

UltraLab ULS Advanced

Sophisticated Level and Wave Measurements for Labs



The UltraLab ULS Advanced Controller.

The **UltraLab ULS Advanced** is a high speed, calibration-free, remote sensing measurement system based on General Acoustics' well-known innovative high performance airborne ultrasonic ultrasound technology. Designed for time-efficient, very reliable and high resolution wave measurements, it is optimized for challenging measurement applications in towing tanks and hydraulic laboratories. It features powerful signal processing for false and lost echo cancelation for outstanding performance at high speed measurements, even at steep, breaking and very fast moving waves with a relative velocity up to 15 m/s. Freely switchable to 50 Hz / 100Hz measurement mode for best results both at high-speed dynamic and lower speed, stationary applications.

With the fully digitized ULS Advanced system range we have solved problems with lost signals at steep and breaking waves and minimized issues with the proximity between sensors. This is achieved through the synchronized operation of all channels, the sophisticated signal processing and advanced lost-, false- and multi-path echo cancellation processes.

The **UltraLab ULS Advanced** features four independent, fully-synchronized channels allowing very close spacing between sensors. Each channel can be equipped with up to three sensors for maximum reliability at very high speeds. With the 100 Hz measuring/sample rate, every measurement unit detects high dynamic processes in an impressive resolution of 0.18 mm within the measurement range between 200 and 1.200 mm, sufficient to fully detect all phases of a breaking wave and show the actual level at the surface of the wave.

The integrated high precision sound velocity sensor makes the system calibration-free and guarantees an accuracy of 1 mm, even at changing ambient conditions.

The **UltraLab ULS Advanced** is equipped with LAN, RS232 and trigger interfaces for hassle-free connectivity to external measurement systems. The direct readable ASCII output format can be easily imported to any processing tool. A trigger input is implemented for time synchronisation with external measurement systems and data acquisition.

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Specifications:

- Measurement range: 20 cm up to 120 cm
- Superior resolution: down to 0.18 mm
- Measuring rate: 50/100 Hz (switchable)
- Power supply: 230 V (110 V optional)
- Data format: direct readable ASCII-format with time stamp (external TTL-signal triggered)
- Remote operation through LAN or RS232 and TTL-signal to start/stop measurements.
- Windows software for viewing in real-time, logging, remote control and data export
- Standard 10m Cables, longer on request.
- Sensor size: 30x90 mm (diameter/length)



Interfaces:

- RS232 with 115 kBaud
- LAN / Ethernet (Virtual COM-Port Server)
- TTL Trigger input (opto-isolated)
- Output: direct readable ASCII-table



Application:

Measurements in towing tanks, flood- and surface water models, sloshing tanks for:

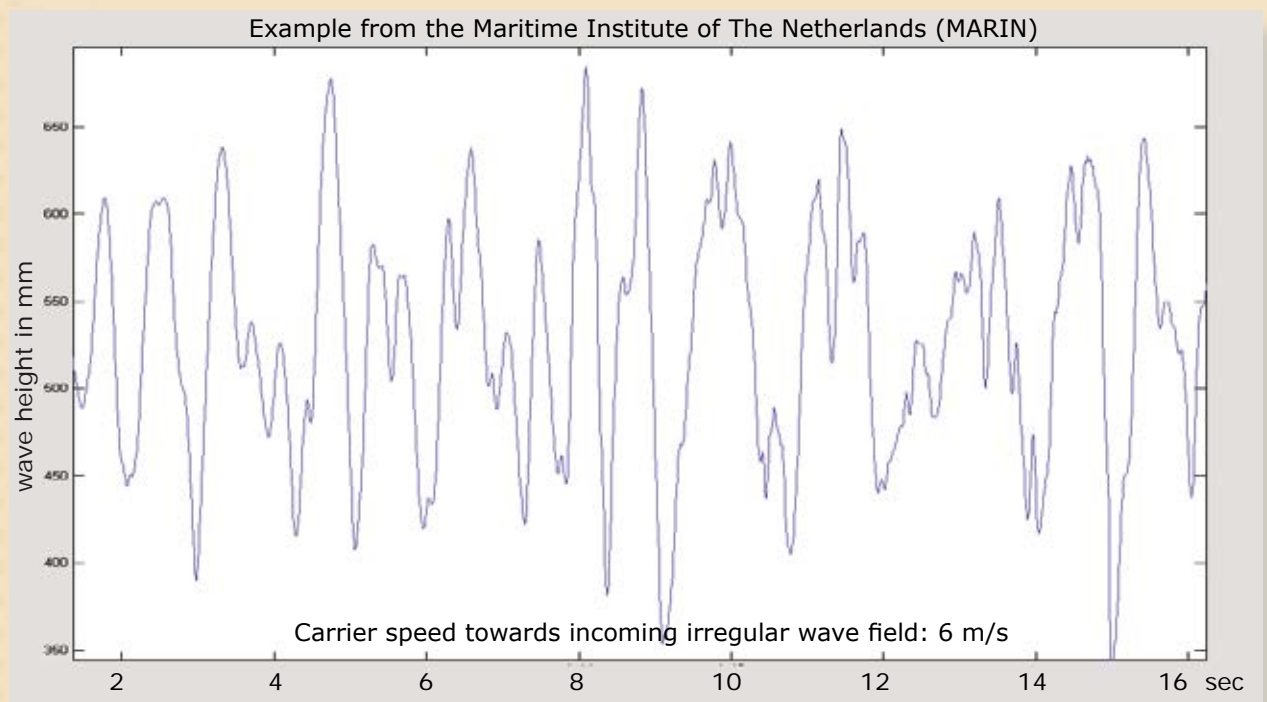
- fast analysis of waves and wave fields
- fast recording of topographic contours in models
- steep, breaking waves, white water
- very high resolution measurements
- highly dynamic wave processes, very turbulent water surfaces
- relative speeds up to 15 m/s.



The **UltraLab ULS Advanced System** consists of:

- up to 12 UltraLab USS 13HF sensors (max. 3 per channel)
- 1 Controller unit with four independent, synchronized channels
- 1 Sensor REF-300 for precise sound velocity compensation

Selected References: Marin/NL, HSVA and SVA/D, Marintek/N, DGA/F, NTUA/GR



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