

# 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

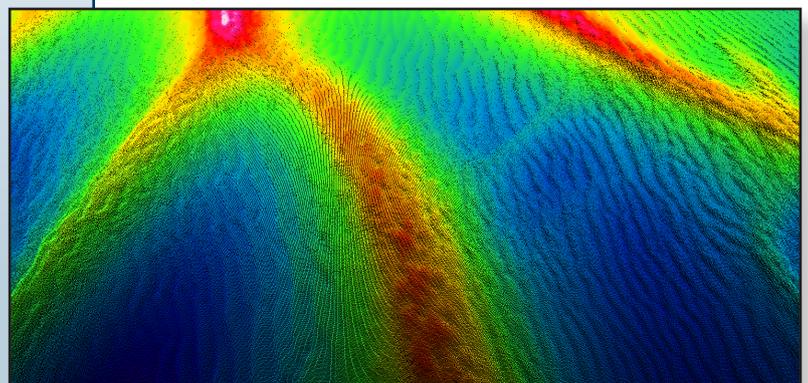
- 190 – 420kHz wide-band sonar arrays
- Lightweight sonar bracket
- Robust titanium housing
- Less than 8kg in water

### 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
- Unique Vertical Detection Mode for improved detection along vertical structures
- The new compressed water column data significantly reduces data volume while maintaining the required information



SeaBat T20, Sandwaves



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## SEABAT T20-R SYSTEM SPECIFICATIONS

<b>Input voltage</b>	100-230VAC 50/60Hz
<b>Transducer cable length</b>	10m (standard) Optional: 25m, 50m or 100m
<b>Temperature (operational / storage)</b>	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

	height [mm]	width [mm]	depth [mm]	weight [kg/air]	weight [kg/water]
<b>T20 Rx (EM7219)</b>	123.2	254.0	102.0	5.0	2.2
<b>T20 Tx (TC2181)</b>	86.6	93.1	280.0	5.4	3.4
<b>Rack-mounted Sonar Processor</b> <small>Standard 19" rack-mount</small>	88.0 (2U)	478.0*	462.0	12.3-13.8	N/A
<b>Teledyne Type 20/30 IMU</b>	123.0	118.0	95.6	3.0	1.6

T20 Acoustic performance	400kHz	200kHz
<b>Across-track receiver beam width<sup>1</sup></b>	1° (center)	2° (center)
<b>Along-track beam width<sup>1</sup></b>	1°	2°
<b>Number of beams</b>	10 - 1024	
<b>Swath coverage (up to)</b>	10°-140° Equi distance, 10°-170° Equi Angle	
<b>Typical Depth (CW<sup>2</sup>)</b>	0.5-150 meters	0.5-375 meters
<b>Max Depth (CW<sup>2</sup>)</b>	250 meters	550 meters
<b>Typical Depth (FM<sup>2</sup>)</b>	0.5-180 meters	0.5-450 meters
<b>Max Depth (FM<sup>2</sup>)</b>	300 meters	575 meters
<b>Ping rate (range dependent)</b>	Up to 50 pings/s	
<b>Pulse length (CW)</b>	15 - 300µs	
<b>Pulse length (FM)</b>	300µs - 10ms	
<b>Depth resolution</b>	6mm	
<b>Depth rating (sonar head)</b>	50 meters	

<b>Teledyne INS Type +20</b>	Roll/Pitch	Heading <sup>4</sup>	Heave <sup>4</sup>	TrueHeave <sup>4</sup>	Positioning accuracy (with RTK)	Optional post-processing with POSPac MMS. Optional Fugro MarineStar <sup>®</sup> , Trimble CenterPoint RTX
	0.02°	0.015°	5cm/5%	2cm/2%	Horizontal: +/- (8mm + 1ppm*baseline length)	
<b>Teledyne INS Type +40</b>	Roll/Pitch	Heading <sup>4</sup>				
	0.008°	0.010°				

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

<sup>1</sup> Nominal values

<sup>2</sup> This is a depth range within which the system is normally operated, from the minimum depth to a depth value corresponding to the max. swath -50%.

<sup>3</sup> This is the single value corresponding to the depth at which the swath is reduced to 10% of its max. value. For actual swath performance refer to Product Description.

<sup>4</sup> With 4m GNSS base line. Heave 5cm/5% whichever is greater for periods +/- 20sec

<sup>5</sup> 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 bolts for ease of installation
- 3-year warranty

### OPTIONAL EXTRA FEATURE

- Integrated INS Type +20 or Type +40
- 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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