

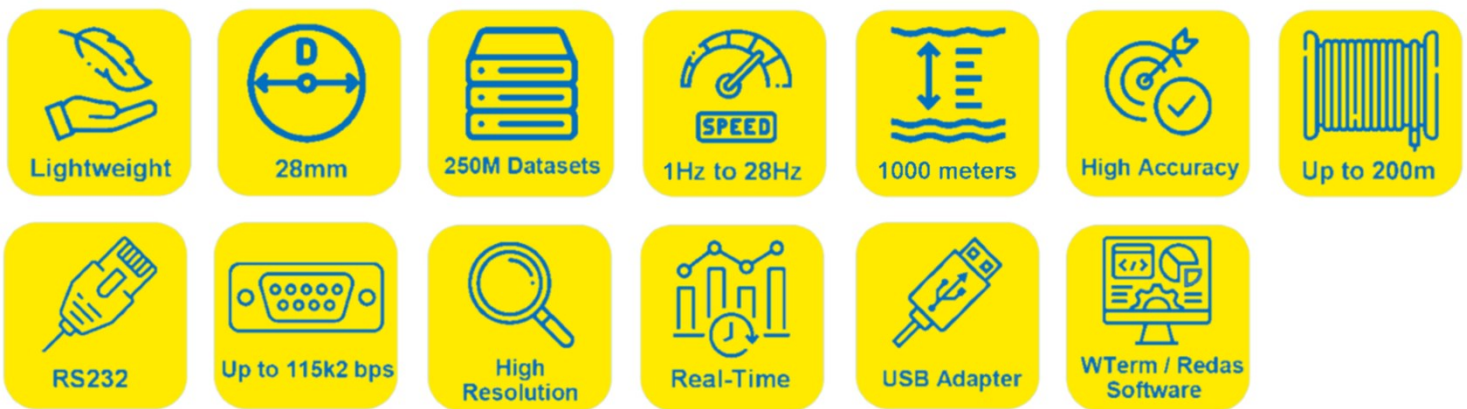
# OCEAN SEVEN 28 Micro CTD

## VERY SMALL DIAMETER AND ACCURATE 28Hz



The OCEAN SEVEN 28 Micro CTD has been designed as a CTD for smallest of spaces where the user does not have to compromise on performance to realize the advantages and flexibility of a compact CTD measuring only Ø28 x 470 mm. This truly represents a real breakthrough in the concept of miniaturization, integration and performance. The OS28 CTD has light-weight payload that can be easily integrated into autonomous vehicles such as AUVs, SAVs and ROVs and communicate in real-time with the vehicle on-board processing units. Due to the very small diameter (Ø 28mm), the OS28 can also be used for borehole monitoring. With the initial accuracy and low drift of the OS28 the user can realize the performance usually only available when using a bench salinometer, with the advantages of real time data output in engineering units up to 28Hz using a truly portable instrument. Whatever the chosen application, the OS28 can be easily integrated with the communication systems of the host platform to give the user real time control and data or self recording data with time stamps using the accurate internal clock and 4GB internal memory. IDRONAUT prides itself on the design of pump free, low maintenance sensors. The OS28 CTD does not require pumps or any other external device to flush the sensors, which minimizes its power consumption.

### FEATURES AND OPTIONS AVAILABLE



### CONDUCTIVITY CELL

The high accuracy seven-platinum-ring quartz conductivity cell (patented) can be carefully cleaned in the field without the need for re-calibration. This unique quartz cell employs a large diameter (8mm) and a short length (47mm) to guarantee self-flushing and no fouling after long-term deployment even in biologically active waters.

### THERMISTOR

The very stable thermistor (7ms) is ideal for high speed temperature measurement and is integrated inside the IDRONAUT 7-ring quartz conductivity cell. The conductivity cell response time (30 ms) and thermistor response times are matched internally in real time to minimize the need for time lag compensation.

### DATA STORAGE

The OS 28 CTD is equipped with a 4-Gbyte SD memory card, which allows the storing of about 250M datasets, each one being composed of the reading of the CTD sensors plus the acquisition date and time. The SD Memory is also used to keep the probe configuration and sensors calibration coefficients.

### REAL TIME

The OS28 can deliver real time data through the built-in RS232 interface using a plain ASCII protocol with a user configurable rate from 1Hz up to 28Hz. The data transmission format can be easily customized on request to meet the vehicles data input requirements. A MCBH-6-MP bulkhead connector is installed on the top cover.

# POTENTIAL APPLICATION

Potential uses for OS28 micro CTD include:

- Reference instrument for the verification of CTDs in the field.
- Transfer standard for the laboratory calibration of conductivity and temperature.
- Integration into autonomous underwater vehicles.
- Thermosalinograph for real time underway vessel surface data.
- Borehole monitoring.

# PHYSICAL CHARACTERISTICS

Housings	1000 dbar TITANIUM
Diameter:	28 mm.
Length:	470 mm.
Weight in air:	520 g.
Weight in water:	260 g.

# SENSORS SPECIFICATIONS

Parameter	Range	Initial Accuracy	Resolution	Response Time
Pressure	0..1000 dbar <sup>(3)</sup>	0.5% FS	0.0015% FS	30 ms
Temperature	-5..+50 °C	0.001 °C	0.0001 °C	30 ms
Conductivity Salt water	0..90 mS/cm	0.0015mS/cm	0.0001 mS/cm	30 ms <sup>(1)</sup>
Fresh water	0..7000 µS/cm	5 µS/cm	0.1 µS/cm	30 ms <sup>(1)</sup>
Brine	0..350 mS/cm <sup>(2)</sup>	0.010 mS/cm	0.0001 mS/cm	30 ms <sup>(1)</sup>

(1) At 1 m/second flow rate. (2) Optional extended range, available upon request.

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

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 fresh water properties like: **TDS (Total Dissolved Solids), Fresh Water Conductivity** corrected at 20°C and 25°C are automatically calculated.

# CONDUCTIVITY FIELD CHECK

The OS28 CTD conductivity sensor calibration can be checked in the field by immersing the CTD, directly in a small container of IAPSO sea water standard.

# SPECIFICATIONS

Real-time and logging:	1 Hz up to 28Hz
Interfaces:	<b>Wired:</b> RS232C
Communication speed:	<b>Default:</b> 115k2 bps, up to 921k6 bps.
Data memory:	4 GBytes.
Power supply:	7..30 VDC; <b>Running:</b> 300 mW;
Bulkhead connector	MCBH-6-MP (BIRNS)

# SOFTWARE

Idronaut software allows the operator to communicate with the OS28 data . They are:

- **WTERM:** Windows Terminal emulation software to easily communicate with the OS28 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.

