

IDRONAUT BUOY 701 PROFILER

with CELLULAR PHONE LINK

MARINE SCIENCE, LIMNOLOGY, AQUACULTURE, WATER QUALITY MONITORING

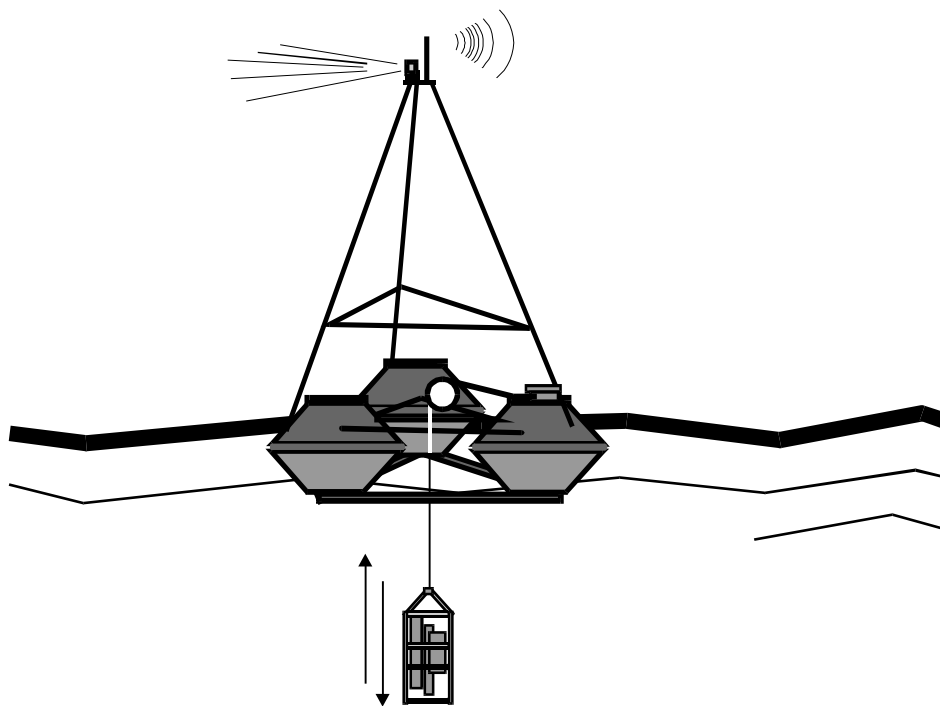
The BUOY 701 PROFILER can be mounted and moored in place quickly, without special tools. After assembly, the buoy can be easily moved by towing with a small vessel.

The BUOY 701 PROFILER is equipped with the OCEAN SEVEN 301 Multiparameter Probe which has been designed for oceanographic application and uses very reliable, accurate; and drift-free high quality sensors, associated with advanced and innovative integrated antifouling systems. The computer-driven winch is located on the top of the buoy hull that contains the Controller, the Modem and the Cellular Phone Link Modules (or UHF Radiomodem). The winch performs automatic vertical profiles with the OCEAN SEVEN 301 Probe which measures depth, temperature, conductivity, salinity, dissolved oxygen, pH and oxidation-reduction potential.

The OCEAN SEVEN 301 Probe can also be equipped with additional probes (a Current Meter, a Fluorometer for chlorophyll 'a' measurements, a Light Scattering Sensor a Transmissometer, etc.). All probes are protected by a light and rugged titanium cage. The total weight of the probe package can reach 20 Kg; the winch standard cable length is 20 meters of 7 mm polyurethane coaxial armored cable, however, a special winch version can accept up to 200 meters of 3.2 mm zinc steel armoured cable (for fresh water only).

The BUOY 701 PROFILER is composed of three 601 Buoy hulls rigidly mounted on a triangular frame and supported by 6 connecting rods, all of AISI 316 stainless steel. Each of the hulls holds 8 rechargeable batteries (12V, 36 A/h each) giving 10 KW hours of reserve power, thereby eliminating the need for solar panels which are particularly failure-prone in a marine environment.

The BUOY 701 PROFILER is equipped with the Controller Module which contains all the hardware and software to supervise the buoy operations, from the winch movements to the internal diagnostics functions.



The Controller internal circuits are normally switched off, waiting for the next acquisition time, in order to start the profile operations. In this 'idle' state the buoy drains very little current from the batteries, ensuring long periods of stand-alone activity. The acquired data is buffered by the Controller, awaiting the 'calls' from the Land-Based Station. Once the communication is established, the buffered data flows in CRC controlled messages from the Buoy to the Land-Based Station. Communication occurs at programmable time intervals.

From the Land-Based Station, it is also possible to modify the Buoy operating

parameters (profile type, data acquisition interval, etc.). The system can operate independently for more than six months, depending on the number of profiles programmed.

The core of the Land-Based Station is the REDAS - REMote Data Acquisition Software - which supports the data transfer protocol, a series of data base access functions, and the creation of bidimensional and tridimensional plots. The Land-Based Station includes an MS-DOS Personal Computer and a Modem or UHF Radiomodem.

More than 50 Buoy 701/601 Profiler have been already installed.

OCEAN SEVEN 301 MULTIPARAMETER PROBE SPECIFICATIONS

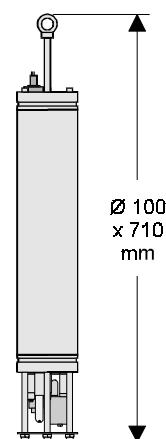
Parameter	Range	Accuracy	Resolution
Pressure	0 ... 300dbar	0.25%f.s.	0.1dbar
Temperature	-1... +50°C	0.01°C	0.004°C
Conductivity	0 ... 62mS/cm	0.02mS/cm	0.004mS/cm
Oxygen	0 ... 50ppm	0.1ppm	0.01ppm
	0... 500%sat.	1%sat.	0.1%sat.
pH	0 ... 14pH	0.05pH	0.01pH
Redox	-1000 to +1000mV	10mV	1mV

Sensors time constant: 50 msec., except for pH, Redox and Dissolved Oxygen sensors that have 3 sec.

A probe version with conductivity range for fresh water is also available:

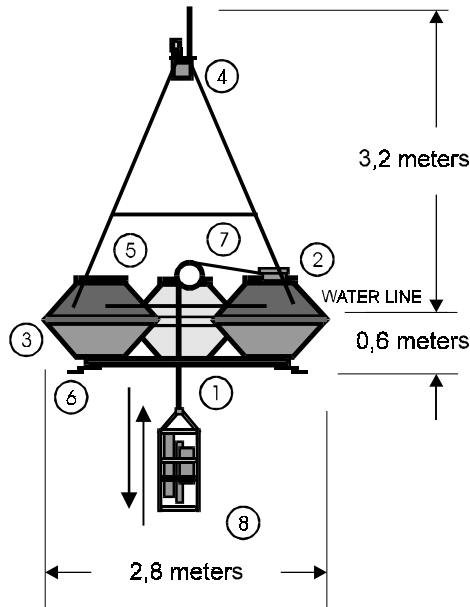
Range	Accuracy	Resolution
0..6200 μ S/cm	2 μ S/cm	0.4 μ S/cm

See OCEAN SEVEN 301 leaflet for further information.



BUOY 701 PROFILER SIDE VIEW

- ① Lower frame, a triangular structure (AISI 316) which forms the base, complete with supports for mooring;
- ② Hull, contains the Controller, the Modem and the Cellular Phone Link Modules (or the UHF Radiomodem), Winch and Batteries.
- ③ Hull, identical to ② but contains only batteries (eight 12V 36 A/h each).
- ④ Upper base supporting radar reflector, optional antenna and xenon flash lamp with a visible range up to 3 miles, programmable flash intervals, daylight off.
- ⑤ Connecting rods, rafters and supporting trellis.
- ⑥ Mooring supports (3).
- ⑦ Wheel and pulley support for sensor package.
- ⑧ Single multiparameter probe or sensor package with titanium protection cage supported by a polyurethane coaxial armored cable.

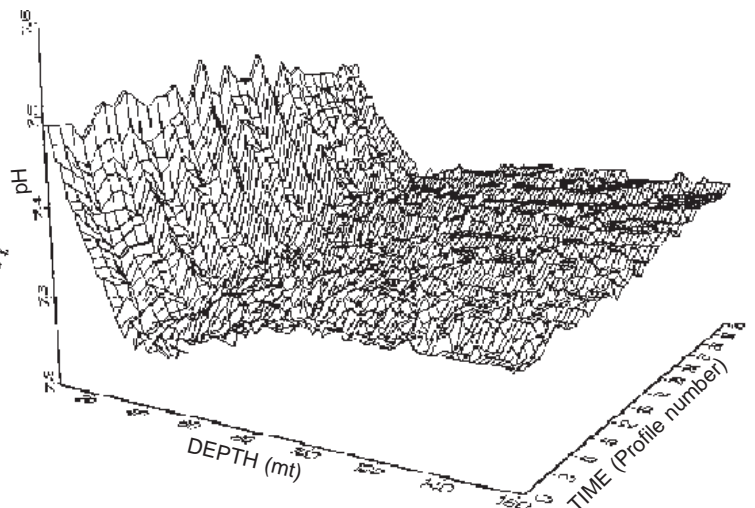
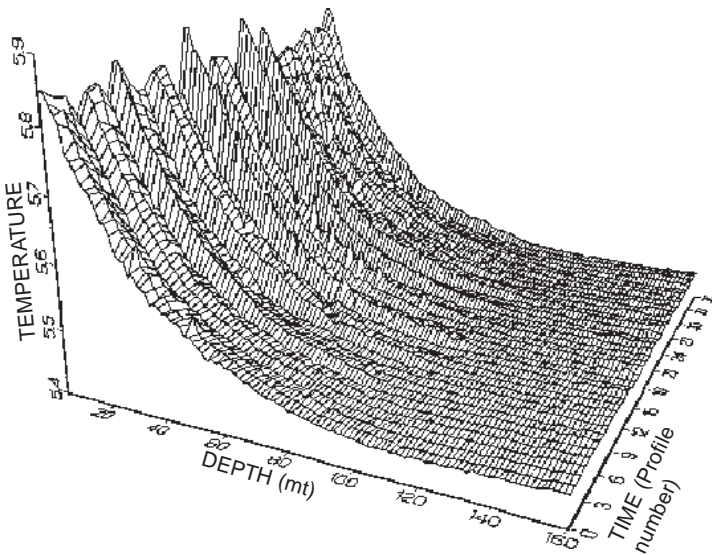


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SYSTEM OPTIONS:

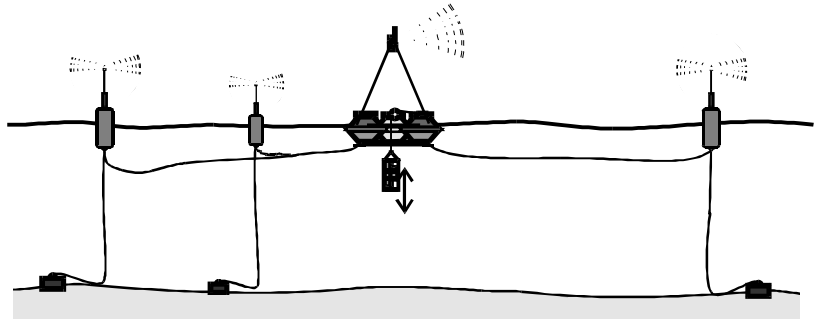
- CURRENTMETER
- FLUOROMETER, for in situ chlorophyll 'a' measurements.
- TRANSMISSOMETER, for accurately measuring beam transmission in a 5, 10, 25 cm water path
- LIGHT SCATTERING SENSOR.
- UHF RADIOMODEM, for radio data transmission.
- SOFTWARE, for operation with up to 20 Buoy Profilers.
- PHOTOVOLTAIC POWER MODULES.

3D OUTPUT PLOTS - Lugano Lake (Switzerland) - from August 29, 1990 to October 4, 1990



EASY MOORING

Example of three-point mooring realized with light-weight marker buoys, fiber ropes, buoy chains and anchors.



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