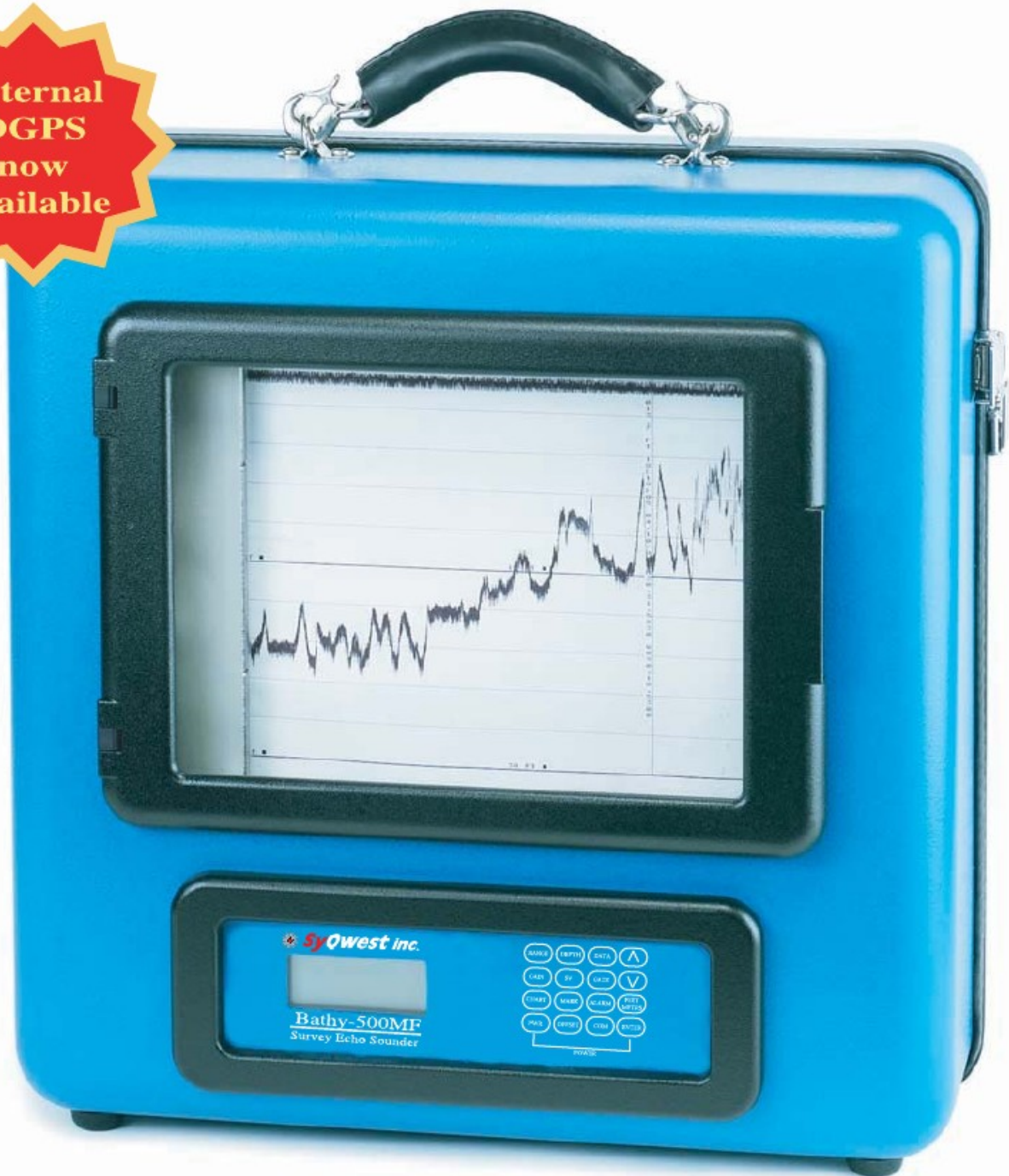


# Bathy-500 MF

Multi Frequency  
Survey Echo Sounder

Internal  
DGPS  
now  
available



# Underwater Topography Recordings from Compact Survey Instrument

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.

## KEY FEATURES

- Built-In Digitizer with RS232 and RS422 Data Output Interface Ports
- Advanced, Microprocessor-Based Electronics
- Thermal Recorder
- NMEA 0183 Navigation Input Interface
- User-Selectable DC or AC Input Power
- Automatic Chart Annotation for Date, Time, Depth, and Position Data
- Non-Volatile Internal Clock and Parameter Setup Memory
- Built -In Self test
- External Mark/Annotation
- 1 cm Resolution
- Multiple Frequency
- 640m Maximum Depth
- Rugged, Splash-Proof Aluminum Enclosure

The *Bathy-500MF* is technologically sophisticated, utilizing modern, micro-processor-based electronics and a thermal chart recorder mechanism.

Digital processing enables the instrument to offer fully automatic bottom digitizing capabilities. When interfaced to a NMEA 0183-compatible position sensor, the *Bathy-500MF* provides the user with a complete, integrated hydrographic survey environment.

## Front Panel Interface

The instrument front panel consists of a high contrast, backlit four-line (16 characters per line) LCD display, and a fully-sealed input keypad.

All operating parameters are at the user's fingertips, with immediate selection feedback provided via the LCD display.

LCD display menu pages encompassing system data, status, and setup parameters are provided for each of the following:

- \* *Time and Date*
- \* *Position*
- \* *Digitized Depth*
- \* *Alarm Status*
- \* *Receiver Gain*
- \* *Sound Velocity*
- \* *Display Range*
- \* *Units*
- \* *Tide / Draft Adjustment*
- \* *Chart Speed and Annotation*
- \* *Paper Save Mode / Paper Gauge*
- \* *Frequency*
- \* *Communication Interfaces*

## 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 sounding with GPS Position.

### Digitized 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.

*Bathy-500MF* is from a family of echo sounders available from SyQwest. Call or write for information concerning other echo sounder models or configurations.



## Units

The instrument operates in units of feet or meters. Resolution to .01 units\*.

## Display Range

The user sets display range and phase manually, or operates the instrument in an automatic display mode. Seven ranges and seven phase settings are included to produce printouts of the desired sector within the water column.

## Tide / Draft Adjustment

Compensation for the effects of tide and draft are included for depth measurement to surface. This adjustment is applied to processed output data.

## 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 DBT; ODEC proprietary Sentence; ODOM Echotrac and Digitrace-Compatible Sentence; Atlas DESO-25 Hypack & Trimble hydro Compatible.

## Chart Speed and Annotation

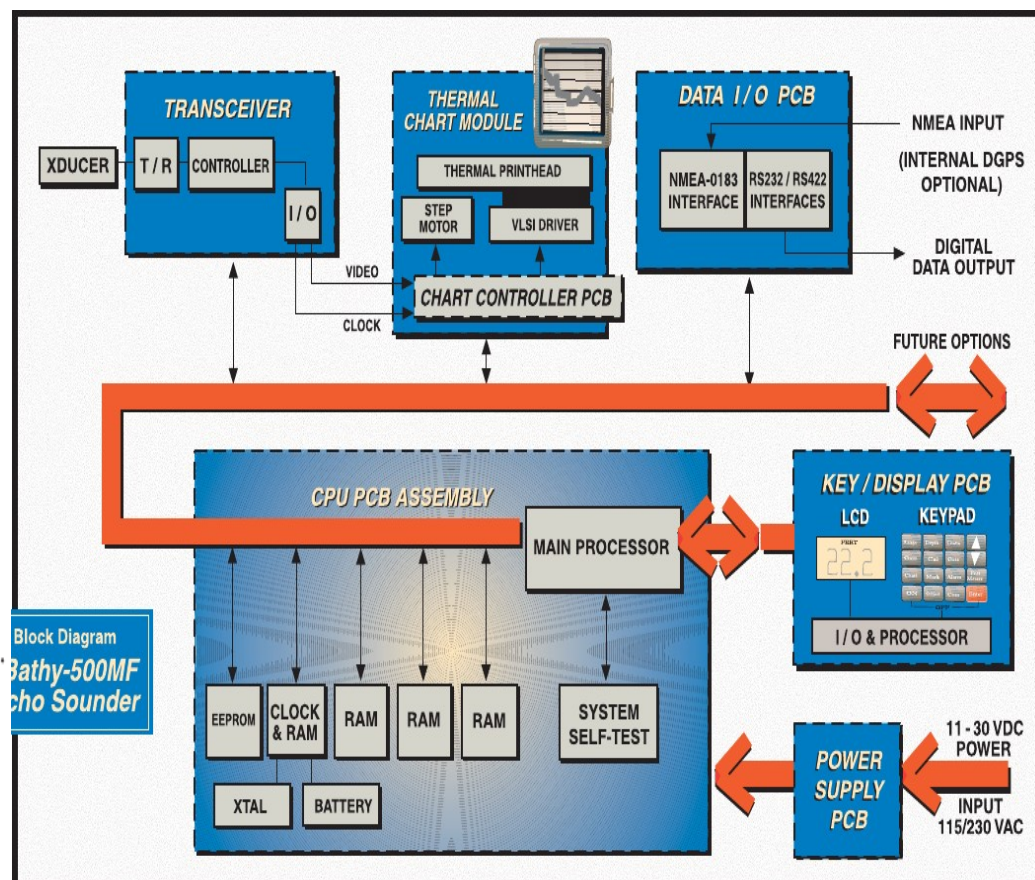
The chart recorder mechanism operates in multiple chart speed modes. The user activates chart annotation for depth, time, date, and position via the front panel keypad, or remote mark switch.

## Paper Save Mode

The thermal recorder can be deactivated for *paperless digital output only* operation.

## Paper Gauge

The unit annotates the top of the thermal chart record with a gauge of paper remaining on the roll. This eliminates the need for *striping* the chart record near the end of the roll – the user obtains a *clean* data presentation to the very end of the chart paper.



## Typical Transducer Depth Performance

| Frequency | Beam | Depth |
|-----------|------|-------|
| 33 kHz    | 21°  | 640m  |
| 40 kHz    | 20°  | 640m  |
| 50 kHz    | 9°   | 400m  |
| *200 kHz  | 3°   | 300m  |

SyQwest Inc. offers a wide variety of transducers. Please contact the factory for information relating to your specific application, and the transducer or model most effective for you.

### **Bathy-500MF** Survey Echo Sounder

#### Standard Configuration

- Bathy-500MF Echo Sounder
- AC Power Cable
- DC Power Cable
- Data I/O Plug Kit
- Chart Roll Kit
- Spare Fuse Kit
- Operation Manual

#### Optional Accessories

- Remote Fix Mark Switch
- Chart Roll Kit
- Internal DGPS

#### Optional Transducers

- Single Frequency:  
33kHz; 40kHz; 50kHz;  
200kHz
- Dual Frequency:  
200/50 kHz  
(contact **SyQwest** for more)



## Specifications – Main Unit

|   |   |
|---|---|
| <b>Depth Ranges</b><br>(feet or meters) | 0-15, 0-30, 0-60, 0-120, 0-240, 0-480, 0-1920 Feet.<br>0-5, 0-10, 0-20, 0-40, 0-80, 0-160, 0-640 Meters.  |
| <b>Phasing</b><br>(feet or meters)      | 0-120, 60-180, 120-140, 180-300, 240-360, 300-420,<br>360- 480 through 1800-1920 Feet, Auto<br>0-40, 20-60, 40-80, 60-100, 80-120, 100-140,<br>120-160 through 560-640 Meters, Auto                         |
| <b>Chart Record</b>                     | 8.5 inch X 90 Feet High-Contrast Thermal Paper  |
| <b>Frequencies</b>                      | Any single frequency ( user selectable via keypad)<br>from these: 33Khz, 40Khz, 50Khz, 200Khz<br>(Acoustic output=600watts)   |
| <b>Resolution</b>                       | 0.01 units for depths less than 100 meters;<br>0.1 for depths greater than 100 meters;<br>0.1 feet on all ranges  |
| <b>Accuracy</b>                         | ± 0.1%  |
| <b>Sound Velocity</b>                   | 4600 - 5250 feet/second (1393 - 1590 meters/second)<br>(user selected via keypad)   |
| <b>Graphic Display</b>                  | LCD (4 lines X 16 characters) 0.25 inch characters<br>(Depth Display: 0.75 inch characters)<br>(Back-lighting: Electro-luminescent)   |
| <b>Depth Alarms</b>                     | Shallow and Deep (selected by keypad)   |
| <b>Offset</b>                           | 0 to +30 feet or 0 to +10 meters (allows the user, via keypad<br>to adjust for the net sum of transducer depth and tide)  |
| <b>Data Inputs</b>                      | Accepts either NMEA-0183 GGA/GLL Format<br>from GPS/DGPS (internal DGPS optional) or external<br>annotation from external source, such as a hydrographic<br>software package or terminal emulation program. |
| <b>Remote Control</b>                   | A bi-directional interface to PC or other<br>peripheral device is provided; This port allows remote<br>control of all echo sounder functions using SyQwest's<br>Windows 95/98/NT based software.            |
| <b>Data Outputs</b>                     | ODEC dt (True Depth & Status)<br>Atlas DESO-25 - compatible<br>Odom Digitrace - compatible<br>Odom Echotrac - compatible<br>NMEA 0183 DBT / NMEA DBS<br>Hypack & Trimble hydro - compatible                 |
| <b>Input Power</b>                      | 11 - 30 volts D.C. (1.5 amps @ 12v. 0.5 amp @ 30v.) or<br>115/230 volts A.C. 50/60 hertz (20 watts)   |
| <b>Dimensions</b>                       | Height (including handle) 19 inches (48 cm)<br>Width 17.5 inches (44.5 cm) --- Depth 9 inches (23 cm)   |
| <b>Weight</b>                           | 35 lbs. (16 kg) (Recorder with *Transducer)   |
| <b>Operating Temperature</b>            | -10°C to +55°C / Humidity 95% Non-Condensing  |