SONIC 2022
Wideband Multibeam Echo Sounder

Features:
- Ultra Compact
- Focused Beams to 0.6° x 0.6°*
- Wideband 170 kHz – 450 kHz
- 700 kHz Option
- Selectable swath sector 10° to 160°
- Swath sector rotation
- Sounding Depth to 400m+
- Embedded processor/controller
- Low weight, volume and power consumption

System Description:
The Sonic 2022 is a compact wideband shallow water multibeam echo sounder, suitable for a wide variety of general mapping applications.

The Sonic 2022 provides user selectable operating frequencies between 170 kHz and 450 kHz to 1 Hz resolution, and optional 700 kHz, with unparalleled flexibility to trade off resolution and range and controlling interference from other active acoustic systems.

In addition to selectable operating frequencies, the Sonic 2022 provides variable swath coverage selections from 10° to 160°, the ability to rotate the swath sector, as well as roll stabilization. Both the frequency and swath coverage may be selected ‘on-the-fly’, in real-time during survey operations.

The Sonar consists of the outboard projector and receiver modules, and the inboard Sonar Interface Module (SIM). Third party auxiliary sensors are connected to the SIM. The sonar data is tagged with GPS time.

The sonar operation is controlled from a graphical user interface on a PC or laptop typically equipped with navigation, data collection and storage applications software.

The operator sets the sonar parameters in the sonar control window, while depth, imagery and other sensor data are captured and displayed by the applications software.

Commands are transmitted through an Ethernet interface to the Sonar Interface Module. The Sonar Interface Module supplies power to the sonar heads, synchronizes multiple heads, time tags sensor data, and relays data to the applications workstation and commands to the sonar head.

The receiver head decodes the sonar commands, triggers the transmit pulse, receives, amplifies, beamforms, bottom detects, packages and transmits the data through the Sonar Interface Module via Ethernet to the control PC.

The compact size, low weight, low power consumption 35W and elimination of separate topside processors also make Sonic 2022 very well suited for small survey vessel, ROV or AUV operations.

<table>
<thead>
<tr>
<th>Frequency (kHz)</th>
<th>200 kHz</th>
<th>450 kHz</th>
<th>700 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beamwidth (°)</td>
<td>2° x 2°</td>
<td>0.9° x 0.9°</td>
<td>0.6° x 0.6°</td>
</tr>
</tbody>
</table>

Beam widths at selected frequencies (nadir)
### Sonic 2022 Multi Beam Echo Sounder

**Systems Specification:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>170 kHz – 450 kHz &amp; 700 kHz (optional)</td>
</tr>
<tr>
<td>Beamwidth, Across Track</td>
<td>0.6°*</td>
</tr>
<tr>
<td>Beamwidth, Along Track</td>
<td>0.6°*</td>
</tr>
<tr>
<td>Number of Beams</td>
<td>256</td>
</tr>
<tr>
<td>Selectable Swath Sector</td>
<td>10° to 160°</td>
</tr>
<tr>
<td>Sounding Depth</td>
<td>400m+**</td>
</tr>
<tr>
<td>Pulse Length</td>
<td>15 µs – 1115 µs</td>
</tr>
<tr>
<td>Pulse Type</td>
<td>Shaped CW</td>
</tr>
<tr>
<td>Ping Rate</td>
<td>Up to 60 Hz</td>
</tr>
<tr>
<td>Depth Rating</td>
<td>100 m</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-10° C to 50° C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-30° C to 55° C</td>
</tr>
</tbody>
</table>

**Electrical Interface**

- **Mains**: 90-260 VAC, 45-65 Hz
- **Power Consumption**: 35 W (Sonar Head)
- **Uplink/Downlink**: 10/100/1000Base-T Ethernet
- **Data Interface**: 10/100/1000Base-T Ethernet
- **Sync In, Sync out**: TTL
- **GPS**: 1PPS, RS-232
- **Auxiliary Sensors**: RS-232
- **Deck Cable Length**: 15 m

**Mechanical:**

- **Receiver Dim (LWD)**: 276 x 109 x 190 mm
- **Receiver Mass**: 7 kg
- **Projector Dim (LWD)**: 273 x 108 x 86 mm
- **Projector Mass**: 3.3 kg
- **Sonar Interface**: 280 x 170 x 60 mm
- **Sonar Interface Module Dim (LWH)**: 2.4 kg
- **Module Mass**:

**Sonar Options:**

- Snippets/TruePix™ Imagery Output
- Ultra-High Resolution UHR 700 kHz
- Switchable Forward Looking Sonar Output
- Raw Water Column Data Output
- Integrated Inertial Navigation System
- Integrated Sediment Profiler
- Mounting Hardware & Assemblies
- 4000/6000m Immersion Depth Ratings
- Antifouling Coating Protection

* Beam width to 0.6° x 0.6° with UHR 700 kHz option
** Max sounding depths depend on environmental conditions

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**Pioneers of Wideband High Resolution Multibeam Systems**