



# HYDRO-BIOS

## Smart Sampling

### Datasheet MultiNet "Maxi" ( 438 140 )



#### MultiNet "Maxi" 0.5 m<sup>2</sup>

Smart Sampling at its best

with the improved MultiNet generation of the Multiple Plankton Sampler, the world's leading sampling system for horizontal, oblique and vertical collections in successive water layers. The MultiNet "Maxi" (0.5 m<sup>2</sup>) has 9 net bags attached to the stainless steel frame with strong canvas part by means of zip fasteners.

The net bags are opened and closed by means of levers which are triggered by a battery powered Motor Unit (3 x CR123A cells) or as an alternative with our new rechargeable battery pack (LiFePo4) which provides more energy for extended applications. The commands for actuation of the net bags are given via single or multi-conductor cable between the Underwater Unit and the included Deck Command Unit. The commands for actuation of the net bags are given via single or multi-conductor cable between the Underwater Unit and the included 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 is recommended (mesh sizes from 100 to 780 microns available), for vertical collections mesh sizes from 55 to 780 microns are applicable. For mesh sizes below 100 microns it is recommended to use an enhanced net bag (for example a double-layered net bag: one with 55 microns plus one with 300 microns).

An integrated Pressure Sensor (measuring range according to customers' requirements) allows continuous supervision of the current operating depth. Depth values and all relevant system data are shown on 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 frame for the determination of the amount of water passing through the open nets, one outside the opening for the determination of clogging effects.

For horizontal collections a V-Fin Depth Depressor is attached to the MultiNet. To carry out vertical collections, a stainless steel support is securely attached to the net buckets and enables a quick lowering to depth.



## DESCRIPTION

### Online

In its initial position the MultiNet is brought to water with all net bags closed and the water flowing freely through the frame. The instrument can be lowered with high speed to the greatest desired depth. There the first net bag is opened by push-button control from the Deck Command Unit. At the end of the horizontal collection resp. after passing the intended 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 and the Deck Command Unit indicates the number of the currently active net bag. During operations of Mini and Midi versions the last net (no. 5) remains open to collect plankton from the smallest desired depth up to the water surface. Using the Maxi and Mammoth versions the last net (no. 9) can be closed before reaching the water surface. In its initial position the MultiNet is brought to water with all net bags closed and the water flowing freely through the frame. The instrument can be lowered with high speed to the greatest desired depth. There the first net bag is opened by push-button control from the Deck Command Unit. At the end of the horizontal collection resp. after passing the intended 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 and the Deck Command Unit indicates the number of the currently active net bag. During operations of Mini and Midi versions the last net (no. 5) remains open to collect plankton from the smallest desired depth up to the water surface. Using the Maxi and Mammoth versions the last net (no. 9) can be closed before reaching the water surface.

### Offline

In case that a conducting cable is not available on board, the required sampling depth can be pre-programmed via personal computer. The activation of the net bags is then 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 out by a PC when the MultiNet is back on board.

### CT-Set

Together with the optional CT-Set the system offers the full capability of a state-of-the-art oceanographic CTD probe. The CT-Set consists of one conductivity sensor, one temperature sensor and an additional electronics board which is 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.

### Pitch and Roll Sensor

The optional Pitch and Roll Sensor has been developed for measurements of pitch angle and roll angle of the Underwater Unit of the MultiNet. It allows continuous supervision of the current orientation during horizontal operations.

### Accessories

- Additional sensors of various parameters
- Special version for operational depths down to 6000 metres



## TECHNICAL DETAILS

<b>length</b>	110 cm
<b>width</b>	120 cm
<b>height</b>	135 cm
<b>net opening</b>	71 cm x 71 cm = 0.5 m <sup>2</sup>
<b>net bags</b>	9 pcs., length: 365 cm
<b>standard mesh size</b>	300 µm
<b>plastic net buckets</b>	9 pcs., 11 cm dia.
<b>soft net buckets</b>	9 pcs., 11 cm dia.
<b>overall length ready for operation (from bridle to net bucket)</b>	800 cm
<b>weight on air</b>	approx. 260 kg
<b>weight for stainless steel support</b>	approx. 70 kg
<b>weight of V-Fin depressor</b>	approx. 70 kg
<b>material of frame</b>	Stainless Steel
<b>material of motor unit and battery housing</b>	Titanium
<b>material of net bag</b>	MONyl
<b>material of net buckets</b>	PVC/Canvas
<b>material of V-Fin depth depressor</b>	Aluminium, lead-weighted
<b>operational depth</b>	Standard 3000m - optional 6000m
<b>pressure sensor</b>	Standard 3000.0 dbar ±0.1% f.s. (other ranges on request)
<b>data memory</b>	16 MB
<b>speed measurement</b>	2 pcs., 0.0 ... 9.9 m/s
<b>connection plug</b>	SUBCONN IL 2 M
<b>cable counter plug</b>	SUBCONN IL 2 F
<b>cable connection</b>	Electro-mechanical single- or multi-conductor cable, one pole can be in contact with sea water
<b>cable - Breaking load for shallow water applications</b>	approx. 4000 kg
<b>for deep sea applications (from 500 m up to 3000 m)</b>	approx. 12000 kg
<b>max. cable resistance (go-and-return line)</b>	1000 Ohms
<b>deck command unit</b>	Metal housing for use in 19" rack or as table housing, push-button control for net changing, indication of net number, pressure, battery status, LCD-display with LED backlight, RS232 Interface for PC, power supply: 85- 260 V AC
<b>power supply underwater unit</b>	3 Lithium Batteries DL 123 A/3V, sufficient for approx. 100 hours operation
<b>towing speed (for 300 microns standard mesh size)</b>	recommended: for vertical tows 1m/s, for horizontal tows 4 knots
<b>the single / multi-conductor cable</b>	
<b>product ID</b>	438 140



## CHARACTERISTICS

- vertical hauls
- oblique hauls
- horizontal hauls
- Special version for operational depths down to 6000 metres
- Additional sensors of various parameters