



Integrated multibeam solution with IMU and SV probe

This fully integrated solution includes:

- ▶ Wideband multibeam echosounder, the Sonic 2020
- ▶ Inertial Measurement Unit (IMU), the Integrated Inertial Navigation System (I2NS)
- ▶ Sound Velocity (SV) Probe, either from Valeport or from AML

This compact solution has everything you need in a 20x30 (cm) mount, making it easy to transport, mobilize and install.

The Sonic 2020 is a highly flexible and versatile multibeam sonar that can be upgraded remotely and anytime with a wide variety of options, such as Ultra High Density (UHD), Ultra High Resolution (UHR) and TruePix™.

The I2NS is an industry proven, tightly coupled solution for vessel roll, pitch, heave, heading, position and velocity, that is easy to set up with the Applanix POSView, operate and control through the monitoring window built in the Graphical User Interface (GUI). The I2NS provides continuous positioning information, even in areas where GPS reception is compromised by multipath effects and signal loss, making it ideal for vessels operating around structures and in high multipath environments such as ports and harbors.

All Sonic 2020 and I2NS data flow through a single Ethernet port, eliminating the need for additional processing modules and cabling, which makes for a neat, single cable interfacing solution.

The integrated Sonic 2020 solution exceeds IHO-S44 Special Order when installed following the instructions from the R2Sonic Manual.



Sonic 2020



IMU: Integrated Inertial Navigation System (I2NS)



SV probe from Valeport or AML

Highly portable, for quick mobilization

Modular



Easy to Pack

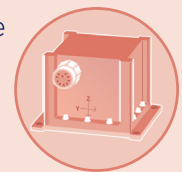


Easy to Maneuver



Easy to Check-in

- ▶ Easy to disassemble the IMU for maintenance and troubleshooting



Easy to Integrate on any platform

Easy to set up



AUV



ROV



ASV/USV



Small Vessel

- ▶ No need to measure offsets between the multibeam sonar and the IMU
 - *Fast*
 - *Less room for error*
 - *No patch testing between mobilizations*



Integrated solution packages in one Pelican™ case

Features of the Sonic 2020

- ▶ Ultra High Density (UHD) ensuring 1024 soundings per ping, resulting in greater resolution, particularly on the outer beams
- ▶ Selectable operating frequencies ‘on-the fly’ in steps of 1Hz so you can chose the best frequency for the job, while ensuring:
 - *Constant ping rate*
 - *No along-track data loss*
- ▶ Dynamic focusing, which is essential to ensure high resolution in very shallow waters
- ▶ ROBO™ mode

Features of the I2NS

- ▶ Seamless integration with the Sonic 2020
- ▶ Selectable accuracy configurations
- ▶ Inertial aided RTK (Real Time Kinematic) positioning
- ▶ High immunity to GNSS outages



Sonar Interface Module (SIM)

Integrated Multibeam Echosounder: Sonic 2020 & IMU & SV probe

Services

- ▶ Technical Support 24/7/365 wherever you are in the world
- ▶ Quick and high quality repairs performed by the team that engineered the multibeam sonar and the IMU
- ▶ 3-year warranty

Options

- ▶ Upgradable with 7 technical modes:
 - Ultra High Resolution (UHR) that provides narrow beamwidth of 1°x1° at 700kHz
 - Pipeline mode that enables users to survey alternatively at 400kHz and 700kHz, in one pass and using only one multibeam echosounder. This provides granular high resolution information about the pipe itself, the pipe surface, as well as around the pipe
 - TruePix™ Compressed Water Column that simultaneously reports backscatter and water column imagery
 - *Snippets is included with the TruePix™ option*
 - Multispectral backscatter
 - Multifrequency bathymetry designed for better bottom detect resolution
 - Forward Looking Sonar (FLS) allows users to easily switch from bathymetric profiling mode, which projects a narrow 1° along-track beam, to an imaging mode which projects a wide 22° vertical beam
 - Multispectral TruePix™ Compressed Water Column that consists of combining the capabilities of TruePix™ with R2Sonic's proprietary multifrequency mode
- ▶ Raw water column data
- ▶ 6-year warranty so you can mitigate your long-term risks
- ▶ 4000m immersion depth rated
- ▶ Theory & hands-on comprehensive and personalized training
- ▶ Software available: HYPACK®, QINSy™, SonarWiz 7, Fledermaus GeoCoder



Technical Specifications of the Sonic 2020

Selectable Frequencies	200kHz - 450kHz. Optional 700kHz
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
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
ROBO™ Automated Operation	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
Sounding Patterns	Equiangular Equidistant single / double / quad modes Ultra High Density (UHD)
Sounding Depth	up to 200m+
Pulse Length	15µs - 1ms
Pulse Type	Shaped CW
Ping rate	up to 60Hz
Bandwidth	up to 60kHz
Immersion Depth	100m Optional 4000m FLS projectors are rated 4000m
Bottom Detect Resolution	3mm
Electrical Interface	
Mains	90-260VAC, 45-65Hz
Power consumption	20W avg
Uplink/downlink	10/100/1000Base-T Ethernet
Sync in, Sync out	TTL
Deck cable length	15m, optional 25m and 50m

Technical Specifications of the I2NS Type III

	DGPS	RTK	Accuracy During GNSS Outages
Position	0.5-2m depending on quality of differential corrections	Horizontal: 1cm or better Vertical: 1.5cm or better	-6m for 30 s total outages (RTK) -3m for 30 s total outages (IAPPK)
Roll & Pitch	0.04°	0.03°	0.05°
Heading	0.06° w/4m baseline 0.08° w/2m baseline	Same	0.2° (IAPPK, 60 s outages) 0.3° (RTK, 60 s outages)
Heave	5cm or 5% 2cm or 2% TrueHeave™	5cm or 5% 2cm or 2% TrueHeave™	5cm or 5% 2cm or 2% TrueHeave™

Inputs/Outputs

Ethernet Input Output	1000Base-T
Serial RS232	1 COM Ports bi-directional, user assignable to NMEA output 1 COM Ports connected directly to the internal GNSS receiver (for supplying corrections or firmware upgrades)
Base GNSS Correction Output	RTCM V2.x, RTCM V3.x, CMR and CMR+

The integrated solution is also available with the I2NS type II.

Please contact us or visit r2sonic.com/products.i2ns for more information

Mechanical Specifications

Dimensions Integrated Solution (LWH)	200 x 200 x 300 (mm)
Weight integrated solution (in air)	10.8kg
Dimensions Sonar Interface Module (LWH)	280 x 170 x 60 mm
Weight Sonar Interface Module	2.4kg

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

Specification Sheet 2020 version 1.0 subject to change without notice