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## 2000-C Combined System

## CONFIGURATION DIAGRAM

[Model 563](#) Topside  
 Processor with  
[DISCOVER](#) Side Scan  
 Sonar and [DISCOVER](#)  
 Sub-Bottom Profiler  
 Software

Model 512C Towfish with  
 500 Hz-12 kHz Full Spectrum®  
 Sub-Bottom Profiler and  
 Dual Simultaneous 100 & 400 kHz  
 Full Spectrum® Side Scan Sonar

**OR**

[Model 563](#) Topside  
 Processor with  
[DISCOVER](#) Side Scan  
 Sonar and [DISCOVER](#)  
 Sub-Bottom Profiler  
 Software

### APPLICATIONS

- Archeological surveys
- Sediment classification
- Buried pipeline and cable location
- Dredging studies for inlets
- Scour/erosion surveys in rivers and streams
- Marine construction surveys
- Bridge erosion surveys
- Hazardous waste target location
- Geological surveys
- Beach re-nourishment

### FEATURES

- Low cost
- Dual side scan sonar frequencies
- Selectable sub-bottom profiler frequencies
- Coordinated pinging between side scan sonar and sub-bottom profiler
- One topside for both sensors.
- Longer ranges due to improved SNR from Full Spectrum ("chirp") signal processing.
- Better performance in shallow water from reduced side lobes due to the frequency modulated pulse
- Narrow-beam side scan sonar transducers result in sharp, high-resolution along-track sonar images

Model 670C Towfish with 2-16 kHz Full Spectrum®  
Sub-Bottom Profiler and Dual Simultaneous 100 & 400 kHz  
Full Spectrum® Side Scan Sonar

[\\*Download 2000-C Brochure](#)



512C Towfish



670C Towfish

## DESCRIPTION

The 2000-C Series is a combined side scan sonar and sub-bottom profiler that is deployed in a towed vehicle or is installable on a ROV.

### Side Scan Sonar

EdgeTech's Shallow Water Full Spectrum "chirp" side scan sonar is a calibrated wide band digital FM sonar that provides quantitative and qualitative, high resolution, low-noise side scan imagery. It transmits linearly swept FM pulses centered at 2 discrete frequencies, 100 and 400 kHz. The transmission of a longer duration, wide bandwidth pulse results in higher resolution sonar images and, because more energy is projected into the water, greater SNR resulting in extended range.

### Sub-Bottom Profiler

The Full Spectrum "chirp" sub-bottom profiler has a number of advantages over conventional sonars. This includes increased penetration and higher resolution. The tapered waveform spectrum, results in images that have virtually constant resolution with depth. Another advantage is the reduction of side lobes in the effective transducer aperture. The wide bandwidth of the sweep frequency has an effect of smearing the side lobes of the transducer. The result is a beam pattern with almost no side lobes. This allows the towfish to be towed very close to the bottom, minimizing destructive signal scattering caused by the sediment.

### TOWED

Two (2) towed versions of the system are available. The difference is in the sub-bottom profiler frequency range. Towfish 512C has the 500 Hz to 12 kHz sub-bottom profiler and towfish 670C is the 2 – 16 kHz version.

digital link where a PC based data acquisition, storage, and printing processor running DISCOVER SIDE SCAN SONAR and SUB-BOTTOM PROFILER software is the user interface to the underwater portion of the system.

### ROV

A version of this combined side scan sonar & sub-bottom profiler is available that is specifically designed for small, limited payload AUVs. It can also be installed on a small ROV with limited payload capacity.

A system consists of a payload module that contains the sonar electronics, a built in sub-bottom profiler transmitter and side scan sonar arrays with integrated sub-bottom profiler hydrophones. A large capacity hard drive installed in the system electronics is used to store sonar data.

The average data flow is dependent on the sampling frequency, on the data window size, on the ping rate of the sub-bottom profiler, and on the range scale setting of the side scan sonar.

Careful attention has been paid to keeping the power consumption low for the system. The amplifiers are turned off between transmissions. The amplifier power output can be controlled and the ping rate can be adjusted via the payload control interface.

On the surface, an EdgeTech Model 563 Topside Display Processor with DISCOVER software displays and stores the sonar data.

The tow vehicle contains a dual frequency side scan, the sub-bottom profiler transmitter and receivers, and all of the Full Spectrum chirp electronics required to generate and then transmit and receive and process the sonar signals. Sonar and other data are transmitted to the surface via a

The system is available as a combined dual frequency side scan sonar and sub-bottom profiler. Integration between the two sonars permits them to be triggered in such a way as to eliminate or minimize acoustic interference between the two.

The system can be ordered as a side scan sonar or sub-bottom profiler only. It can be upgraded later by adding an electronics kit and sonar arrays.

**S P E C I F I C A T I O N S**

<b>Deployment Type</b>	Towed	
<b>Side Scan Sonar Frequencies</b>	100 & 400 kHz	
<b>Side Scan Sonar Range</b>	25 to 500 meters each side 100 kHz 25 to 150 meters each side 400 kHz	
<b>Sub-Bottom Profiler Frequency Band</b>	500 Hz - 12 kHz	2 - 16 kHz
<b>Modulation</b>	Full Spectrum® "chirp" frequency modulated pulse with amplitude and phase weighting	
<b>Tow Fish Model</b>	512C	670C
<b>Size (approximate)</b>		
<b>Length</b>	77 cm (30")	147 cm (58")
<b>Width</b>	50 cm (20")	79 cm (31")
<b>Height</b>	34 cm (13.4")	38 cm (15")
		79 cm with vertical tail
<b>Weight (in air)</b>	210 kg (460 lbs.)	122 kg (270 lbs.)
<b>Maximum Water Depth</b>	300 meters	
<b>Topside Model</b>	563	
<b>Options</b>	USBL Acoustic Tracking System	

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