

Echoscan Multibeam Echo Sounder

ECHOSCAN™ GENERAL SPECIFICATIONS:

Acoustic Frequency: 200 kHz

Swath: 90° (30 channels 2.5°x3°)

Working Depth Range: 2-100 meters below the transducer

Output Resolution: 2.5 cm

Receive Elements: PVDF, 3°, 15° each element; 30 elements

Sidelobe Suppression: >30 db per channel

Sensitivity: -197 db re 1V/μPa at 1 meter

Projector: PZT, 256 element curvilinear array 110°x2.5°

Source Level: 225 db re 1 μPa at 1 meter

Side Scan Receivers: 50° x 0.7°, high resolution
analog output

Output Rate: 14 per second (max.)

Power Requirement: 24 VDC, 75w (optional) 110/230 VAC,
50/60 Hz (standard)

Dimensions:

SPU—48.3 (w) x 26.7 (h) x 24.2 (d) cm

Transducer—38.1 (w) x 26.1 (h) x 125.5 (d) cm

Weight:

SPU—13.6 kg

Transducer—40.8 kg (positively buoyant in water)

Features:

- High survey speed capability (17 knots max.)
- Real time 3-D display
- Side scan, motion sensor, multibeam and single beam transducer all located in a single transducer housing
- Single beam transducer used for bar check calibration and real time along track record with Odom's single beam sounders
- Independent bottom tracking channels
- Competitively priced



echoscan™ mounted on the vollert
(Galveston Corps of Engineers)



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HYDROGRAPHIC SYSTEMS

8178 GSRI Avenue Building B

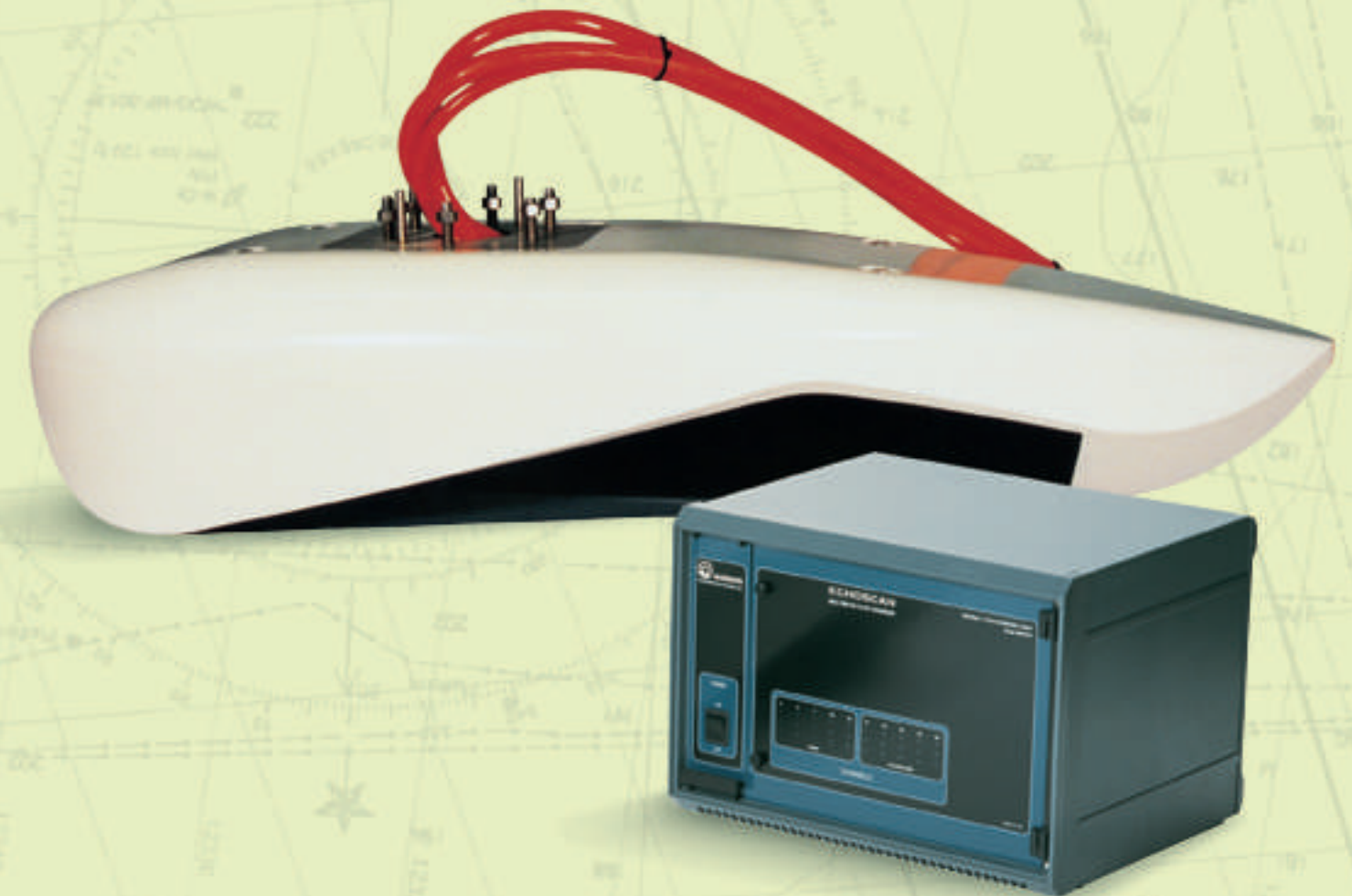
Baton Rouge, Louisiana 70820-7405 USA

E-mail: email@odomhydrographic.com

<http://www.odomhydrographic.com>

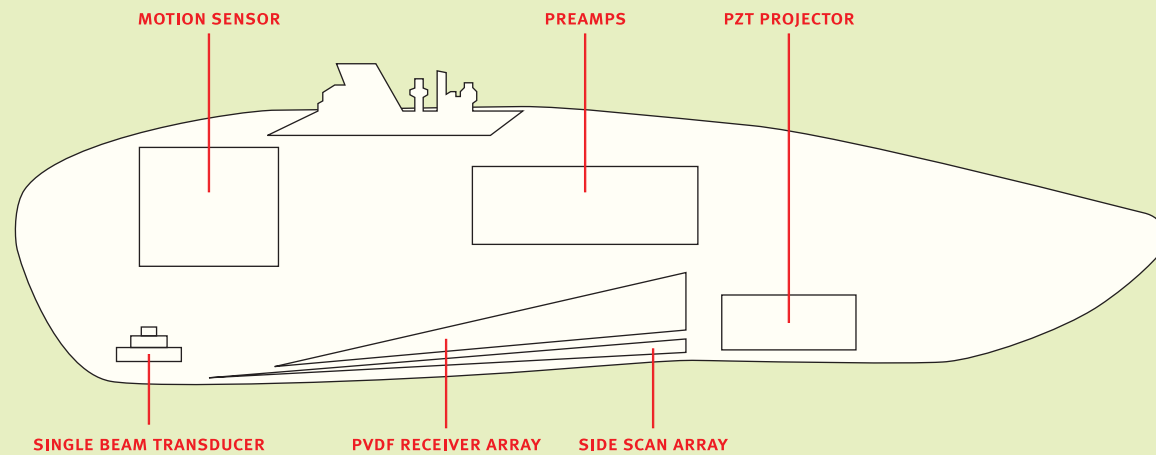
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Echoscan™

FOR SEA FLOOR OR
RIVERBED SURVEYS



TESTED AND ACCEPTED BY THE US ARMY CORPS OF ENGINEERS FOR "DREDGE PAYMENT" SURVEYS

Echoscan Design Approach



Echoscan™ takes advantage of a new transducer technology based on Raytheon PVDF (Polyvinylidene Flouride) material. Beam patterns are pre-formed by the physical shape of the transducer elements thereby eliminating the need for electronic beamforming or signal multiplexing.

PVDF receive elements reduce side lobe interference for optimum performance on both hard bottoms and steep slopes. The result is a system with increased resolution and a lower cost.

The Echoscan™ PVDF receive elements guarantee side lobe suppression in excess of -30 db while maintaining sensitivity levels on the order of -191 db. With 30 independent (unmultiplexed) tracking channels, output resolution is maintained at 2.5 cm. Independent AGC control of each channel is provided to handle situations where low energy downslope signals must be processed along with high energy upslope signals.

The transducer's hydrodynamic shape allows it to move easily through the water and is ideal for co-locating side scan and motion sensors in the same housing. It produces minimum drag and flow noise and is also positively buoyant for ease of handling during deployment or recovery should it impact with floating debris.

other advantages include:

- Improved raw data accuracy
- Reduction of 3-D translation errors
- Higher percentage of good data points
- Higher surveying speed
- Ability to accurately superimpose imagery and bathymetry
- Simplified calibration

REAL TIME 3-D DISPLAY

Bottom information is displayed in the Echoscan™ LCDU in the form of real time, 3-D perspective profiles. Information is scrolled into the display with the most current (scaled) profile in the foreground. The amount of historical data visible is selected by the system operator.

200 kHz REFERENCE TRANSDUCER

Built into every Echoscan™ transducer is an independent, single beam, 200 kHz transducer that can be coupled to a standard survey echo sounder, such as the Odom Echotrac™. It provides a vertical reference beam for calibration purposes, shallow water surveying, or to maintain a constant hard copy record of along-track progress. Traditional bar check calibrations can be performed and archived using this transducer.

Multibeam/Side Scan Integration

The Echoscan™ transducer may be tilted up to 45° port or starboard for optimum seafloor or riverbed coverage, or to survey underwater structures. With a motion sensor installed (ODMS-05/10/25 or modified Seatex MRU5/MRU6), tilt angles are continuously and accurately measured in addition to pitch and roll.

SIDE SCAN IMAGERY

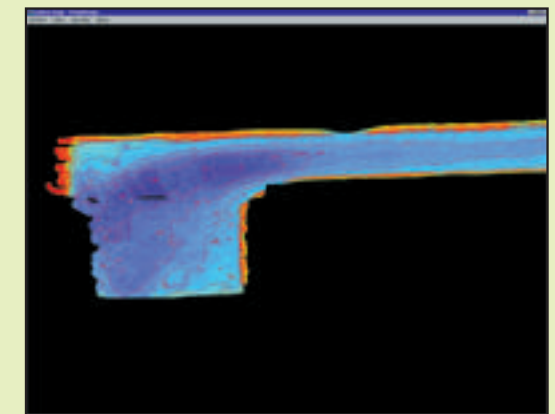
In addition to multibeam bathymetry, Echoscan™ outputs high-resolution side scan imagery from separate high sensitivity side scan elements mounted along the bottom edge of the transducer. Echoscan™ does not transmit from the side scan elements, but rather from the 256-element projector. This provides a uniform 110° x 2.5° beam pattern that is received by the multibeam PVDF elements, the reference transducer and the side scan elements. This eliminates the traditional beam nulls near nadir found in conventional side scan.

Echoscan™ side scan is true analog side scan, not processed low-resolution bathymetry intensity information. In addition, individual gain settings for side and multibeam provide optimum settings without compromise to imagery or bathymetry.

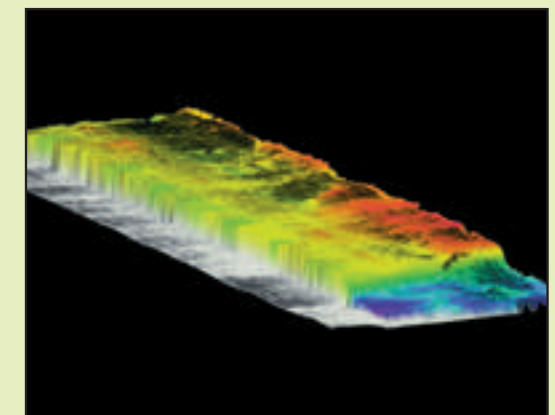
The integration of Echoscan™ multibeam depth sounding, with high quality imagery in a single transducer housing, facilitates easier data interpretation, identification of bottom characteristics and provides more accurate contour plots and mosaics.



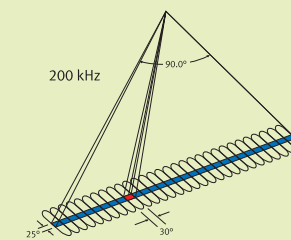
THE MV ECHOTRAC
Odom demonstration and development vessel



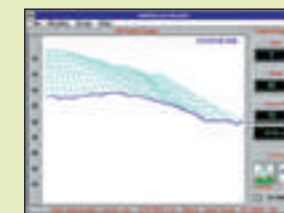
Bathymetry/Contour Display
(Isis Software by Triton)



Color bathymetry with side scan overlay
(Processed using Geodes from OIC)



Echoscan Beam Pattern



Echoscan Real-Time Display