

High
Resolution
Multibeam
Systems
for:
Hydrography
Offshore
Dredging
Defense
Research

DUAL HEAD SONIC 2020 VE Plus

Wideband Multibeam Echo Sounder



Features:

- Ultra Compact & Low Cost
- Weighs only 9kg (air), 3kg (water)
- Nominal Frequency 400 kHz,
(Frequency Agility 200-700kHz)
- Swath Coverage to 12x Water Depth
- Total swath up to 220°
- Amplitude & Phase Bottom Detection
- Sounding depth up to 280 m*
- Equiangular or Equidistant beams
- Pitch & Roll Stabilization
- Includes Snippets, TruePix™ & Water Column

Options:

- Ultra-High Density (UHD): 1024 soundings/beams per ping
- Multimode
 - > Pipeline mode: 2 frequencies, including 700kHz
 - > Multispectral mode: ability to survey with up to 5 different frequencies per head in one pass and with one system

System Description:

Dual Head Sonic 2020 is the most compact, lightweight and productive low-cost true beamforming wideband shallow water multibeam echo sounder, suitable for a wide variety of general mapping applications.

Dual Head Sonic 2020 provides nominal frequency 400 kHz (with frequency agility from 200 to 700 kHz) band, with flexibility to optimize to environmental conditions and controlling interference from other active acoustic systems.

In addition to selectable operating frequencies, Dual Head Sonic 2020 provides variable swath coverages up to 220°, as well as the ability to rotate the swath either port or starboard side electronically in real-time. With the combined flexibility, up to 12x water depth coverage or more is obtainable with the Sonic 2020 in shallow water, depending upon degree of fixed head tilt, selected beam overlap and environmental conditions.

Integrated real-time sound velocity sensor is offered to simplify installation and calibration, making the Dual Head Sonic 2020 a perfect asset for highly productive surveys on vessels of opportunity, small survey launches and ASVs.



The Dual Head Sonic 2020 can also be equipped with the following options:

- **Ultra-High Density (UHD):** the bottom detection process increases the number of truly independent bottom samples per ping from the standard 256 soundings/beams up to 1024. This is an additional Bottom Sampling mode.
- **Multimode:** It allows the system to capture data at different frequencies, by dynamically reconfiguring itself between pings, during a single survey.
 - > **Pipeline mode:** it combines the incredibly detailed inspection capability of 700kHz data on the pipeline with the range and wide swath of a 400kHz survey on the surrounding seabed. The footprints are reduced to a third of the size in normal mode to provide a corresponding improvement in resolution. The Pipeline Mode enables the surveyor to conduct a wide-angle context survey in the same pass as an ultra-detailed inspection survey.
 - > **Multispectral mode:** the survey is conducted with two or more frequencies with matching aspect angles, in a single survey run. Performing the survey with multiple frequencies, in a single run with a single sonar, provides huge survey time and cost savings over the traditional method of using multiple boats and surveys, and it has the added advantage of naturally matching up the aspects angles of the backscatter data of the different frequencies.

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*Tested in Indonesia

Dual Head Sonic 2020 VE Plus Multi Beam Echo Sounder

Systems Specification

Operating Frequency	Nominal Freq. 400 kHz (Freq. Agility 200kHz-700kHz)
Beamwidth, Across Track	1.0° x 1.0° at 700 kHz
Beamwidth, Along Track	1.0° x 1.0° at 700 kHz
Number of Soundings/Beams* (per head)	256/512/1024
Swath Coverage**	Up to 220°
Sounding Depth***	Up to 280 m
Pitch Stabilization	Yes
Roll Stabilization	Yes
Pulse Length	15µs-1000µs
Pulse Type	Shaped CW
Ping Rate	60 Hz
Resolution	3 mm
Operating Temperature	-10°C to 50°C

Electrical Interface

Mains	90-260 VAC, 45-65Hz
Power Consumption	75W
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	15m

Mechanical

Sonar Dimension (per head)	140 x 161 x 133.5mm
Sonar Mass (air/water)	9kg / 3kg (per head)

Sonar Options

4000m Immersion Depth Rating Mounting
Hardware & Assemblies Antifouling Coating Protection
Snippets / TruePix™ images
Ultra-High Density (UHD): 1024 soundings/beams per ping
Multimode, which includes Pipeline mode and multispectral mode

*Selectable normal / dual / quad modes of operation

**Swath coverage depending on the degree of fixed head tilt, selected beam overlap and environmental conditions.

***Sounding depth based on environmental conditions.

Sonic-VE Plus Series INS Accuracy

(with 2x GNSS Antenna)

Roll & Pitch	0.015°
Heading	0.015° with 4m antenna baseline, 0.03° with a 2m antenna baseline
Heave	5cm or 5% real-time, 2cm or 2% delayed heave
Position	Horizontal: 1cm + 0.5 ppm Vertical: 1.5cm + 1 ppm
Environmental	IP67

Compact VOX-IM



Sonic 2020 Receiver / Projector



Pioneers of Wideband High Resolution Multibeam Systems