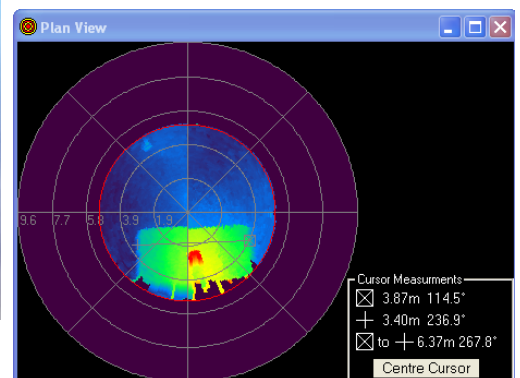
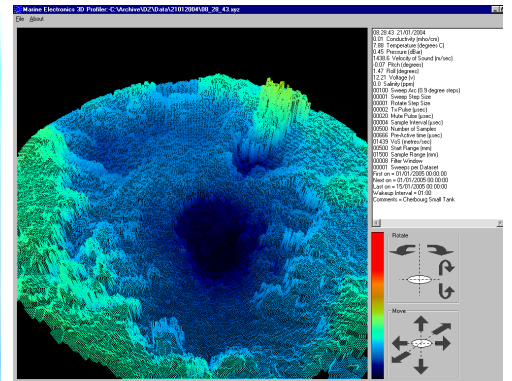
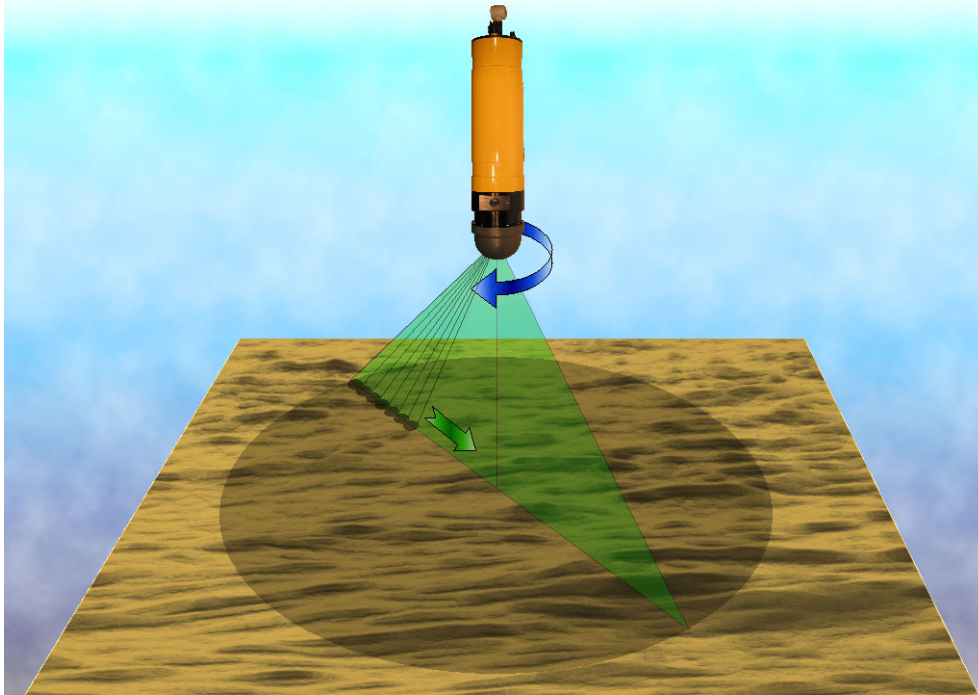


3D Profiling Sonar

Model 2001



The 3D Profiling Sonar System provides a unique opportunity to capture short range 3D bathymetry data at high resolution. The acoustic transducer scans a horizontal swath and is then rotated by a small angle and another swath captured until a complete circular area underneath the sonar dome is covered.

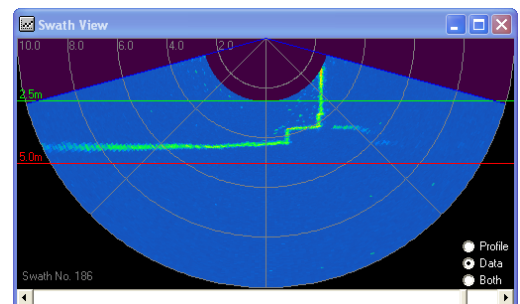
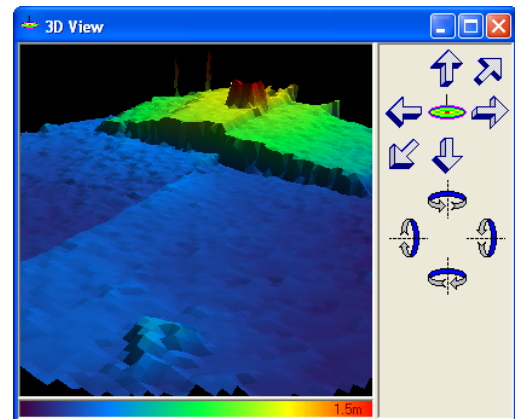
The model 2001 is available in either a cable connected or self-contained logging version. The sonar may be fitted with optional Conductivity, Temperature, Pressure, Pitch and Roll sensors. With the full complement of sensors the logging unit can process the raw data to arrive at an ASCII "XYZ" file directly. The logging version has an internal Ethernet link which may be used to upload the stored data without opening the pressure housing.

The underwater housing is typically mounted on a sub-sea framework or pole and deployed for several weeks or months. Internal scheduling software wakes the system from a low power sleep mode to capture data periodically. For tidal surveys a "wet-switch" may be specified so that the sonar only captures data when immersed.

The system software provided has facilities for programming the scheduling as well as displaying the raw data or "XYZ" files from the sonar. The "Windows" interface significantly reduces the time taken to learn the system, minimising training requirements.

FEATURES INCLUDE

- High resolution 3D data captured directly
- Built in CTD, Pitch/Roll sensors used to calibrate data stored by sonar
- "Windows '98, ME, 2000, NT, XP software with multiple views
- Raw data logging to mass storage allows alternative post processing methods
- Cursors for accurate on screen measurement
- Available as a logging system, cable connected, or split-head variants
- No external rotating parts
- Pressure balanced sonar dome



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3D Profiling Sonar

Model 2001



The resolution of the 3D Profiling Sonar sets a new performance benchmark for short range bathymetry sonar systems. The high frequency acoustic transducer scans a narrow "pencil" beam along a swath whilst an advanced multi-return processing algorithm extracts the range to the sea-bed from the raw data. In logging form the system then uses the data from the Conductivity, Temperature and Pressure transducers to calculate an accurate value for the Velocity of Sound in the water at the sonar head. The Pitch and Roll sensors provide attitude correction so that the 3D surface data is orientated correctly allowing features such as scour to be accurately quantified. In "split-head" format (see below) the sonar can be used for quantifying sludge levels in tanks or vessels containing hazardous substances for process control monitoring.



The 3D sonar underwater unit is available in a "split-head" format allowing the electronics to be mounted at a distance from the sonar head. There are no semiconductors inside the sonar head unit, which allows it to capture data in the harshest of environments. For example, in areas of high radioactivity it will continue to function for much longer than a conventional sonar with on-board electronics. The split-head unit connects to the Electronics Processing Unit shown on the left via an umbilical cable. Both the Logging version and the Split-Head version have internal pressure balancing cylinders to compensate for the expansion/contraction of the oil in the sonar dome due to thermal and pressure effects.

System Specifications

<i>Operating Frequency:</i>	1MHz
<i>Transducer Beamwidth:</i>	1.8° (+/-3dB points conical)
<i>Transmit Pulse Length:</i>	10µsec to 250µsec
<i>Range Settings:</i>	0.5m to 20m in 0.1m steps
<i>Range Resolution:</i>	<1mm
<i>Swath Angles:</i>	30°, 60°, 90°, 120°, 150°, 180°
<i>Along Swath Resolution:</i>	0.9° to 9° in 0.9° steps
<i>Rotational Resolution:</i>	0.9° to 9° in 0.9° steps
<i>Sample Rate:</i>	1MHz
<i>Operating Depth:</i>	100m
<i>Conductivity Range:</i>	0 to 64mmho/cm
<i>Conductivity Accuracy:</i>	+/- 0.025mmho/cm
<i>Temperature Range:</i>	-5°C to 35°C
<i>Temperature Accuracy:</i>	+/- 0.05°C
<i>Pressure Range:</i>	15Bar
<i>Pressure Accuracy:</i>	1% of full-scale
<i>Pitch Range:</i>	+/-20°
<i>Pitch Accuracy:</i>	+/-0.5°
<i>Roll Range:</i>	+/-20°
<i>Roll Accuracy:</i>	+/-0.5°
<i>Telemetry Interfaces</i>	RS232 – Programming Ethernet – Data Upload RS485 – Remote Head
<i>Power Supply:</i>	12V DC at 1.5A max.

Logging Underwater Unit

<i>Dimensions:</i>	Diameter: 127mm Length: 620mm (not including connectors)
<i>Weight:</i>	8.9kg in air 1.1kg in water
<i>Material:</i>	Hard Anodised Aluminium Polyurethane Delrin

Remote Underwater Unit

<i>Dimensions:</i>	Diameter: 127mm Length: 270mm
<i>Weight:</i>	4.8kg in air 2.1kg in water
<i>Material:</i>	Hard Anodised Aluminium Polyurethane Delrin



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