

# SIS-1625 Seafloor Imaging System

SIDE SCAN SONAR / PROFILER



ACOUSTICS

FLOTATION

GEOPHYSICAL

HYDROPHONES

MODEMS

LOCATOR

ROBOTICS

## Combined Chirp/CW Side Scan Sonar/ Sub-bottom Profiling System

The SIS-1625 Seafloor Imaging System has quickly become the industry standard for shallow water (<2000M) seafloor survey operations. This field proven, highly versatile survey tool offers a fully digital platform capable of collecting high resolution chirp side scan/sub-bottom data, as well as a full suite of customer selected sensor data. The high resolution, extended range chirp data and multiple data sensor capability provide the surveyor with a significant savings in instrument cost and survey time.



### One Workstation

Topside system consists of:

- Chirp DSP based side scan sonar, operating at 100/400 kHz simultaneously, allows a full 1000 meter swath, with resolution equivalent to much higher frequency systems.
- Chirp DSP/CW based sub-bottom profiling, operating in the 1 to 10 kHz region, allows maximum sediment penetration with greatly improved resolution.
- Gain, TVG, image correction, color palette, and other programmable parameters are under trackball control.
- Digital interface provided for thermal graphic recorders.

### One Tow Vehicle—TTV-290

The TTV-290 is a fully digital platform with standard Chirp side scan/sub-bottom transducer arrays, digital multiplexor, subsea electronics, and RS-232 ports for optional sensors.

- Hydrodynamically stable tow vehicle includes pitch, roll and heading sensors, optional position responder/transponder, and other customer selected sensors.
- 0.5° side scan sonar horizontal radiation pattern, combined with broad band Chirp DSP match filter processing, provides optimal cross-track and along track resolution.
- Tow vehicle operates in depths up to 2000 meters.



**TELEDYNE BENTHOS**

A Teledyne Technologies Company

49 Edgerton Drive • North Falmouth, MA 02556 USA

Tel: 508 563-1000 • Fax: 508 563-6444 • E-mail: [info@benthos.com](mailto:info@benthos.com)

[www.benthos.com](http://www.benthos.com)

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## One Cable—CL-160 Communications Link

The comm link was designed through a program to develop a full ocean depth telemetry module for a multisensor seafloor mapping system.

- Two-way communication with tow vehicle over single coax with digital high speed multiplexor. Standard cable length—up to 10,000 meters.
- Digital multiplexor for single coaxial tow cables. Communication rates: sonar data—up to 5 megabit/sec; uplink status—9600 bits/sec; downlink command—9600 bits/sec.

## SPECIFICATIONS

### CL-160 Shipboard Sub-System

Chirp Processing:	Sonar/status control PC based workstation; 5-DSP based sonar matched filter processing channels.
Display:	High resolution video display.
Recording:	Large capacity hard drive, DVD writable, other..
Status Display:	Vehicle pitch, roll, heading (standard); speed, altitude, and depth (optional). Customer input ship position, vehicle position, event marks; all status data recorded.
Sonar Display:	Side scan port, starb; dual channel sub-bottom; all sonar data recorded.
Corrections:	Slant range and speed; beam angle/grazing angle.
Multiplexor:	Digital MUX for coaxial cables (ADSL).
Sonar Data:	up to 5 megabit/sec.
Uplink Status:	9600 bit/sec.
Downlink Command:	9600 bits/sec.
Power Supply:	110/220 VAC autosensing.

### Side Scan

Side Scan Transducers:	Multi-element array, dual channel 100/400 kHz 0.5° horizontal beam; 60° vertical beam.
Frequency:	100/400 kHz band swept FM; 4.5 cm resolution.
Processing:	Calibrated transmit waveform stored in ROM; match filter FFT digital signal processing.
Swath Selection:	25 meters to ±500 meters.

### Sub-Bottom

Transducer:	Transmit projector array; line array receiving hydrophone; 30° conical radiation pattern.
Frequency:	1 kHz to 10 kHz swept FM (4 KW output), synchronous with side scan.
Resolution:	5 cm.
Processing:	Calibrated transmit waveform stored in ROM; matched filter FFT digital signal processing.
Scale Selection:	25 meters to 500 meters full scale.

### TTV-290 Tow Vehicle Sub-System

Depth rating:	2000 meters.
Vehicle Dimensions:	18 inches (45 cm) OD x 64 inches (162.6 cm) long.
Weight:	In air: 300 lbs (136 Kg); in water: 170 lbs (77 Kg).



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