UltraLab ULS 40/80D

Sensing of Water Level and Waves

UltraLab ULS 40/80D is designed for the measuring of water surfaces in Ship Model Basins, Flumes, Hydraulic Laboratories at Universities and Institutes and Simulation Facilities of Physical Models. It is an easy to handle airborn ultrasonic measuring system, which measures water level and waves fast and precisely. Because of its combined very sensitive analogue sensing technology with sophisticated UltraLab Advanced processing together with the small beam angle of <3° it captures almost all kinds of water dynamics highly resolved. Measurements close to or direct at objects/models are possible. The ULS system incl. the new internal data acquisition is easy to handle and due to the simultaneously operation of sensors with measuring ranges from 250 to 3400 mm a wide range of application in laboratories is possible.

UltraLab ULS 40/80D Specifications

- 4 or 8 independent channels (ULS 40D or 80D controller)
- Various sensors measuring from 30 mm up to 3.4 m with internal temperature compensation
- Superior resolution up to 0,18 mm
- Repetition rate up to 75 Hz depending on measuring range
- Low operation effort and no maintenance necessary
- Analogue 0-10 V, digital RS232 or LAN (optional) outputs

The ULS 40/80D system is equipped with four/eight fully assembled independent channels. The BNC voltage output (0–10 V), digital RS232 and optional LAN output enable an easy integration into almost all external data acquisition system if needed.

The UltraLab ULS 40/80D is optimised to measure:

- regular and irregular waves and almost all kind of water level dynamics incl. shooting water
- Object contours (oil, ice, bodies, etc.)
- Wave fields around a ship model and ship induced waves
- Wetted surfaces/ topping
- Flood wave propagation and Water levels

Applications:

- Optimisation of Ship Models
- Measurements in Flood- and Water Surface Models
- Optimisation of Hydraulic Constructions
- Determination of Wave Parameters
- Analysis of Wave Fields
- Measurement of Object Contours

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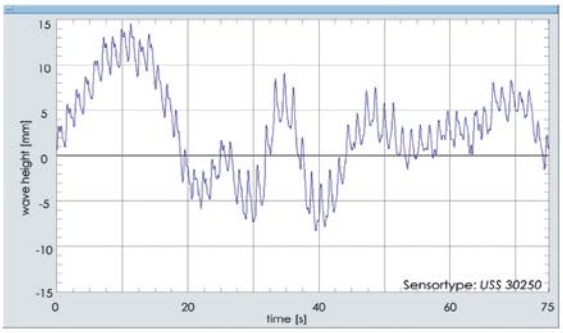
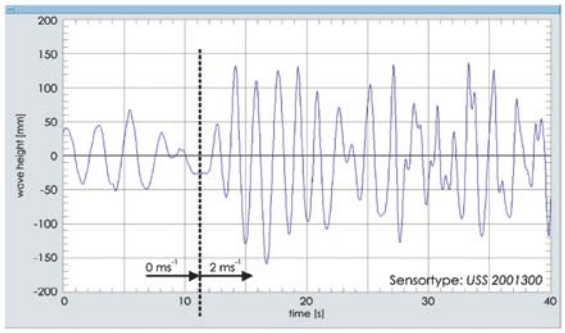
Available Sensors	USS 325	USS 635	USS 20130	USS 35340
Blind area:	30 mm	60 mm	200 mm	350 mm
Working range:	250 mm	350 mm	1300 mm	3400 mm
Frequency:	320 kHz	400 kHz	200 kHz	120 kHz
Techn. resolution:	0.18 mm	0.18 mm	0.18 mm	0.18 mm
Reproduceability:	±0.15%	±0.15%	±0.15%	±0.15%
Output update:	75 Hz	75 Hz	50 Hz	20 Hz
Analogue output:	0–10 V	0–10 V	0–10 V	0–10 V
Protection class:	IP 65	IP 65	IP 65	IP 65

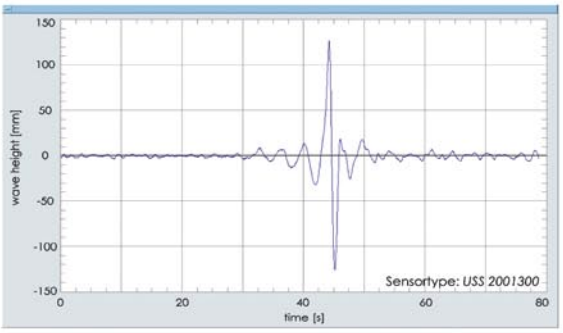
Digital output via RS 232 or LAN



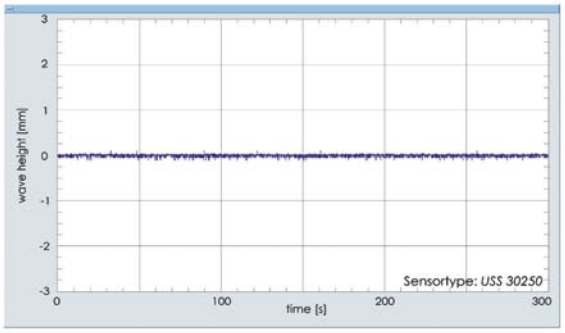
VWS Berlin Model Basin, Germany
Superposition of two different waves



Hamburg Ship Model Basin, Germany
Planar motion (v = 2 ms $^{-1}$) towards incoming wave



Potsdam Ship Model Basin, Germany
Local reading of a single wave packet



University of Applied Sciences Suderburg, Germany
High resolution measurement of water level

Key References:

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