

# 6205<sup>S2</sup>

## MULTI PHASE WIDE SWATH BATHYMETRY & SIDE SCAN SONAR

### FEATURES & BENEFITS

- Option for integrated OEM Inertial Navigation System
- 4th generation MPES (Multi-Phase) technology
- Co-registered simultaneous dual frequency side scan data
- Bathymetry data which is IHO SP-44 Special Order compliant
- Bathymetry backscatter data
- Motion Tolerant side scan data
- Swath sectors of up to 200° means far shorter time for data collection
- Optimized Bathymetry modes: Equidistant and Equiangular
- EdgeTech's Discover Bathymetric control software
- Integrated sound velocity sensor
- Unrivaled swath coverage and resolution in shallow water when compared to other MBES or PDBS sonar.

### APPLICATIONS

- Nautical Charting / Hydrographic Surveys
- Benthic Habitat Mapping
- Military Rapid Environmental Assessments (REA)
- Cable & Pipeline Route Surveys
- Dredging Operations
- Marine Debris Search
- Port & Harbor Security

### OPTIONS

The following standard frequency configurations are available:

- 520/850 kHz (dual freq Side Scan and 520 kHz bathymetry)
- 520/850 kHz (dual freq Side Scan with 850 kHz bathymetry)
- 520/1600 kHz (dual freq Side Scan with 520 kHz bathymetry)
- 850/1600 kHz (dual freq Side Scan with 850 kHz bathymetry)

Note: "The following 3rd party OEM Inertial Navigation Units are available::

- APPLANIX AP+18EI, MV (Surfmaster)
- SBG Systems Ekinox 3

For Further details, please contact EdgeTech.



The EdgeTech 6205<sup>S2</sup> is our 4th generation fully integrated Wide Swath Bathymetry and Dual Frequency Side Scan Sonar System that produces real time, high resolution, side scan imagery and three-dimensional maps of the seafloor. The 6205<sup>S2</sup> overcomes the limitations of Multi Beam Echo Sounders (MBES) and Interferometric (Phase Differencing) systems in shallow water by using EdgeTech's unique Multi-Phase Echo Sounder (MPES) technology. This unique Hybrid approach utilizes multiple receive arrays and combines both Beamforming and Phase Differencing techniques to determine each sounding along the seafloor. With the integration of EdgeTech's Full Spectrum® CHIRP technology, the 6205<sup>S2</sup> exceeds IHO SP-44, NOAA, and USACE specifications for Feature Detection and Bathymetric Point Data Uncertainty.

EdgeTech's MPES technology enables the 6205<sup>S2</sup> to produce wider and cleaner swath (over 200°) than current technologies, resulting in superior coverage enabling faster and safer survey completion. At the same time, the 6205<sup>S2</sup> rejects multipath effects, reverberation, and acoustic noise commonly encountered in wide swath high resolution environments.

Additionally, EdgeTech's latest broadband Electronics and Modular Arrays are utilized in the 6205<sup>S2</sup> resulting in a lightweight design, which is required for wide swath high resolution applications and survey platforms of opportunity. The standard configuration for the 6205<sup>S2</sup> includes an integrated Sound Velocity sensor and optional integrated OEM Inertial Navigation System, and interfaces to all popular 3rd Party acquisition and processing software packages, as well as to standard peripheral position/attitude sensors (if needed).

For more information please visit [EdgeTech.com](http://EdgeTech.com)

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## MULTI PHASE WIDE SWATH BATHYMETRY & SIDE SCAN SONAR

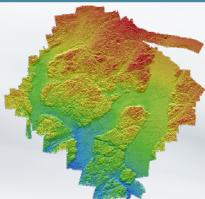
### KEY SPECIFICATIONS

BATHYMETRY			
Sonar Frequency	520 kHz	850 kHz	
Beamwidths*	1° x 0.5°	1° x 0.4°	
Optimal Operating Water Depth**	< 50 m	< 25 m	
Max Swath Width***	200 m	75 m	
Max Swath Sector	200°		
Max Soundings Per Ping	800		
Sounding Patterns	Equidistant and Equiangular		
SIDE SCAN SONAR IMAGERY			
Frequency	520 kHz	850 kHz	1600 kHz
Horizontal Beamwidth (2-way)	0.36°	0.29°	0.20°
Range Resolution	10 mm	9 mm	6 mm
Max Range**	150 m	75 m	35 m
SYSTEM			
Pulse Modulation	CW & FM CHIRP		
Ping Rate (Range Dependent)	Up to 60 Hz		
Construction	Polycarbonate and Aluminum		
Sonar Unit Dimensions	L: 72.7 x W: 20.2 x H: 13.9 cm (28.6 x 7.9 x 5.5 in)		
Deck Cable Length	20m (Standard), or custom length to suit USV (unmanned surface vehicle)		
Depth Rating	50 m (165 ft)		
Sonar Unit Weight (In Air)	14 kg (32 lbs)		
19" Rack Mount Top Unit	6 kg (12 lbs)		
19" Rack Mount Unit Dimensions	L: 52.1 x W: 48.3 x H: 8.9 cm (20.5 x 19 x 3.5 in)		
Input Voltage	24-36 VDC or 100/240 VAC (auto sensing)		
Power (Typical / Max)	55W / 70W (Current draw 1.4 amp)		
Software	Included, windows based software, EdgeTech's Discover Bathymetric Acquisition and Sonar Control		
Data Products	Bathymetry, Backscatter, Side Scan Imagery, and Real Time Uncertainties		

\* Across track resolution expressed as a beamwidth at nadir

\*\* Dependent on environmental conditions (i.e. absorption, reverberation, sea noise, etc.)

\*\*\* Assumes a flat seafloor and dependent on environmental conditions



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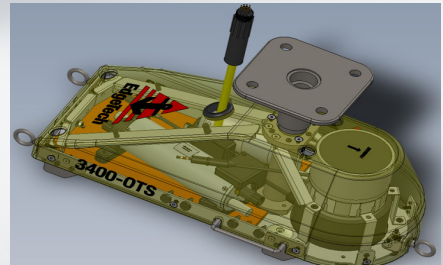
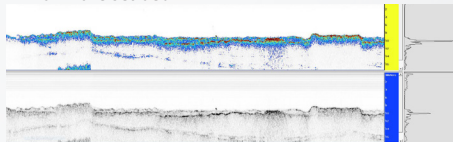
KEY SPECIFICATIONS\* FOR OPTIONAL 4-24 kHz OR 2-16 kHz CHIRP SUB BOTTOM PROFILER

### FEATURES & BENEFITS

- Ultra-Lightweight Shallow Water configuration
- Pipeline Survey mode
- Digital receiver with ethernet telemetry and power
- Pulse library tailored for different survey applications
- Separate acoustic projectors and receivers preserves linearity and allows the simultaneous transmission and reception (continuous data collection)
- Dual frequency transmission ("flip-flop" transmission of two different pulses)
- Real-time reflection coefficient measurement
- Native JSF, SEG-Y and XTF data file formats

### APPLICATIONS

- Geological surveys
- Environmental site investigations
- Sediment classification
- Buried pipeline & cable surveys
- Archeological surveys
- Mining/dredging surveys
- Map, measure & classify sediment layers within the seabed



### Utilizing The Successful EdgeTech 3400-OTS Technology:

Building on the long running success of the EdgeTech sub-bottom profiler product line, the new 3400-OTS technology provides many unique enhancements to existing sub-bottom profiler systems. Transmitting a wide band Frequency Modulated (FM) pulses utilizing EdgeTech's proprietary Full Spectrum® CHIRP technology, together with a flat multi-channel hydrophone array the system can generate high resolution images of the sub-bottom stratigraphy in coastal waters, lakes, and rivers and provides excellent penetration in various bottom types.

The unique ability of the EdgeTech sub-bottom profiler system to also provide the real-time reflection coefficient value, means users can collect complex 'analytic' data using a linear system architecture and to estimate surface sediment type.

Additionally, the system has discrete transmit and receive channels allowing for continuous data collection resulting in a high ping rate particularly important for engineering surveys.

The sub-bottom profiling system comes as a complete package which includes EdgeTech's Discover Sub-Bottom acquisition & processing software.

ACOUSTICS	ULTRA-LIGHTWEIGHT	LIGHTWEIGHT	
Frequency Range	4-24 KHZ	2-216 KHZ	
Number of Transmitters	1	1	
Number of Receivers	1	1	
Vertical Resolution	4-8 cm	6-10 cm	
MECHANICS			
Sonar, weight in air	21.4 kg (47 lbs)	27.2 kg (60 lbs)	Either, the 3400-OTS sonar connects to 6205s2 sonar (fitted with SBP kit and pigtails), Or, as standard "stand alone" SBP unit with 20m deck lead and dedicated 19" top unit
Sonar dimensions	L: 77 x W: 33 x H: 34 cm (30.3 x 12.9 x 13.4 in)	L: 77 x W: 33 x H: 34 cm (30.3 x 12.9 x 13.4 in)	
Deck Cable (pigtail) Length	two of, each 2.5 m (7 ft)	two of, each 2.5 m (7 ft)	

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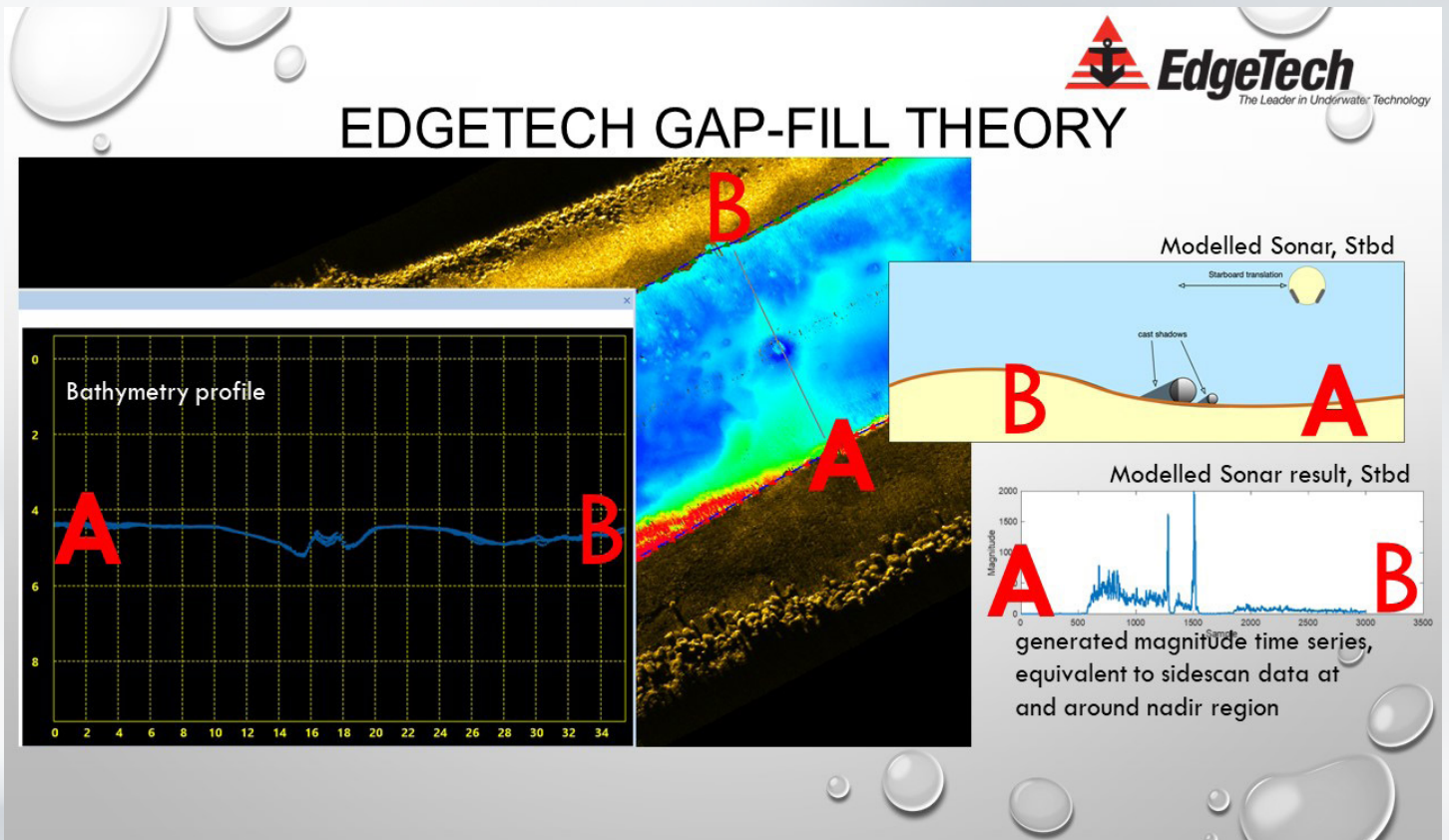
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### KEY INFORMATION FOR GAP-FILL SIDE SCAN SONAR

The traditional sidescan system with port and starboard channel have the inherent “space” between the channels when viewing the data. Once bottom tracked, the two sides get stretched to form a filled area. However, the imagery at and close to nadir is never ideal; identifying targets are difficult, and any shadows from them would be small. Standard operation would be to run additional survey lines offset from the original line, with good imagery to fill in the data at the nadir area. A decent solution but one that comes with a penalty. A full survey line needs to be run to fill an area that might be just a few meters wide (a function of the height above the seabed of the sonar). The recent Gap-Fill innovation from EdgeTech, delivers the ability to see the nadir gap from both the left and right sides, providing shadows from either direction, as well as in a three-dimensional aspect in the nadir gap. In the EdgeTech Gap-Fill, the shadows are perpendicular to the vehicle’s path and consistent with traditional side scan methods, enabling easy interpretation of data. The gap fill data in the 6205s2 system is coincident with the side scan data and is therefore geospatially the same.



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