**Typical Transducer Depth Performance**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Beam Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 kHz</td>
<td>21’ 640m</td>
</tr>
<tr>
<td>40 kHz</td>
<td>20’ 640m</td>
</tr>
<tr>
<td>50 kHz</td>
<td>9’ 400m</td>
</tr>
<tr>
<td><strong>200 kHz</strong></td>
<td><strong>3’ 300m</strong></td>
</tr>
</tbody>
</table>

**Bathy-500MF Multi Frequency Survey Echo Sounder**

**Specifications – Main Unit**

**Depth Ranges**
- 0-15, 0-30, 0-60, 0-120, 0-240, 0-480, 0-1920 Feet.
- 0-5, 0-10, 0-20, 0-40, 0-80, 0-160, 0-640 Meters.

**Phasing**
- 0-120, 60-180, 120-140, 180-300, 240-360, 300-420, 360-480 through 1800-1920 Feet, Auto
- 0-40, 20-60, 40-80, 80-120, 100-140, 120-160 through 560-640 Meters, Auto

**Chart Record**
- 8.5 inch X 90 Feet High-Contrast Thermal Paper

**Frequencies**
- Any single frequency (user selectable via keypad) from these: 33kHz, 40kHz, 50kHz, 200kHz
- (Acoustic output: 800 watts)

**Resolution**
- 0.01 units for depths less than 100 meters;
- 0.1 for depths greater than 100 meters;
- 0.1 feet on all ranges

**Accuracy**
- ± 0.1%

**Sound Velocity**
- 4600 - 5250 feet/second (1393 - 1590 meters/second)
- (user selected via keypad)

**Graphic Display**
- LCD (4 lines x 16 characters) 0.25 inch characters
- (Depth Display: 0.75 inch characters)
- (Back-lighting: Electro-luminescent)

**Depth Alarms**
- Shallow and Deep (selected by keypad)

**Offset**
- 0 to +30 feet or 0 to +10 meters (allows the user, via keypad, to adjust for the net sum of transducer depth and tide)

**Data Inputs**
- Accepts either NMEA 0183 or GLA/LOG Format
- from GPS/DGPS (internal DGPS optional) or external annotation from external source, such as a hydrographic software package or terminal emulation program.

**Remote Control**
- A bi-directional interface to PC or other peripheral device is provided; This port allows remote control of all echo sounder functions using SyQwest's Windows 95/98/NT based software.

**Data Outputs**
- ODEC di (True Depth & Status)
- Atlas DESO-25 - compatible
- Odom Digipace - compatible
- Odom Echotrac - compatible
- NMEA 0183 DBT / NMEA DBS
- Hypack & Trimble hydro - compatible

**Input Power**
- 11 - 30 volts D.C. (1.5 amps @ 12v, 0.5 amp @ 30v) or 115/230 volts A.C. 50/60 hertz (20 watts)

**Dimensions**
- Height (including handle) 19 inches (48 cm)
- Width 17.5 inches (44.5 cm) -- Depth 9 inches (23 cm)

**Weight**
- 35 lbs. (16 kg) (Recorder with "Transducer")

**Operating Temperature**
- -10°C to +55°C / Humidity 95% Non-Condensing

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The **Bathy-500MF** is a state-of-the-art electronic survey instrument used to generate precision chart recordings and digital data output. Low power consumption, portability, ease of use, rugged construction, and built-in communication interfaces for navigation/data logging devices make the **Bathy-500MF** ideal for shipboard use. The instrument is housed within a splash-proof, aluminum enclosure.

**Underwater Topography Recordings from Compact Survey Instrument**

Operating Characteristics

All operating functions are set via the front panel interface. Important setup selections are stored within internal, non-volatile memory for instant availability upon power-up.

**Time and Date**

Depth records can be date/time tagged using manual input via the key panel.

**Position - GPS / DGPS**

The instrument decodes and processes the NMEA 0183-formatted sentence GGA or GLL from GPS/DGPS variable 4800/9600 baud. The **Bathy-500MF** can be purchased with an internal DGPS receiver built in. Simply attach the antenna and the **Bathy-500MF** will annotate depth soundings with GPS Position.

**Digited Depth**

Digitized depth is displayed on the backlit LCD display in large, boldfaced digits that are easy to read.

**Alarm Status**

The **Bathy-500MF** includes programmable shallow and deep water alarms with visual and audio indications, as well as a lost bottom warning.

**Receiver Gain**

The user controls receiver gain manually or selects automatic receiver gain control.

**Sound Velocity**

For maximum depth measurement accuracy the sound velocity adjustment allows the user to compensate for water salinity and temperature variations.

**Communication Interfaces**

The user configures receive and transmit data to both RS232 and RS422 specifications via connector wiring options. The baud rate and output formats are selected as follows:

* Baud Rate: 9600 or 4800
* Output Format Types: NMEA 0183 formatted sentence DIT; ODEI proprietary Sentence; ODIC RhoTrack and DigiTrace-Compliant Sentence; Atlas DESO-25; Hypack & Trimble Hydro Compatible.

**SYOWEST INCORPORATED**

[Block Diagram of Bathy-500MF Echo Sounder]