IDRONAUT OCEAN SEVEN 315 ON-LINE MODULE
SALINITY, CONDUCTIVITY, TEMPERATURE, OXYGEN pH, REDOX
TURBIDITY - CHLOROPHYLL - FERRYBOX - THERMOSALINOGRAPH

This advanced monitoring instruments offers, long-term sensors stability for unattended data collection, in either seawater or fresh water environments. The system can be equipped with two thermometers: the main one, which is located inside the measuring flow-through cell to allow salinity calculations and the optional remote one, which can be installed near the water sampling port to accurately measure the temperature of the water. The system is housed in a compact watertight stainless steel unit with an adjacent transparent acrylic flow-through measurement chamber which can be easily removed for cleaning and sensor maintenance. The sample volume of the measuring chamber is 250ml only, which ensures a very fast response time. A pressure sensor inside the cell, acts as an accurate flowmeter. The measurement sensors installed in the system are manufactured by IDRONAUT and are exported all over the world. The system is controlled by an advanced and very low power electronics and can measure, store and transmit sensors
data reading in real-time at **sampling rates up to 20Hz (CTD Only)**. *The system is configured to be directly connected to a P.C. by means of the RS232C serial port whilst other two optional analogue ports interface the external Fluorometer and Turbidity meter. The 315 On-Line module can operate unattended (without PC connected) and can store up to 16,000,000 data sets each one being composed of the reading of all the installed sensors plus the acquisition date and time.*

PRESSURE SENSOR
Accurately monitors the pressure inlet.

FLOW CONDUCTIVITY SENSOR
Features a large diameter, seven-ring quartz cell which does not require platinum black deposition and which can be cleaned without recalibrating.
An optional UV-C 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.

OXYGEN SENSOR
Features an innovative **maintenance free** polarographic Oxygen sensor.

pH GLASS SENSOR and SOLID GEL REFERENCE ELECTRODE
High-pressure low impedance glass membrane pH electrode in conjunction with a unique KCl or NaCl gel double junction reference electrode and a differential pH preamplifier, $10^{13} \div 10^{14}$ Ohm input impedance.

FLUOROMETER INTERFACE (external installation)
The system can interface a remote Fluorometer installed in an additional measuring flow-through cell.

TURBIDITY METER INTERFACE (external installation)
The system can interface a remote Turbidity meter installed in an additional measuring flow-through cell.

GPS
A GPS connected to the PC running the REDAS-5 software allows acquired data to be automatically time stamped and associated with the geographical coordinates (longitude, latitude).

COMMUNICATIONS AND DATA CAPTURE
The unit comes as standard with RS232 serial communications and, as an alternative, it can be fitted with an TTL or RS485 interface. The unit can also be fitted with an optional class 1 Bluetooth wireless adapter allowing full duplex communications with any client using the serial port profile (SPP). Data can be output as a plain ASCII stream allowing real-time data capture by the users' own system or as a proprietary byte oriented protocol allowing data capture and graphic by IDRONAUT's own REDAS5 Windows application. For more information about REDAS-5, please visit our web site "www.idronaut.it". Configuration of user preferences and operation of the unit are performed using a simple menu driven interface, accessible through any plain ASCII terminal emulation software or ITERM Windows application which available free of charge.

SENSOR SPECIFICATIONS
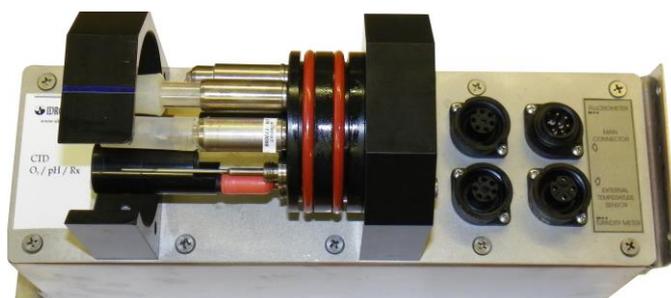
	Range	Initial Accuracy	Resolution	Response Time
Pressure	0..1 dbar	0.05 % FS	0.0015 % FS	50 ms
Temperature	-5..+50 °C	0.003 °C	0.0002 °C	3 s
Conductivity	0..70 mS/cm	0.003 mS/cm	0.0003 mS/cm	50 ms
Dissolved Oxygen	0..50 ppm	0.1 ppm	0.01 ppm	3 s
	0..500 %sat.	1 %sat.	0.1 %sat.	3 s
pH	0..14 pH	0.01 pH	0.001 pH	3 s(1)
Redox	-1000..+1000 mV	1 mV	0.1 mV	3 s

(1) From nitrogen to air.

The fundamental properties of sea water, like: **SALINITY, WATER DENSITY, PRESSURE TO DEPTH CONVERSION, POTENTIAL TEMPERATURE**, **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".

SYSTEM SPECIFICATIONS

Sampling rate:	up to 28Hz
interfaces:	RS232C, optional: RS485, TTL, Data telemetry up to 10Km; Wireless: Bluetooth/Wi-Fi
Power supply:	9..30VDC, 90 mA @ 12 VDC
Dimension and weight:	4 kg.

OPTIONS

BLUETOOTH WIRELESS ADAPTER

This option allows bidirectional full duplex communications between the system and a P.C. equipped with a Bluetooth™ interface conforming to the Bluetooth™ v1.1 class 1, SPP protocol.
Allows full duplex communications between the 315 On-Line module and a PC or PDA devices.

RS485 – TTL

Instead of the RS232C interface, upon request, the system can be equipped with an RS485 or TTL interface

CONDUCTIVTIY SENSOR UV-C INTEGRATED ANTIFOULING

An UV-C 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.

IDRONAUT REDAS-5 Windows Software

REDAS-5 software, through a simplified and friendly operator interface, allows taking full control of the 315 On-Line module acquisitions. REDAS-5 shows the acquired data graphically and numerically. Acquired data is automatically associated with the geographical coordinates acquired from a GPS.

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