

# Integrated Solution Sonic 2020i Type III

Sonic 2020 & IMU (I2NS Type III) & Sound Velocity Probe & UHR or TruePix™



Sonic 2020i Type III: integrated multibeam solution with IMU (I2NS Type III), SVP and UHR or TruePix™



Sonic 2020



IMU: Integrated Inertial Navigation System (I2NS)



SV probe from Valeport or AML



Sonic 2020i Type III in one Pelican™ case



Sonar Interface Module (SIM)



Compact mounting pole by USM for R2Sonic

The Sonic 2020i Type III is a fully integrated solution that includes:

- ▶ Wideband multibeam echosounder, the Sonic 2020
- ▶ Inertial Measurement Unit (IMU), the Integrated Inertial Navigation System (I2NS) Type III
- ▶ Sound Velocity (SV) Probe, either from Valeport or from AML
- ▶ Ultra High Resolution (UHR) 700kHz or TruePix™ Compressed Water Column

**This compact solution is factory fitted and 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 comes with either the Ultra High Resolution (UHR) 700kHz mode or TruePix™ Compressed Water Column. The Sonic 2020 can also be upgraded remotely anytime with a wide variety of options, such as Forward Looking Sonar (FLS) or Multispectral TruePix™.

The I2NS Type III is an industry proven solution for vessel roll, pitch, heave, heading, position and velocity. It is easy to set up with the Applanix POSView, and can be operated and controlled 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 Type III data flow through a single Ethernet cable, eliminating the need for additional processing modules and cabling, which makes for a neat, single cable interfacing solution.

The integrated Sonic 2020i Type III solution exceeds IHO-S44 Exclusive Order when installed following the instructions from the R2Sonic Manual.

Highly portable, for quick mobilization



Easy to Pack



Easy to Maneuver



Easy to Check-in

Modular

- ▶ Easy to uninstall the IMU for maintenance and troubleshooting



Easy to Integrate on any platform



AUV



ROV



ASV/USV



Small Vessel

Easy to set up

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

Features of the Sonic 2020

- ▶ Ultra High Density (UHD); up to 1024 soundings per ping, resulting in greater resolution, particularly on the outer beams
- ▶ One of two options at no extra cost. Ultra High Resolution (UHR) 700kHz or TruePix™ Compressed Water Column
- ▶ Selectable operating frequencies 'on-the fly' in steps of 1Hz so you can choose 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 Type III

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

# Integrated Solution Sonic 2020i Type III

Sonic 2020 & IMU (I2NS Type III) & Sound Velocity Probe & UHR or TruePix™



## 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

## Standard Technical Features

- With UHR, Pipeline mode enables users to survey alternatively at 400kHz and 700kHz, in one pass and using only one multibeam echosounder. This provides granular high resolution information on the pipeline or cable, as well as around the pipeline/cable
- Option to include in standard configuration and at no additional cost either:
  - the Ultra High Resolution (UHR) that provides narrow beamwidth of 1°x1° at 700kHz
  - TruePix™ Compressed Water Column that simultaneously reports backscatter and water column imagery. Snippets is included in the TruePix™ option
- Multispectral backscatter
- Multifrequency bathymetry designed for better bottom detect resolution

## Options

- ▶ Compact mounting pole from Universal Sonar Mount (USM) for R2Sonic
  - Option to include the support for the two GPS antennas
- ▶ Upgradable with 3 technical modes:
  - If not already included, Ultra High Resolution (UHR) 700kHz or TruePix™ Compressed Water Column
  - 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 (700kHz can be included in the standard configuration at no additional cost)
Minimum frequency increase	1Hz
Beamwidth, across track and along track	1° x 1° at 700kHz (can be included in the standard configuration at no additional cost) 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](http://r2sonic.com/products) 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



Patents: 10,132,924 and 10,605,914

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

Specification Sheet 2021 version 1.2 subject to change without notice