# Multibeam Echosounder Specifications

We apply our technical expertise and experience as surveyors to serve you: Our portfolio is elegantly simple while technologically advanced and user-friendly. **Beamwidth** and **depth range** are the 2 main characteristics that differentiate each of those MultiBeam EchoSounders (MBES). All options can be implemented on all products, except for the option to operate at 90kHz/100kHz that is exclusive to the Sonic 2026 (at the expense of the UHR option). This provides **high flexibility** to end-users to upgrade their equipment **remotely**. These options go beyond just opting for a longer cable; they all bring extra capabilities and functionalities, allowing even the entry level sonar to benefit from advanced operating modes. **Additionally, the firmware of all 4 MBES can be upgraded remotely.**

Standard Features for all R2Sonic MBES

SONIC 2020

Extra Light & Compact!

Ethernet

- Power supplied to sonar head
- Synchronization of multiple heads

User-friendly, simple and easy to learn controller interface

Clean and small data files which require minimum data processing time

- Ultra High Density (UHD): 1024 soundings per ping
- Selectable operating frequencies 'on-the-fly' in steps of 1Hz
- Ability to rotate the swath sector 'on-the-fly'
- Free firmware updates can be done remotely by end users
- Low power consumption for the performance delivered
- Light & compact
- Training delivered by experts

- Options upgradable remotely
- Embedded processor / controller in the sonar head that enables fast and powerful computation at low power (no separate topside processor)
- 3-year warranty
- All R2Sonic MBES exceed IHO-S44 Special Order, when installed following the instructions from the Manual and used with the I2NS and the Sound Velocity Sensor offered by R2Sonic

Only R2Sonic does it...

- Multispectral mode: survey with up to 5 frequencies in 1 pass and with 1 MBES. **Saves Time & Money!**
- Increased true sounding density with UHD ➔ **It Provides Accurate and Truthful Resolution***
- **Smallest Beamwidth Available!** Down to **0.3° x 0.6°**
- Clean and small data files which reduces processing time and **Saves Time & Money!**
- Ability to upgrade options remotely
- Free firmware updates
- Optional 6-year warranty, which **minimizes risk** on investment
- 24/7 technical support via email and phone wherever you are in the world
- Express and high quality repairs, performed by the team that engineered the systems

Options

- Ultra High Resolution (UHR): beamwidth down to 0.3° x 0.6°
- Multimode
  - Pipeline mode: 2 frequencies, requiring UHR (700kHz)
  - Multispectral mode: ability to survey with up to 5 different frequencies in one pass and with one system
- TruePix™: provides highly compact water column imagery and backscatter
- Raw water column data output
- Robo automated operation
- On-site training (theory class & hands-on demo)

- 6-year warranty
- 4000m and 6000m immersion depth rating
- Mounting hardware & assemblies, including Dual Head for Sonic 2020
- Antifouling coating protection
- Switchable Forward Looking Sonar Imagery
- I2NS™ (Integrated Inertial Navigation System): 3 types available that provide different accuracy for roll / pitch and heading
  Please consult specification sheet for more information on the I2NS™
- Software available: HYPACK®, QINSy™, SonarWiz 7, Fledermaus GeoCoder
- Sound Velocity Sensors available

Quick Mobilization

Easy to Pack   Easy to Maneuver   Easy to Check-In

Sonic Series store easily in Peli™ Case, for increased mobility

US Patent 10,132,924

*Please consult the "Making Concepts Simple" booklet for clarification on technical terms / concepts.

©2020 R2Sonic, LLC

	Sonic 2020	Sonic 2022	Sonic 2024	Sonic 2026
Applications	Entry level hydrography Very small vessels Small ASV and AUV	Construction Dredging Autonomous Surface Vehicle (ASV) Offshore O&G (pipeline)	Autonomous Surface Vehicle (ASV) Construction Dredging Offshore O&G (pipeline) Offshore WindFarm (cable, towers)	Advanced hydrography Research Seafloor characterization Autonomous Underwater Vehicle (AUV) Remote Operated underwater Vehicle (ROV)
Selectable Frequencies	200kHz - 450kHz. Optional 700kHz	170 - 450kHz. Optional 700kHz		170 - 450kHz. Optional 90kHz and 100kHz
Minimum frequency increase	1Hz			
Beamwidth, across track and along track	1° x 1° at 700kHz (optional) 1.8° x 1.8° at 450kHz 4° x 4° at 200kHz	0.6° x 0.6° at 700kHz (optional) 0.9° x 0.9° at 450kHz 2° x 2° at 200kHz	0.3° x 0.6° at 700kHz (optional) 0.45° x 0.9° at 450kHz 1° x 2° at 200kHz	0.45° x 0.45° at 450kHz 1° x 1° at 200kHz 2° x 2° at 90kHz & 100kHz (optional)
Number of soundings	Up to 1024 soundings per ping			
Max speed (vessel)	11.1 knots for full coverage (*)			
Near-field focusing*	Yes			
Roll stabilized beams	Yes			
Pitch stabilized beams	Yes	No		Yes
ROBO™ Automated Operation	Yes Auto Power, pulse width, rangeTrac™, GateTrac™, SlopeTrac™			
Saturation monitor	Yes			
Selectable Swath Sector *(also referred as Max Coverage)*	10° to 130° User selectable in real-time	10° to 160° User selectable in real-time		
Sounding Patterns	Equiangular Equidistant single / double / quad modes Ultra High Density (UHD)			
Sounding Depth	up to 200m+	up to 400m+		up to 800m+
Pulse Length	15µs - 1ms			15µs - 2ms
Pulse Type	Shaped CW			
Ping rate	up to 60Hz			
Bandwidth	up to 60kHz			
Immersion Depth	100m Optional 4000m	100m Optional 4000m & 6000m		100m Optional 4000m
	FLS projectors are rated 4000m	FLS projectors are rated 3000m		FLS projectors are rated 4000m
Bottom Detect Resolution	3mm			
Operating Temperature	-10°C to 40°C	-10°C to 50°C		
Storage Temperature	-30°C to 55°C			

Electrical Interface

	Sonic 2020	Sonic 2022	Sonic 2024	Sonic 2026
Mains	90-260VAC, 45-65Hz			
Power consumption	20W avg	35W avg	50W avg	100W avg
Uplink/downlink	10/100/1000Base-T Ethernet			
Sync in, Sync out	TTL			
Deck cable length	15m, optional 25m and 50m			

Mechanical

	Sonic 2020	Sonic 2022	Sonic 2024	Sonic 2026
Sonar Dimension (Sonic 2020)	140 x 161 x 133.5 mm			
Sonar Mass (Sonic 2020)	4.4kg			
Receiver Dim (LWD)		276 x 109 x 190 mm	480 x 109 x 190 mm	
Receiver Mass		7.7kg	12.9kg	
Projector Dim (LWD)		273 x 108 x 86 mm		480 x 109 x 196 mm
Projector Mass		3.3kg		13.4kg
Sonar Interface Module Dim (LWH)	280 x 170 x 60 mm			
Sonar Interface Module Mass	2.4kg			

(*) The speed of the survey is primarily limited by the installation of the MBES.