4200-FS

SIDE SCAN SONAR SYSTEM

Technologically advanced digital "chirp" high-resolution side scan sonar system.

The ***NEW EdgeTech 4200-FS Side Scan System*** provides a unique advantage over conventional dual frequency 100/500 kHz side scan systems by combining EdgeTech's Full Spectrum and MulitPulse technologies into one unit. The new 4200-FS offers two software selectable modes of operation:

- **High Definition Mode (HDM)** – conventional mode operation with extra long array (90 cm) for superior resolution; excellent tool for Mine Countermeasures (MCM's).
- **High Speed Mode (HSM)** – dual pulse operation for speeds up to 10 knots, while meeting NOAA and IHO requirements for "hits on target" compared to conventional systems at 4 knots. This is an additional feature for high-speed navy patrol vessels.

The 90cm array configuration for these two modes of operation is dynamically reconfigured by the system to suit the user's immediate application. Real time selection of the 2 modes allows the user to choose the mode best suited to his task at hand.

The 4200-FS uses EdgeTech's Full-Spectrum chirp technology to deliver wide band, high energy transmit pulses, coupled with high-resolution and superb signal to noise ratio echo data. The system employs wide band, low noise front end electronics which reduce system induced phase errors and drift to negligible levels. The sonar data is also available as a complex, fully coherent data set suitable for advanced user applied post processing.

The 4200-FS Side Scan System offers simultaneous dual frequency operation in high definition mode and is designed to allow efficient integration of other optional sensors. The EdgeTech telemetry link allows the sonar signals that are digitized in the tow fish to be transmitted over long coaxial cable lengths (6000m) with no loss of signal quality.

Features:

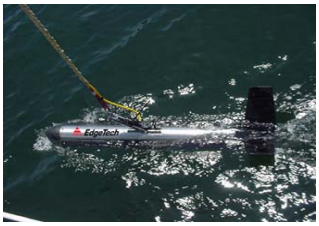
- Selectable dual mode of operation: High Definition Mode (HDM) or High Speed Mode (HSM)
- HDM- Conventional simultaneous dual frequency operation
- HSM- Multi pulse mode on either selected frequency
- Extra long array (90 cm) for superior resolution (HDM)
- Multi pulse mode (HSM)
- 120 & 410 kHz dual frequency
- 2000 meter depth rating
- Single coax tow cable over 6000 m
- Integrated with other sensors
- Full Spectrum chirp processing
- Able to interface with customer supplied PC and 3rd party software

Applications:

- Mine Countermeasures (MCM's)
- Geo-hazard surveys
- Geological/geophysical surveys
- Route surveys
- Archeological surveys
- Search and recovery

The 4200-FS sets new standards in the industry for seafloor mapping by integrating key performance and safety features, the dual mode feature along with EdgeTech's Secondary Recovery System, Standard Heading, Pitch & Roll, optional Depth and Acoustic responder for accurate towing positioning at a price which is commercially sensitive.

4200-FS SIDE SCAN SONAR



Key Specifications

4200-FS Tow Fish

Frequency	120 / 410 kHz dual
Modulation	Full Spectrum chirp frequency modulated pulse with amplitude and phase weighting
Operating Range (max)	120 kHz 500 meters p/side; 410 kHz 150 meters p/side
Towing Speed (max safe)	12 knots
Towing Speed *	4.8 knots in HDM, 9.6 knots in HSM
Output Power	120 kHz 4 joules, 410 kHz 2 joules
Pulse Length	120 kHz up to 20 ms, 410 kHz up to 10 ms
Resolution Across Track	120 kHz 8 cm, 410 kHz 2 cm
Resolution Along Track	120 kHz: 2,5m @ 200 meters range, 410 kHz: 0,5m @ 100 meters range
Horizontal Beam Width (HDM)	120 kHz - 0.64°, 410 kHz - 0.3°
Horizontal Beam Width (HSM)	120 kHz - 1.26°, 410 kHz - 0.4°
Optional CW Pulse Short Range	120 kHz, 410 kHz
Digital Link	4 MBits/sec (typical), 4 channels of side scan data + sensor data
Dynamic Range	24 Bits
Depression Angle	Tilted down 20°
Vertical Beam Width	50°
Operating Depth (meters)	2000
Operating Temperature	0°C to 45°C
Optional Sensor Port	(1) Serial - RS 232C, 9600 Baud, Bi-directional
Heading/Pitch/Roll	Heading Accuracy: < 1.5° RMS Heading Resolution: 0.1° Roll, Pitch Angle Accuracy: ± 0.4° Roll, Pitch Angle Repeatability: 0.2° Roll, Pitch Angle Resolution: 0.1°
Options	Pressure, Temperature, Magnetometer, USBL Acoustic Tracking System, Acoustic Responder, Depressor and Custom Sensors
Diameter	11.4 cm (4.5 inches)
Length	125.6 cm (49.5 inches)
Tow Fish Material	Stainless Steel
Weight in Air/Saltwater	48 / 36 kg (105 / 80 pounds)
Tow Cable Length	6,000 meters
Tow Cable Type	Co-axial

System Options

	4200P portable topside processor (see EdgeTech website for specs)

* Meets NOAA Shallow Water Survey Specification- Min 3 pings on a 1-meter target at 100 meters range.

Specifications subject to change without notice.

Other EdgeTech Products

✓ Side Scan, Sub-bottom, Integrated and Modular Imaging Systems for Deep Towed, AUV, ROV and Other Applications utilizing Full Spectrum, MultiPing or Synthetic Aperture Acquisition and Processing Techniques.

EdgeTech

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701-DL

DIGITAL LINK INTERFACE

Interface between EdgeTech's digital towfish and the display & acquisition software

The ***EdgeTech 701-DL*** interface unit is used to provide the topside interface between EdgeTech's 4200-FS and other digital sonars in this family and the display and acquisition software used to control the sonars (EdgeTech Discover Software and 3rd party software).

The 701-DL unit interfaces to the control computers using a 10/100BaseT Ethernet cable, and provides the power and high bit rate telemetry signals to the towfish. The system is designed to run off universal 100/250V AC power.

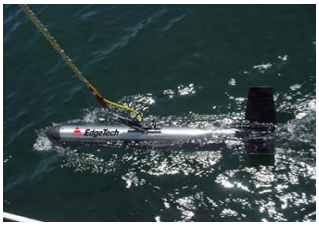
The topside computers communicate directly with the towfish computer over the 701-DL telemetry, in a client (topside) / server (towfish) architecture. The towfish computers all run an embedded version of Windows XP operating system. Topside computers running Windows 2000 or XP operating systems thus provide for direct management of the towfish system files for easy update system maintenance.

When used in conjunction with EdgeTech's Discover software on the topside computer, the telemetry system provides for sonar control and the uplink of high-resolution sonar data streams, as well as ancillary status information, and several transparent RS232 channels for support of devices such as magnetometers, and other oceanographic sensors.

Features:

- Provides interface between EdgeTech digital towfish and display & acquisition software
- Compatible with 3rd party software
- Supplied with or without EdgeTech Discover S/W

701-DL INTERFACE



Key Specifications

701-DL Interface

Power	100-125/220-240VAC, 50/60Hz, 200 Watts max (auto switching)
Size	19" Rack mountable, 17" deep x 3.25" (1U) high
Weight	
Topside Interfaces	10/100BaseT Ethernet for data output and control, TTL Level Sync signal for external triggering or Responder operation
Towfish Interface	EdgeTech proprietary D-Link fish power and telemetry signals over 2 wire towcable
Telemetry Rates	Uplink : up to 8Mbit/s (4 Mbit/s minimum), Downlink: 480Kbits/s
Cable Length	6000m typical

Rear panel of 701-DL

Other EdgeTech Products

✓ Side Scan, Sub-bottom, Integrated and Modular Imaging Systems for Deep Towed, AUV, ROV and Other Applications utilizing Full Spectrum, MultiPing or Synthetic Aperture Acquisition and Processing Techniques.

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