

Sys09 Specifications





Sys09 Swath Bathymetry Side-Scan Sonar System

The most complete imaging/mapping system for deep ocean operations

The Sys09 from Fugro Seafloor Surveys, Inc. is a vector side-scan sonar system for high-coverage deep ocean surveys. Using acoustic energy reflected from depths of 35 to 10,000 meters, the system produces simultaneous real-time side-scan intensity images and industry standard swath bathymetric maps. The shallow-towed Sys09 surveys at wide swaths—up to 10 km wide in normal ocean depths—and at high speeds. Accurate bathymetry data are acquired by measuring the angle at which seafloor reflections arrive at a stabilized and towed hydrophone array.

All measurements are corrected for actual towfish attitude using an internally mounted, six-component motion sensing unit.

Operating at 9 kHz, the high-powered sonar signal experiences low attenuation in deep water, providing a wide swath of hydrographic quality bathymetry in even the deepest trenches or sediment-covered abyssal plains. The Sys09 is easily transported and installed on ships of opportunity. FSSI can also provide precise navigation, additional geophysical and geological survey equipment, and complete on-board processing according to any project requirements. FSSI can quickly mobilize a vessel anywhere in the world to acquire, display, measure, interpret, and document seafloor information interactively to meet critical reporting deadlines.





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Side-Scan

Operating frequency: 9 (port) and 10 (stbd) kHz
 Beam width: 2.5° (along track)
 Output power: +230 dB re 1 µPa at 1 meter
 Ping rate: 0.5 to 20 second
 Tow depth: 10 to 500 meters (100 m typical)
 Water Depth: 60 to Full ocean depth

Support Requirements

Min. ship size: 50 - 70 meters l.o.a.
 Exterior deck area: 50 square meters
 Maximum freeboard: 1.5 meters
 Deck power: 100Kva of 480VAC/60Hz electrical power
 Survey crew: 13 people
 Shipping: Standard 40 foot ISO containers

Intensity Imaging System

Data source: Side-scan acoustics
 Image format: Slant-range and speed-corrected
 Swath width: 500 m, 1, 2, 5, or 10 km (nominal)
 Pixel size: 0.25 to 10 m (2,048 pixels total)
 Min. identifiable object: 10 m (dependent on object shape)

Data Acquisition Options

Swath widths and ping rates are ship-controllable and operator-selectable to provide optimum resolution for various water depths and survey objectives. Intensity image width is constant for any width setting. Useable bathymetric map width may vary with the altitude of the towed sonar array above bottom.

Bathymetric System

Data source: Side-scan acoustics
 Display format: Color-encoded and speed corrected
 (Depths plot from approximately 250 discrete depth measurements per ping)
 Swath width: same as intensity image
 Within nadir ± 45°:
 Accuracy: 1% of altitude
 Resolution: Better than 0.3% of altitude

Intensity Image Width	Typical Altitude Range	Typical Ping Rep. Rate	Pixel Size
500 m	50m - 500 m	0.5 sec	25 cm
1 km	50 m - 1 km	1 sec	50 cm
2 km	100 m - 2 km	2 - 3 sec	1 m
5 km	250 m - 5 km	4 - 10 sec	2.5 m
10 km	500 m - 10 km	7 - 20 sec	5 m

Due to our ongoing commitment to advancing technology, specifications are subject to change.