



IDRONAUT OCEAN SEVEN 305Plus CTD - 2000 m depth

8Hz SAMPLING RATE - LOW POWER MULTIPARAMETER CTD - REAL TIME & DATA LOGGER

The OCEAN SEVEN 305Plus multiparameter CTD is provided with the RS232C standard interface or can be equipped with one of these interfaces: RS485, Telemetry or **Wireless Bluetooth**.

Idronaut prides itself on the design of its pressure compensated full ocean depth, pump free, low maintenance sensors. Central to which, is their well known high accuracy seven-platinum-ring conductivity cell, which can be cleaned in the field without the need for re-calibration. This unique cell employs a large diameter (8 mm) and a short length (46 mm) to guarantee self-flushing and no clogging after long-term deployment even in biologically active waters.

Competitors' cells, which present very few mm only of cell orifice and very long cell length, are prone to clog even if protected by poisonous antifouling devices. The OCEAN SEVEN 305Plus multiparameter CTD does not require pumps or any other external device to flush the sensors, which minimizes its power consumption.

Moreover, the user can select the proper conductivity range: for salt or fresh water, making this CTD a very flexible tool for sampling sites near shore influenced by fresh water inlets, or/and for groundwater profiling and monitoring applications.

The CTD is equipped with a 2-Gbyte data logging FLASH memory and a non-volatile memory to store configuration and sensor calibration coefficients.

BATTERY-OPERATED SELF-RECORDING MODES

Continuous: Data is sampled at configurable sampling rates starting from 0.1 Hz to 8 Hz. Sampling continues until interrupted. Multiple cycles can be obtained by switching the CTD ON and OFF

Pressure: Data is sampled at regular pressure intervals. Multiple profiles can be obtained switching the CTD ON and OFF.

Timed: CTD collects a series of samples and then sleeps for the configured time interval before waking up again and repeating the acquisitions. Time interval can be configured between 10s and 1 day. Battery power is conserved while the CTD is in sleep mode. This data acquisition method is ideal for long-term monitoring.

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 10s and 1day.

Burst: 8 Hz measurements can be performed at configured time intervals between 10s and 1 day. Battery power is conserved by switching off the CTD between bursts.

DATA COMMUNICATIONS

The OCEAN SEVEN 305Plus multiparameter CTD communicates with a PC via RS232C (200 m) or RS485 (1000 m) or Telemetry (2000 m).

A Bluetooth® wireless interface can be added.

IDRONAUT REDAS-5 Windows Software

REDAS-5 software is a true 32-bit Windows application that, through a simplified and friendly operator interface, allows taking full control of the OS305Plus multiparameter CTD and facilitates real-time data acquisitions and uploading of data stored in the CTD memory. REDAS-5 shows the acquired data graphically and numerically thus allowing the operator to dynamically change the graphical and numerical set-up during data acquisition. Data processing, filtering and data extraction procedures, in function of time, pressure or numerical intervals can be applied in real time or on data retrieved from the CTD memory. Acquisition of geographical coordinates from a GPS receiver can be automatically associated to acquired data.

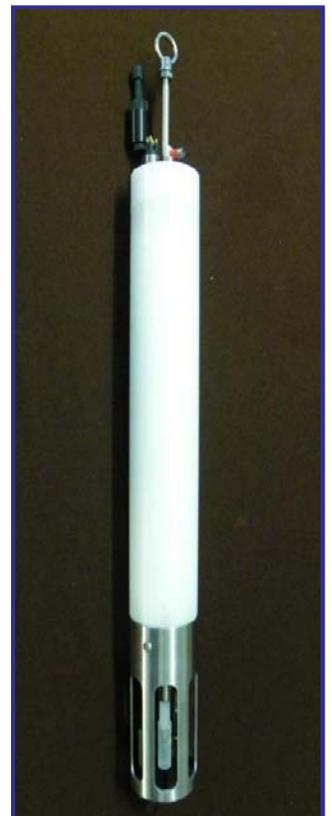
DATA STORAGE AND BATTERY ENDURANCE

The OS305Plus multiparameter CTD allows the storing of about 16,000,000 data sets each one being composed of the installed sensors reading plus the acquisition date and time.

Different types of battery can be installed in the CTD housing.

- | | | |
|---------------------|---|-------------|
| ➤ 3 x size "AA" | Alkaline 1.5V battery assembled in a single pack | 4.5V |
| ➤ 1 x size "AA" | Lithium non rechargeable battery | 3.6V, 2.4Ah |
| ➤ 1 x size "C" | Lithium non rechargeable battery | 3.6V, 8.4Ah |
| ➤ NIMH rechargeable | IDRONAUT custom battery pack (3x1.2 AA) | 3.6V, 2.6Ah |

The 305Plus CTD, when powered by a 3.6VDC, 2.6 Ah battery, can run for up to 30 hours continuously. Whenever the CTD operates in "Timed" "Conditional" and "Burst" modes, the battery endurance is considerably extended because the CTD electronics enters a deep sleep mode between acquisitions.



**TECHNOLOGY
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NEW DEPTHS**



Sensor Specifications

The Ocean Seven 305Plus multiparameter CTD can be equipped with the following sensors to measure:

Parameter	Range		Accuracy		Resolution		Time Constant
Pressure	0.. 2000	dbar (*)	0.05	% full scale	0.0015	% full scale	50 ms
Temperature	-1.. +50	°C	0.005	°C	0.001	°C	50 ms
Conductivity							
<i>Salt water</i>	0.. 70	mS/cm	0.007	mS/cm	0.001	mS/cm	50 ms (at 1 m/second flow rate)
<i>Fresh water</i>	0..7000	µS/cm	5	µS/cm	0.1	µS/cm	50 ms (at 1 m/second flow rate)
Oxygen	0.. 50	ppm	0.1	ppm	0.01	ppm	3 s (from nitrogen to air)
	0.. 500	% sat.	1	% sat.	0.1	%sat.	3 s (from nitrogen to air)
pH	0.. 14	pH	0.01	pH	0.001	pH	3 s (**)
Redox	+/-1000	mV	1	mV	0.1	mV	3 s

(*) Other standard pressure transducers : 10, 40, 100, 200, 500, 1000, dbar ranges.

(***)Differential pH preamplifier, $10^{13} \div 10^{14}$ ohm input impedance.

The fundamental properties of seawater, like:

Salinity, Sound Speed, Water Density, Oxygen ppm are obtained using the algorithms described in the UNESCO technical papers in marine science no. 44 "Algorithms for computation of fundamental properties of sea water".

The freshwater properties like:

TDS (Total Dissolved Solids), Fresh Water Conductivity corrected at 20°C and 25°C are automatically calculated.



Example of sensor suite

OPTIONAL SENSORS

The OCEAN SEVEN 305Plus CTD multiparameter probe can be optionally equipped with the IDRONAUT Highly Accurate Precise (0.01%FS) titanium pressure transducer (available ranges are: 100, 1000 and 2000 dbar). The IDRONAUT OEM Turbidity Meter, the SINGLE-CHANNEL Fluorimeter and the THREE-CHANNEL Fluorimeter.

Note

Since all the optional sensors and the Bluetooth Wireless Adapter cannot be installed all together contemporaneously, please contact Idronaut.

ELECTRONIC SPECIFICATIONS

<i>Real-time and logging (CTD):</i>	8 Hz.
<i>Interfaces:</i>	
<i>Wire</i>	RS232C(up to 200m), RS485 (up to 1 km), Telemetry (up to 2 km).
<i>Wireless</i>	Bluetooth® Class 1, SPP compliant range of over 100 m.
<i>Data memory:</i>	2 Gbytes.
<i>A/D converter:</i>	16-bit SAR.
<i>Supply Voltage:</i>	
<i>Battery</i>	3 x size "AA" Alkaline 1.5V battery assembled in a single pack, 4.5V. 1 x size "AA" Lithium non rechargeable battery, 3.6V, 2.4Ah.
<i>RS232C and USB cable</i>	7.0..18VDC.
<i>Telemetry</i>	7.0 ..60VDC.
<i>Supply Current:</i>	Running: 70 mA @ 3.6V; Sleep: 0.008 mA @ 3.6VDC.
<i>Communication protocol:</i>	PTP - proprietary byte oriented binary and plain message protocol.
<i>Operator interface:</i>	Friendly menu driven user interface.

PHYSICAL CHARACTERISTICS

	1000 dbar - AISI 316L/POM	2000 dbar - white POM
<i>Dimensions: diameter</i>	43 mm	75 mm
total length (including hanging rod)	715 mm	660 mm
<i>Weight: in air</i>	1.3 kg	2.6 kg
in water	0.7 kg	0.6 kg



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