

MultiNet[®]

Multi Plankton Sampler



Features:

- ✓ Combined online/offline use (standard)
- ✓ Bi-directional communication
- ✓ Standard depth range 3000 m
- ✓ Long distance FSK-telemetry (> 10000m)
- ✓ Low power consumption
- ✓ Battery operated Underwater Unit, max. voltage of 5 V at the conductor cable
- ✓ Electronics operate from -40 °C up to +85 °C
- ✓ EC-conformity (CE) EN 50081-1, EN 50082-1
- ✓ expandable range of sensors

The System

Sampling sea and ocean at its best - with the improved MultiNet® generation of the Multi Plankton Sampler, the world's leading sampling system for horizontal and vertical collections in successive water layers.

New: for combined online/offline use

Equipped with 5 resp. 9 net bags the MultiNet® can be delivered in 4 sizes (apertures) : Mini (0.125 m²), Midi (0.25 m²), Maxi (0.5 m²) and Mammoth (1 m²).

The system consists of a mains powered Deck Command Unit and a stainless steel frame with canvas part to which 5 (9) net bags are attached by means of zip fasteners. The net bags are opened and closed by means of an arrangement of levers which are triggered by a battery powered Motor Unit. The commands for actuation of the net bags are given via single or multi-conductor cable (not included in our scope of delivery) between the Underwater Unit and the Deck Command Unit.

A wide selection of mesh sizes for the net bags is available to meet the requirements of all standard and non-standard applications. For common horizontal collections a mesh size of 300 microns (mesh sizes from 100 to 500 microns available) is recommended, for vertical collections mesh sizes from 55 to 500 microns are applicable.

An integrated Pressure Sensor (measuring range according to customer's requirements) allows continuous supervision of the actual operating depth which is indicated together with all relevant system data at the LCD-display of the Deck Command Unit.

Two Electronic Flow Meters with automatic angle compensation are mounted to the Underwater Unit: one inside the opening of the Underwater Unit for the determination of the amount of water passing through the opened nets, one outside the opening for the determination of clogging effects.

For horizontal collections the MultiNet® is used with a V-Fin Depth Depressor, to carry out vertical collections, a stainless steel support is securely attached to the bucket holder and enables a quick lowering to depth.

Operation

In its initial position the MultiNet® is brought to water with all net bags closed. The water flows freely through the frame allowing to lower it with high paying out speed to the greatest desired depth where the first net bag is opened by push button control from the Deck Command Unit. At the end of the desired period of horizontal collection resp. after passing the desired depth interval in case of vertical operation, the first net bag is closed by a second command. The second net is opened simultaneously. This procedure is repeated for the remaining net bags, while the Deck Command Unit indicates the number of the active net bag. During operations of Mini and Midi versions the last net (no. 5) remains open, it collects plankton from the smallest desired depth up to the water surface. During operations of the Maxi and Mammoth versions the last net (no. 9) can be closed before reaching the water surface.



The Specialties

Offline use

In case that a conducting cable is not available on board of the vessel, the required sampling depths can be pre-programmed via personal computer. The activation of the net bags is carried out automatically according to the pre-selected depth intervals. All measuring data are stored inside the internal data memory of 16 MByte during the operation and can be read by a PC when the MultiNet[®] is back on board.

Options

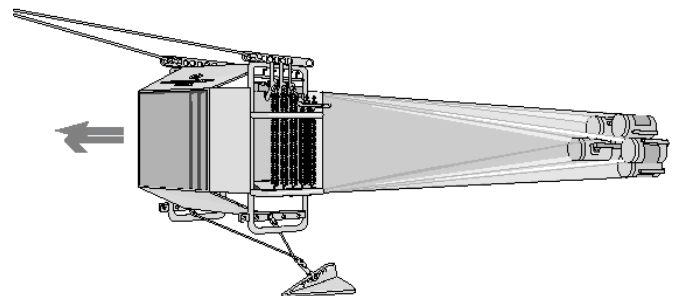
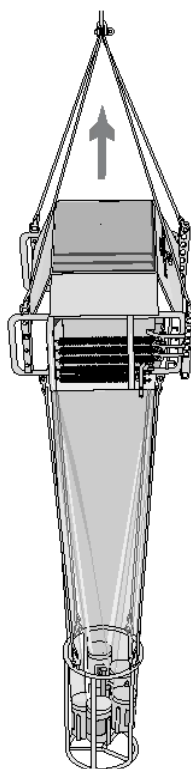
CT-Set

Together with the optional CT-Set the system offers the full capability of a state-of-the-art oceanographic Multi Parameter Probe. The CT-Set consists of one conductivity sensor, one temperature sensor and an additional electronics board which are all completely integrated into the Motor Unit of the MultiNet[®]. From the CTD data the system computes salinity, density and sound velocity according to UNESCO formulas.

CT-Set for MultiNet[®]

Conductivity sensor:	0 ... 65 ± 0.01 mS/cm,
Temperature sensor:	-2 ... +32 ± 0.005 °C
Data rate :	1 Hz (1 data set per second)

No. 450 500



- ✓ Additional sensors of various parameters
- ✓ Special version for operational depths down to 6000 metres
- ✓ Pitch and Roll sensor (standard for the Mammoth)

Technical Data

Underwater Unit:	Type Mini	Type Midi	Type Maxi	Type Mammoth
Dimensions (w x l x h):	65 cm x 90 cm x 80 cm	80 cm x 90 cm x 95 cm	120 cm x 110 cm x 135 cm	150 cm x 120 cm x 160 cm
Net opening:	35.5 cm x 35.5 cm = 0.125 m ²	50 cm x 50 cm = 0.25 m ²	71 cm x 71 cm = 0.5 m ²	100 cm x 100 cm = 1 m ²
Net Bags:	5 pcs., length: 160 cm	5 pcs., length: 250 cm	9 pcs., length: 365 cm	9 pcs., length: 550 cm
Standard mesh size:	300 microns	300 microns	300 microns	300 microns
Net Buckets:	5 pcs., 11 cm dia.	5 pcs., 11 cm dia.	9 pcs., 11 cm dia.	9 pcs., 11 cm dia.
	5 pcs. Soft Net Bucket	5 pcs. Soft Net Bucket	9 pcs. Soft Net Bucket	9 pcs. Soft Net Bucket
Weights:				
Net Frame:	approx. 75 kg	approx. 100 kg	approx. 260 kg	approx. 390 kg
Stainless Steel Support:	approx. 30 kg	approx. 50 kg	approx. 70 kg	approx. 100 kg
V-Fin Depth Depressor:	approx. 22 kg	approx. 22 kg	approx. 70 kg	approx. 70 kg
Overall length ready for operation (from bridle to net bucket):	470 cm	560 cm	800 cm	1000 cm
Materials:				
Net frame:	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Motor Unit and Battery Housing:	Titanium	Titanium	Titanium	Titanium
Net Bags:	Polyamide	Polyamide	Polyamide	Polyamide
Net Buckets:	PVC/ Canvas	PVC/ Canvas	PVC/ Canvas	PVC/ Canvas
V-Fin Depth Depressor:	Aluminium, lead-weighted	Aluminium, lead-weighted	Aluminium, lead-weighted	Aluminium, lead-weighted
Operational Depth:	Standard 3000 metres	Standard 3000 metres	Standard 3000 metres	Standard 3000 metres
Pressure Sensor:	Standard 3000.0 dbar ± 0.1% f.s. (other ranges on request)	Standard 3000.0 dbar ± 0.1% f.s. (other ranges on request)	Standard 3000.0 dbar ± 0.1% f.s. (other ranges on request)	Standard 3000.0 dbar ± 0.1% f.s. (other ranges on request)
Connection Plug:	SUBCONN BH 2 M	SUBCONN BH 2 M	SUBCONN BH 2 M	SUBCONN BH 2 M
Cable Counter Plug:	SUBCONN IL 2 F	SUBCONN IL 2 F	SUBCONN IL 2 F	SUBCONN IL 2 F
Cable connection:	Single- or multi-conductor cable, one pole can be in contact with sea water			
Breaking load: for shallow water applications (up to 500 m):	approx. 1500 kg	approx. 2000 kg	approx. 4000 kg	approx. 8000 kg
for deep sea applications (from 500 m up to 3000 m):	approx. 5000 kg	approx. 8000 kg	approx. 12000 kg	approx. 18000 kg
Max. cable resistance (go-and-return line):	1000 Ohms	1000 Ohms	1000 Ohms	1000 Ohms
Deck Command Unit:	Metal housing for use in 19" rack or as table housing, not for use on deck; push button control for net changing; indication of net number, pressure, battery status, ... Supertwist LCD-display with LED backlight; Interface for Personal Computer (RS 232)			
Power Supply:	3 Lithium Batteries DL 123 A/3V, sufficient for approx. 100 hours operation			
Underwater Unit:	85 - 260 VAC	85 - 260 VAC	85 - 260 VAC	85 - 260 VAC
Deck Command Unit:				
Towing Speed:	Recommended for nets with 300 microns standard mesh size:			
Horizontal Collections:	max. 4 knots	max. 4 knots	max. 4 knots	max. 4 knots
Vertical Collections:	max. 1 m per sec.	max. 1 m per sec.	max. 1 m per sec.	max. 1 m per sec.
The single- or multi-conductor cable is not included in our scope of delivery.				