ATLAS HYDROGRAPHIC
A company of the ATLAS ELEKTRONIK Group

...a sound decision

Echosounders for more than 100 Years

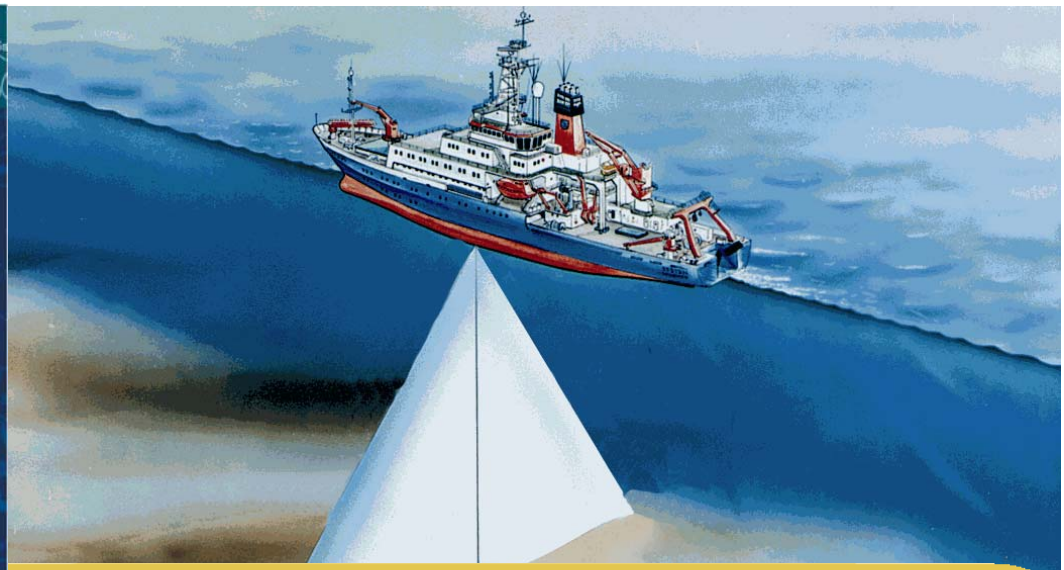
Worldwide Customer Base due to Superb Accuracy and Outstanding Reliability

ATLAS HYDROMAP CONTROL Software

Shallow to Full Ocean Depth

High Resolution Depth, Sidescan, Backscatter, Water Column

ATLAS IS^3 Integrated Survey Sensor Solutions



ATLAS HYDROSWEEP DS

DEEP-SEA MULTIBEAM ECHOSOUNDER

The ATLAS HYDROSWEEP DS is a high resolution multibeam echosounder ideally suited for seabed mapping in deep water up to full ocean depth based on a sonar frequency between 14 kHz to 16 kHz. Beside bathymetric depth information from 10 m to more than 11,000 m, sidescan data and backscatter for seabed classification and are acquired. The ATLAS HYDROSWEEP DS does not only gather sea floor information, but also uses adaptive bottom tracking windows to identify sonar targets in the water column and can be operated as a parametric sub-bottom profiler without additional transducers and electronics.

The ATLAS HYDROSWEEP DS is available with 0.5°x1°, 1°x1°, 1°x2° and 2°x2° beam resolution. All transducers are planar arrays designed to be flush mounted, within a fairing or in a gondola construction whereas approx. 25% less mounting space is required compared with multibeam echosounders working at lower frequencies such as 12 kHz. A special moulding material can protect the transducers not only against ice flows, but also against other hazardous objects in the water.

All beams are stabilized for roll, pitch and yaw and dynamic beam focusing is applied. The bathymetric across track coverage is 5.5 times water depth to a maximum coverage of up to 30,000 m. Acoustic footprints can be arranged in either "equal-angle" or "equal-distant" pattern.

High order beamforming bottom detection algorithm is used to achieve up to 960 soundings per ping with the best possible accuracy in order to meet IHO SP44 accuracy standards.

The ATLAS HYDROSWEEP DS applies 2x multi-ping, which means that two swaths are transmitted simultaneously per ping slightly tilted along track. This results in a maximum number of 1920 soundings and gapless surveying at higher ship's speed.

The ATLAS HYDROSWEEP DS is operated by a commercial off the shelf computer along with ATLAS HYDROMAP CONTROL software. This software shows depth, swath width, calibration and offers all necessary control settings.

Features

- Depth range: 11,000 m
- Coverage up to 5.5 times water depth
- 2x multi-ping operation
- 1920 soundings at 2x multi-ping
- Exceptional resolution HOB
- Sidescan and backscatter data
- Water column analysis
- Sub-bottom profiling option

ATLAS HYDROSWEEP DS

DEEP-SEA MULTIBEAM ECHOSOUNDER

The Echosounder at a Glance …

Full Ocean Depth

Maximum Coverage
5.5x Water Depth
Absolute >30,000 m

Beam Resolution
down to 0.5°

Water Column Resolution
down to 6 cm

High Order Beamforming

Sub-Bottom Profiling Option

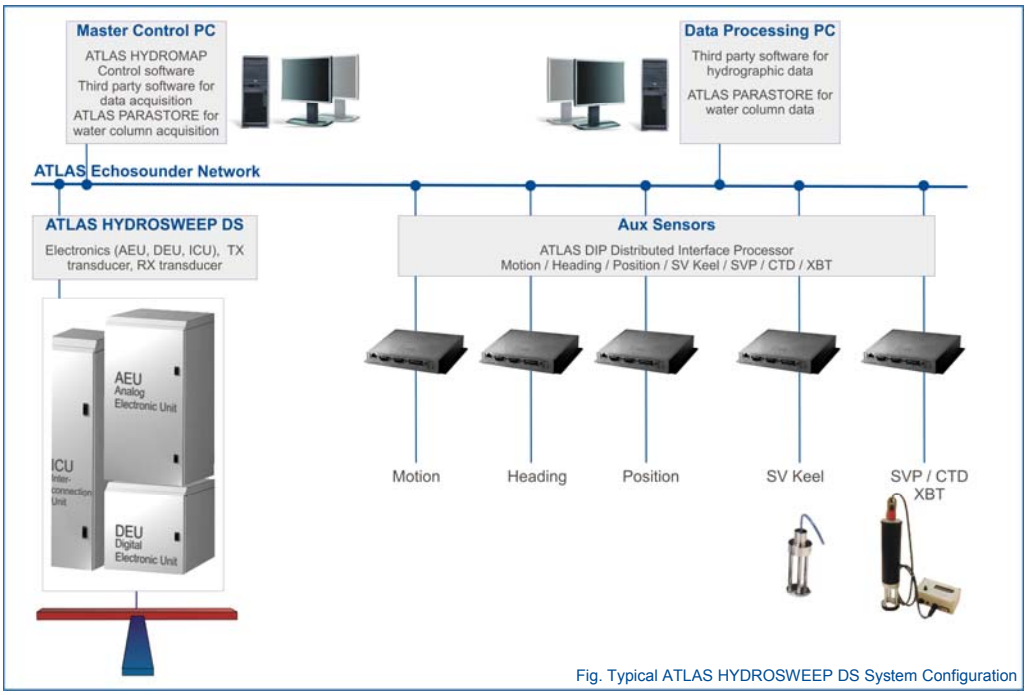


Fig. Typical ATLAS HYDROSWEEP DS System Configuration

Product Variants	0.5 x 1	1 x 1	1 x 2	2 x 2
Transmission beam width TX	0.5°	1°	1°	2°
TX transducer array dimensions*	10373 x 299 x 155	5658 x 299 x 155	5658 x 299 x 155	2829 x 299 x 155
Reception beam width RX	1°	1°	2°	2°
RX transducer array dimensions*	299 x 5658 x 155	299 x 5658 x 155	299 x 2829 x 155	299 x 2829 x 155
Max. depth range	11,000 m	11,000 m	11,000 m	11,000 m
Maximum coverage absolute**	30,000 m	28,000 m	27,000	24,000
Transmission power (TX)	120 kW	70 kW	70 kW	35 kW

* Along x across x height, relative to ship's direction, in mm
** Depending on local bottom and environmental conditions

Depth Range
- 10 – 11,000 m

Maximum Coverage**
- 5.5 times water depth (140°)
- More than 30,000 m absolute

Operating Frequency
- 14 to 16 kHz
- Frequency modulation (Chirp)

Multi-Ping and Ping Rate
- 2x multi-ping
- Max. 20 Hz ping rate (at 2x multi-ping)

Bathymetric Resolution
- 0.5°, 1° or 2° along track
- 1° or 2° across track

Number of Beams
- 1920 soundings at 2x multi-ping
- 960 soundings per single ping via High Order Beamforming
- 320 hard beams per single ping

Motion Correction
- Roll ±15° stabilised
- Pitch ±10° stabilised
- Yaw ±5° stabilised
- Heave corrected

Resolution and Accuracy
- Max. range resolution 6 cm
- Max. output sample rate 12 kHz
- Better than max [0.5 m, 0.2% of water depth] (2σ)

Sidescan and Backscatter
- 10,000 sidescan values per single ping
- 10,000 backscatter values per single ping

Water Column Recording
- Max. 6 cm vertical resolution
- For up to 320 beams

Sub-Bottom Profiler
- Parametric sub-bottom profiling option without additional transducers and electronics

Fig. Transmission transducer array of ATLAS HYDROSWEEP DS 1° x 1° installation

Contact

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