IDRONAUT
www.idronaut.it
idronaut@idronaut.it

# OCEAN SEVEN 308

## CTD LOGGER, VERY LOW POWER, SELF-RECORDING, UV-ANTIFOULING, ARCTIC, ANTARCTICA, BRINE, MOORINGs, ROVs, AUVs


The OCEAN SEVEN 308 CTD combines very high-quality electronics with exceptional sensors accuracy fulfilling the demand for a self-recording high performance CTD probe with very compact dimension and very low power consumption. This CTD can be easily integrated/adapted to third-party systems such us floating profilers and/or oceanographic moorings, ROVs and AUVs. IDRONAUT prides itself on the design of its full ocean depth, pump-free, low-maintenance sensor, central to which is the high accuracy seven-platinum-ring quartz conductivity cell. The self-flushing sensors makes this CTD ideal for fast profiling in a wide range of water types. The OS308 CTD standard interface is RS232C; other optional interfaces are: RS485 and wireless. The OS308 housing can be manufactured with either a 316 grade L stainless steel or titanium allowing deployment to depths of 1000 or 7000/10.000 dbar respectively.

## FEATURES AND OPTIONS AVAILABLE


## TEMPERATURE SENSOR

Features a very fast platinum resistance thermometer (response time: 50 ms). Negligible self-heating effect. Optionally combined C/T sensor featuring a 7ms fast thermistor (20 ms after processing) integrated in the conductivity cell is available upon request.

## DATA STORAGE AND BATTERY

The OS308 CTD is equipped with a 4Gbyte data memory, which allows the storing of about 250 millions data sets, each one being composed of the reading of all the installed sensors plus the acquisition date and time. Different types of battery can be installed in the CTD housing. The battery endurance is considerably extended, because the OS308 enters a deep sleep mode between acquisitions and drains only **4µAh** from the battery. For instance, by monitoring every hour, the OS308 (CTD only) can run for about **9 years** on a single Lithium size “C” cell.

## CONDUCTIVITY CELL

The high accuracy seven platinum ring quartz conductivity cell (patented) can be cleaned in the field without the need for recalibration. This unique quartz cell employs a large diameter (8mm) and a short length (46mm) to guarantee self-flushing and no clogging after long-term deployment even in biologically active waters. Furthermore, an optional **UV LED (280 nm), integrated into the conductivity cell**, sterilizes the sample under measurement, thus avoiding the early growth of biofouling inside the quartz measuring cell.

## AUV INTEGRATION

Automatic, real-time data transmission compatible with: Bluefin and OEX AUVs are available, together with a proprietary data transmission format. To further reduce weight and size a shorter housing is available upon request.

# PHYSICAL CHARACTERISTICS

| Housings | 1000 dbar(1) Body:AISI316L;End Caps:POM | 1000 dbar Body:TITANIUM;End Caps:POM | 7000 dbar TITANIUM |
|---|---|---|---|
| Diameter | 43 mm (Upper cap 48 mm) | 48 mm | 48 mm |
| Length | 535 mm | 540 mm | 535 mm |
| Weight in air | 1.1 Kg | 1.5 Kg | 1.8 Kg |
| Weight in water | 0.65 Kg | 0.9 Kg | 1.1 Kg |

(**1**) AUV version shorter housing is available upon request.


# SENSORS SPECIFICATIONS

| Parameter | Range | Initial Accuracy | Resolution | Response Time |
|---|---|---|---|---|
| Pressure | 0..1000 dbar(1) | 0.05% FS | 0.002% FS | 50 ms |
| Temperature | -3..+50 °C | 0.0015 °C | 0.0001 °C | 50 ms |
| Conductivity Salt water | 0..90 mS/cm | 0.0015 mS/cm | 0.0001 mS/cm | 50 ms(2) |
| Fresh water | 0..7000 µS/cm | 5 µS/cm | 0.1 µS/cm | 50 ms(2) |
| Brine | 0..350 mS/cm(3) | 0.01 mS/cm | 0.0001 mS/cm | 50 ms(2) |

(**1**) Standard pressure transducers, immediately available, have 10, 40, 100, 200, 500, 2000, 4000, 7000, 10000 dbar F.S. (**2**) At 1 m/second flow rate. (**3**) Need a special optional calibration.

The fundamental properties of seawater, like: Salinity, Water Density are obtained using the algorithms described in the UNESCO technical papers in marine science no. 44. The freshwater properties like: TDS, Conductivity corrected at 20°C and 25°C are automatically calculated.

# OPTIONAL SENSOR SPECIFICATIONS

| Parameter | Range | Initial Accuracy | Resolution | Response Time |
|---|---|---|---|---|
| Pressure Highly Accurate | 0..1000 dbar(1) | 0.01% FS | 0.002% FS | 50 ms |

(**1**) High precision pressure transducer immediately available have: 100,2000,4000,7000,10000 dbar F.S.

# ELECTRONIC SPECIFICATIONS

| | |
|---|---|
| **Real-time and logging** | Up to 22 Hz |
| **Interfaces** | **Wired**: RS232C, RS485; **Wireless**: WiFi/Bluetooth |
| **Communication speed** | 115k2 bps, up to 921k6 bps |
| **Data memory** | 4 GByte |
| **Power supply - Battery** | 3.1..5.5 VDC; **Running**: 70 mA @ 3.6VDC; **Standby:** 4µA @ 3.6VDC; |
| **Power supply - External power** | 9..30 VDC |

# SELF-RECORDING MODES

- **Continuous:** Sampling at configurable rates: up to 22 Hz. Multiple cycles can be obtained by switching the CTD ON/OFF.
- **Pressure:** Data is sampled at pressure intervals. Multiple profiles can be obtained by switching the CTD ON/OFF.
- **Timed:** CTD collects a series of samples and then sleeps for the configured time interval (5s up to 1 day).
- **Conditional:** Data acquisition is started and continues while the reading from a selected sensor is above the threshold value. Monitoring of the selected sensor threshold value can be configured to occur at intervals (between 5s and 1 day).
- **Burst:** Burst sampling carried out at configured time intervals (5s up to 1 day).

# SOFTWARE

Idronaut software allow the operator to configure the OS308 data acquisition, logger functions and upload data from the memory. They are:

- **WTERM**: Windows Terminal emulation software to easily communicate with the OS308 using the built-in operator interface and communication protocol. Users are easily able to view real time data, configure the probe for unattended acquisition and upload stored data.
- **REDAS-5**: Windows Data processing and retrieval software, which allows the display and plotting of conductivity, temperature, pressure and derived variables such as salinity, sound speed and water density, according to UNESCO formulas and recommendations.