

HydroSweep DS

Deep-Sea Multibeam Echosounder

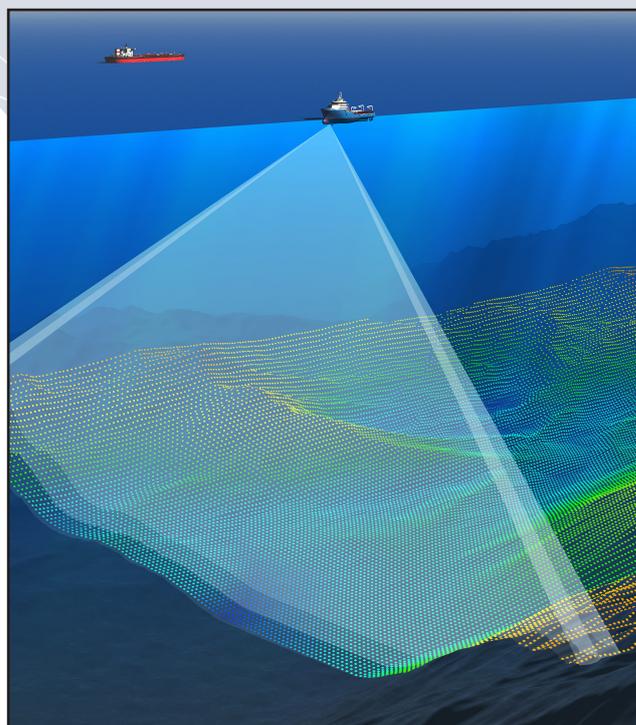
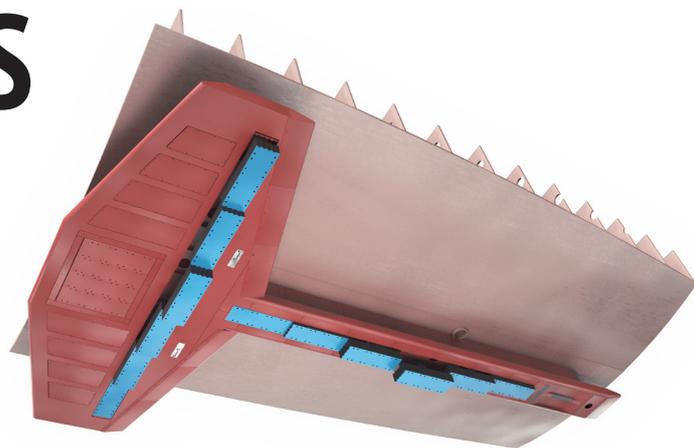
The **HydroSweep DS** is a deep water multibeam echosounder ideally suited for seabed mapping in deep water up to full ocean depth based on a sonar frequency between 14 kHz to 16 kHz. Beside bathymetric depth information from 10 m to more than 11,000 m, sidescan data and backscatter data for seabed classification are acquired. The HydroSweep DS does not only gather sea floor information, but also uses adaptive bottom tracking windows to identify sonar targets in the water column.

The 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.

Effects of severe ship motion to survey data are compensated by active beam steering as well as additional multi-ping ensonification.

The HydroSweep DS applies 2x multi-pings, which means that two swaths are transmitted simultaneously per ping slightly tilted along track. This results in gapless surveying at higher ship's speed.

Acoustic footprints can be arranged in either „equal-angle“ or „equal-distant“ pattern. A 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.



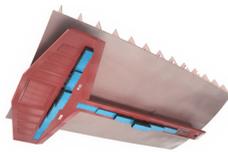
PRODUCT BENEFITS

- Depth range 11,000 m
- 2x multi-ping operation
- 960 soundings per ping
- 10,000 sidescan and backscatter samples per ping
- Water column analysis



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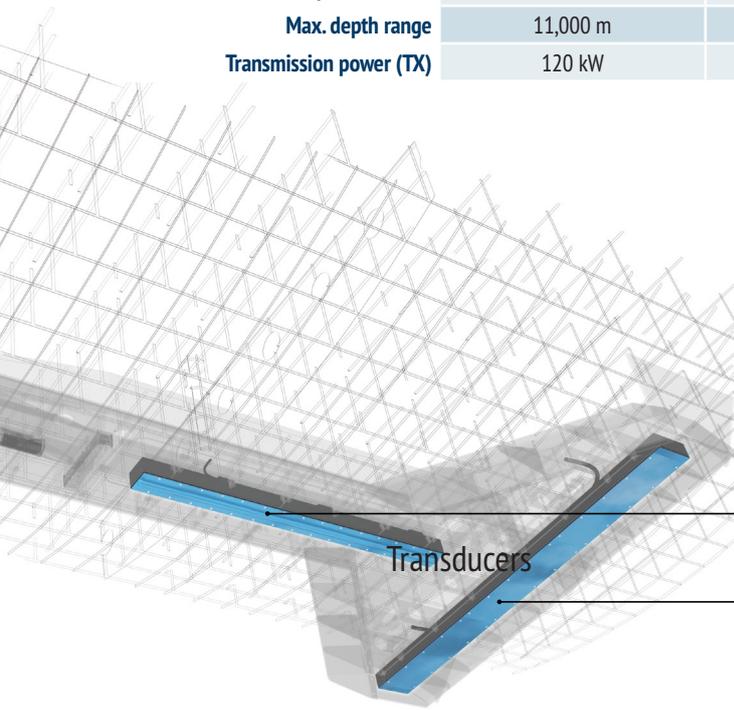
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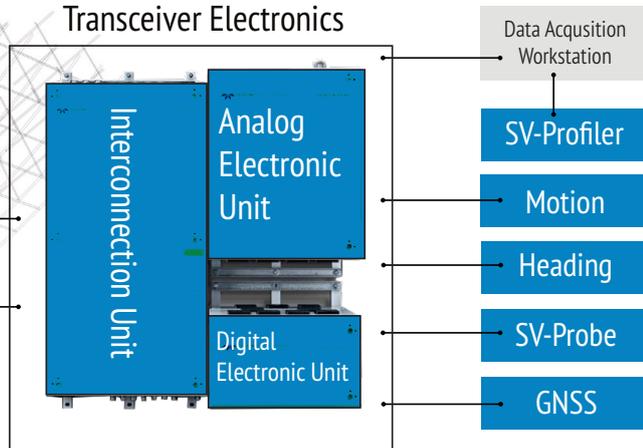
SYSTEM SPECIFICATIONS

PRODUCTS 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
Transmission power (TX)	120 kW	70 kW	70 kW	35 kW

* Along x across x height, relative to ship's direction, in mm



Transceiver Electronics



Typical Hydrosweep System Configuration

Depth range	10 - 11,000 m	Acquired data	Simultaneous acquisition of bathymetry, water column, snippets backscatter and sidescan (10,000 values per ping)
Operating frequency	14 to 16 kHz Frequency modulation (Chirp)	Resolution and accuracy	Max. range resolution 6 cm Max. output sample rate 12 kHz Bottom depth accuracy (RMS), average across the swath sector better than ±[0.5m, 0.2% of water depth]
Multi-ping and ping rate	2x multi-ping Max. 10 Hz ping rate	Water column recording	Max. 6 cm vertical resolution Enabled for all receive beams
Bathymetric resolution	0.5°, 1° or 2° along track 1° or 2° across track		
Number of beams	960 soundings per single ping		
Motion correction	Roll ±15° stabilised Pitch ±10° stabilised Yaw ±5° stabilised by active multi-ping		



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www.teledynemarine.com/reson

Tel. +45 4738 0022 (Europe) • Tel: +1 805 964 6260 (USA)

Email: reson@teledyne.com