UltraLab UWS

The Lab Echo Sounder

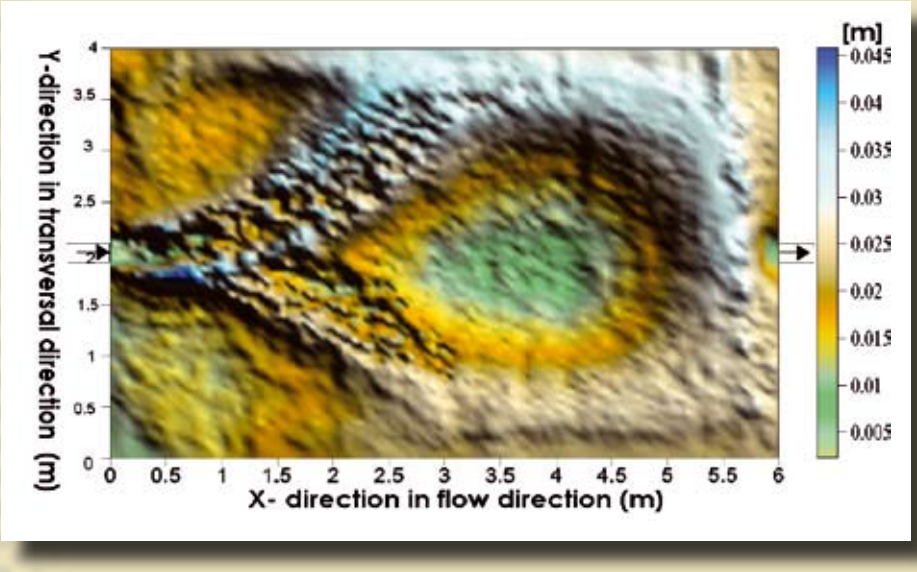
High resolution distance measuring in water for:

- Underwater bottom contours or objects
- Ripple and scour detection
- Sole and surface water models
- Hydraulic models, flumes and wave basins
- Sedimentation and erosion processes
- Real time sediment transport processes

The **UltraLab UWS** miniature echo sounder was developed for highly spatial and temporal resolved measurements of distances in fluids. It works with an ultrasonic impulse run-time procedure and the 1MHz, highly sensitive transducer with a very narrow beam enables the resolution of smallest targets or changings of the measurement object. Due to its high resolution it can resolve small scale contours in a measuring range from 2 cm up to 15m. The small size of the sensor enables even the use in very small scale applications or at applications with challenging placement or mounting requirements. Furthermore, **UltraLab UWS** can measure parallel or close to objects and walls because the ultrasonic beam has practically no side lobes.

The easy to use laboratory measuring instrument **UltraLab UWS** can be adapted to very different applications by its various functions and configurable parameters.

The measured distance is directly shown on a four digit display and the proportional analogue 0-10V output voltage at a BNC socket allows the integration into external data acquisition. The measurement range, as well as the output voltage, can be adapted to the requirements of the overall measuring system. All these properties enable its versatile use in labs.



Picture left:

3D-result with UltraLab UWS and optional X-Y traverse

(by courtesy of EPFL, Lausanne, Switzerland, Mr. S.A. Kantoush)

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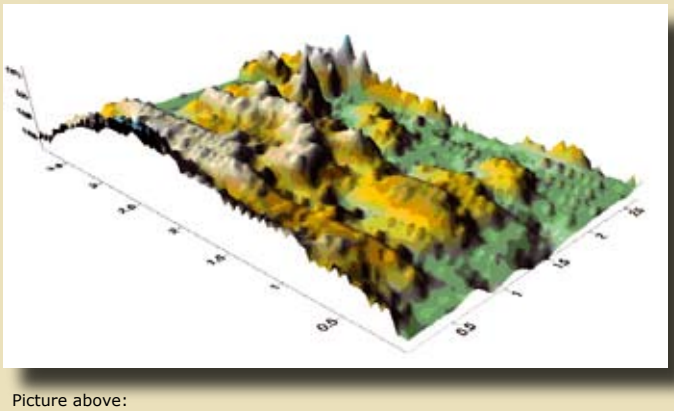
Specifications	Lab device ULTRALAB UWS 1M with control keys and LCD-Display
Display:	12 mm 4 digit LCD-display integrated into equipment
Dimensions:	330/115/260 mm (length/hight/depth)
Measuring rate:	Max. 10 Hz
Measuring range:	Manually adjustable, 2 cm to 15 m in water (depending on attenuation of fluid and sound velocity) maximal time span: 32 ms (equal to 23 m in water)
Power supply:	230 V AC (110 V AC / 24 V DC optional)

Sensor	Watertight, IP68 with underwater connector and 10 m sensor cable
Dimensions:	Diameter:30 mm, Length:50 mm
Weight:	50 g
Thread:	M30 x 1.5
Frequency:	1 MHz
Resolution:	1 % of measuring range, max. 1 mm e.g. at measuring range 1 mm to 9.999 m
Accuracy:	1 % of measured value at constant ambient conditions (max. +/- 1 mm)
Temperature range:	Working temperature: -20 up to +70°C Storage temperature: -40 up to +80°C
Output:	BNC-Socket, 0–10 V analogue with zoom-function

Parameters	
Parameter setting:	Digital on display via 3 operating keys(code-secured access)
Some imortant parameters:	Time gain Transmit/receive amplification Measuring range

Options:

- Sync interface for very close operation of multiple sensors
- Sensor cable length up to 400m with external pre amplifier
- Measurements through container walls with special adapter



Picture above:

3D-result with UltraLab UWS and X-Y traverse. Different shape factors with different forms for reservoir sedimentation study have been carried out.

(by courtesy of LCH, EPFL, Switzerland, Dr. Sameh Kantoush, e-mail: kantoush@yahoo.com)

Key References:

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