIFICATIONS

PERFORMANCE

Detection range:	0.007 to 28 mg/l-N *(0.5 to 2000 μ M)
Accuracy:	+/- 2 μ M or 10% of reading
Calibration:	Real-time Temperature/Salinity correction available; requires T/S data from AUV controller
Long term drift:	0.004 mg/l per hour of lamp time
Thermal Compensation:	0 to 35 °C
Salinity Compensation:	0 to 40 psu

OPTICS

Path length:	1 cm
Spectral range:	190 - 370 nm
Lamp type:	Continuous Wave Deuterium Lamp
Lamp lifetime:	900 h

ELECTRICAL CHARACTERISTICS

Input voltage:	8 - 18 VDC
Power consumption:	7.5 W (0.625 A @ 12V) nominal
Sample rate:	1 Hz (when onboard averaging disabled)
Communication options:	RS-232, Analog output 0 - 4.096 VDC and 4 - 20 mA, SDI-12
Telemetry options:	ASCII, Binary, Concentrated ASCII, Reduced Binary (for AUV)
Internal Logging:	2 GB solid state memory

PHYSICAL CHARACTERISTICS

Depth rating:	2000 m (6,560 ft)
Length:	555 mm (21.8 in)
Diameter:	57 mm (2.25 in)
Weight:	1.80 kg (3.9 lb) in air 0.36 kg (0.80 lb) in water
Housing material:	Anodized Aluminum; float attachments available
Operating temperature:	0 to 40 °C

