SeaBat® T20-R
High resolution Multibeam Echosounder with fully integrated Inertial Navigation System

Superior acoustic quality engineered for the demanding marine environment

The SeaBat T20-R is a new addition to the leading SeaBat product range engineered from the ground up to evolve with your business. Combined with a Rack-mounted Sonar Processor (RSP), SeaBat T20-R provides uncompromised survey data in a highly compact package designed for small vessel use.

The solution includes a range of powerful software features at an attractive price, with the option for future feature expansions to grow with your needs.

The Rack-mounted Sonar Processor comes with an optional industry leading fully integrated Inertial Navigation System for accurate sensor time tagging and motion stabilization.

The SeaBat T20-R is designed for very fast mobilization on any type of survey vessels, securing minimal interfacing and low space requirements.

SeaBat T20-R Standard configuration

Rack-mounted Sonar Processor (RSP)
- Single point for all cable connections – for fast mobilization
- Accurate sensor time-tagging and motion stabilization from the optional integrated INS
- 10m cable configuration
- 2U form factor in standard 19” rack

SeaBat T20 sonar head assembly
- 190 – 420kHz wide-band sonar arrays
- Lightweight sonar bracket
- Robust titanium housing
- Less than 8kg in water

3 years warranty
Our hardware is quality-tested to meet the most demanding standards. Backed by the full support of our comprehensive after-sales program and 3 years of warranty, you can be sure that the SeaBat T20-R won’t let you down.

PRODUCT BENEFITS
- All-in-one, fully flexible and fully integrated survey system
- The compact system allows for fast mobilization, minimal interfacing and extremely low space requirements
- Impressively clean and high data quality for faster operational surveys and reduced processing time
- Fully frequency agile from 190 to 420 kHz, allowing for improved swath performance and reduced survey time under challenging conditions
- The new compressed water column data significantly reduces data volume while maintaining the required information
SEABAT T20-R SYSTEM SPECIFICATIONS

Input voltage
100-230VAC 50/60Hz

Transducer cable length
10m (standard) Optional: 25m, 50m or 100m

Temperature (operational / storage)
- Rack-mounted Sonar Processor: -5°C to +45°C / -30°C to +70°C
- Sonar-wet-end: -2°C to +36°C / -30°C to +70°C

<table>
<thead>
<tr>
<th>T20 Rx (EM7219)</th>
<th>Height [mm]</th>
<th>width [mm]</th>
<th>depth [mm]</th>
<th>weight [kg/air]</th>
<th>weight [kg/water]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>102.0</td>
<td>254.0</td>
<td>123.0</td>
<td>5.0</td>
<td>4.2</td>
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<table>
<thead>
<tr>
<th>T20 Tx (TC2181)</th>
<th>Height [mm]</th>
<th>width [mm]</th>
<th>depth [mm]</th>
<th>weight [kg/air]</th>
<th>weight [kg/water]</th>
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<tbody>
<tr>
<td></td>
<td>86.6</td>
<td>93.1</td>
<td>280</td>
<td>5.4</td>
<td>3.4</td>
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</table>

<table>
<thead>
<tr>
<th>Rack-mounted Sonar Processor</th>
<th>Height [mm]</th>
<th>width [mm]</th>
<th>depth [mm]</th>
<th>weight [kg/air]</th>
<th>weight [kg/water]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>88 (2U)</td>
<td>478*</td>
<td>462</td>
<td>12.3-13.8</td>
<td>N/A</td>
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</table>

<table>
<thead>
<tr>
<th>Teledyne Type 20/30 IMU</th>
<th>Height [mm]</th>
<th>width [mm]</th>
<th>depth [mm]</th>
<th>weight [kg/air]</th>
<th>weight [kg/water]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>123</td>
<td>118</td>
<td>95.6</td>
<td>3.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T20 Acoustic performance</th>
<th>400kHz</th>
<th>200kHz</th>
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</thead>
<tbody>
<tr>
<td>Across-track receiver beam width¹</td>
<td>1° (center)</td>
<td>2° (center)</td>
</tr>
<tr>
<td>Along-track beam width¹</td>
<td>1°</td>
<td>2°</td>
</tr>
</tbody>
</table>

| Number of beams | 10 - 1024 |

| Swath coverage (up to) | 10°-140° Equi distance, 10°-165° Equi Angle |

| Typical Depth (CW²) | 0.5-150 meters |
| Max Depth (CW¹)     | 250 meters    |
| Typical Depth (FM³) | 0.5-180 meters |
| Max Depth (FM³)     | 300 meters    |

| Ping rate (range dependent) | Up to 50 pings/s |
| Pulse length (CW)           | 15 – 300µs    |
| Pulse length (FM)           | 300µs – 10ms  |
| Depth resolution            | 6mm           |

| Depth rating (sonar head) | 50 meters |

<table>
<thead>
<tr>
<th>Teledyne INS Type - 20</th>
<th>Roll/Pitch 0.02°</th>
<th>Heading 0.015°</th>
<th>Heave 5cm/5%</th>
<th>TrueHeave 2cm/2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teledyne INS Type - 30</td>
<td>Roll/Pitch 0.01°</td>
<td>Heading 0.010°</td>
<td>Heave 5cm/5%</td>
<td>TrueHeave 2cm/2%</td>
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</tbody>
</table>

For relevant tolerances for dimensions above and detailed outlined drawings see Product Description

1 Nominal values
2 This is a depth range within which the system is normally operated, from the minimum depth to a depth value corresponding to the maximum swath -50%.
3 This is the single value corresponding to the depth at which the swath is reduced to 10% of its maximum value. For actual swath performance refer to Product Description.
4 With 4m GPS base line. Heave 5cm/5% whichever is greater for periods +/- 20sec.
5 An extinction coverage of +/-20° is observed at about 530 meter water.

T20-R Scope of supply
- Receiver EM7219
- Projector TC2181
- Rack-mounted Sonar Processor
- 10m Receiver cable
- 10m Projector cable
- Waterproof cable set
- Wet-end bracket
- Nuts and bolt for ease of installation
- 3-year warranty

Optional extra features
- Integrated INS Type 20 or Type 30
- 25m, 50m or 100m cable
- Hydro dynamic fairing
- Dual head bracket
- RESON Sound Velocity Probes
- Teledyne PDS Survey Package
- RESON Service Level Agreements
- Normalized backscatter
- Motion and positioning sensors
- X-Range - improve range and reduce external noise
- Multi-Detect - multiple detections for enhanced detail over complex features and water column targets
- FlexMode – increase data density where you need it most
- Pipe Detection & Tracking – optimize detection of pipes
- Full rate dual head across the entire frequency range

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