

## Integrated Inertial Navigation System Option

### Main Advantages:

- Seamless integration with R2Sonic MBES
- Compact IMU in waterproof housing
- Superior accuracy for multibeam operations
- Inertially aided RTK positioning
- High immunity to GNSS outages
- Export license not required to most countries
- Affordable price
- 3-Year standard warranty



### Description:

The I2NS™ integrates seamlessly with R2Sonic Wideband Multibeam Echosounder Systems providing accurate and robust geo-referencing and motion compensation for hydrographic surveys. The I2NS™ provides existing and new R2Sonic customers a industry proven, tightly coupled solution for vessel roll, pitch, heave, heading, position and velocity which is easy to set-up, operate and control through a monitoring window built into the R2Sonic graphical user interface. The elimination of additional processing modules reduces volume, size and cabling and allows all data flow through a single Ethernet port.

The I2NS™ is supplied in a compact waterproof housing which may be mounted on the vessel center of rotation or directly on the R2Sonic multibeam system mount bracket, to minimize patch-testing between mobilizations. All processing and interfaces are integrated into the compact Sonar Interface Module with connections for dual Global Navigation Satellite System (GNSS) antennas, the IMU and provision of serial input/outputs. The GNSS antennas track all available GPS, GLONASS, Galileo and Geostationary satellites, including support for Fugro Marinestar™ GPS and GNSS subscription service.

The I2NS™ is ideal for use on vessels operating in high multipath environments such as Ports, Harbors and around Structures as the system provides continuous positioning information even while surveying in areas where GPS reception is compromised by multipath effect and signal loss. The Integrated INS also enables the logging of raw GNSS and Inertial observables for later processing through GNSS aided inertial post-processing software, which can be optionally supplied.

### Performance Summary:

Integrated INS	DGPS	RTK	Accuracy During GNSS Outages
<b>Position</b>	0.5-2m	Horizontal: 1cm or better Vertical: 1.5cm or better	~9m for 60 s total outages (RTK) ~3m for 30 s total outages (RTK)
<b>Roll &amp; Pitch</b>	0.03°	0.02° (0.015° with post processing)	0.04°
<b>Heading</b>	0.015° w/4m baseline 0.03° w/2m baseline 0.06° w/1m baseline	Same	<2° per hour degradation (negligible for outages <60 s)
<b>Heave</b>	5cm or 5%, 2cm TrueHeave	5cm or 5%, 2cm TrueHeave	5cm or 5%, 2cm TrueHeave