

# Siri Marine Motion Sensors

Siri Marine offers a complete line of MRU, AHRS and INS sensors. Each sensor brings a robust, maintenance free and cost-effective MEMS solution to a wide range of motion and inertial navigation concerned projects. The solid state design in combination with temperature calibration and different enclosure options ensures reliable operation in most environments.

## Applications

Motion monitoring | Structural integrity monitoring | Motion compensation | Hydrographic survey | Inclination measurements | AUV & ROV | Instrumented buoys

## Output rates

IMU up to 1,000 Hz | Roll/Pitch/Heading up to 200 Hz | Heave/Surge/Sway up to 50 Hz

## Features

Auto-adaptive heave | RS232, RS422, CAN, USB, Ethernet | -40 to 85 °C temperature range | Survey software compatible | Low power consumption | IP68 enclosures | Web interface (Ekinox and Apogee Series only) | Advanced Kalman filtering



# Technical Specifications

## SIRI MRU-A

*MRU with internal magnetic compass*

Roll/Pitch	0.1°
Heading	0.8° (magnetic compass based)
Heave (real-time)	5cm or 5%
	0 – 15s heave period (auto adjusting)
Random walk	57 $\mu\text{g}/\sqrt{\text{Hz}}$ (accel), 0.15 °/ $\sqrt{\text{hr}}$ (gyro)
Bias in-run stability	14 $\mu\text{g}$ (accel), 7 °/hr (gyro)
Enclosure	Standard, rugged, subsea (100m), Atex

## SBG ELLIPSE-D

*MRU with internal dual GNSS receivers*

Roll/Pitch	0.1°
Heading	0.2° (internal dual-antenna GNSS based)
	0.05° (post-processing)
Heave (real-time)	5cm or 5%
	0 – 15s heave period (auto adjusting)
Enclosure	Standard

## SIRI MRU-E

*MRU with external GNSS input*

Roll/Pitch	0.1°
Heading	0.5° (external GNSS based)
Heave (real-time)	5cm or 5%
	0 – 15s heave period (auto adjusting)
Random walk	57 $\mu\text{g}/\sqrt{\text{Hz}}$ (accel), 0.15 °/ $\sqrt{\text{hr}}$ (gyro)
Bias in-run stability	14 $\mu\text{g}$ (accel), 7 °/hr (gyro)
Enclosure	Standard

## SBG EKINOX SERIES

*Tactical grade MRU/AHRS/INS*

Roll/Pitch	Up to 0.02° when using RTK aiding
Heading	0.05° (dual-antenna GNSS based)
Heave (real-time)	5cm or 5%
	0 – 20s heave period (auto adjusting)
Heave (delayed)	2.5cm or 2.5% (450s delay)
	0 – 40s heave period
Random walk	7 $\mu\text{g}/\sqrt{\text{Hz}}$ (accel), 0.14 °/ $\sqrt{\text{hr}}$ (gyro)
Bias in-run stability	2 $\mu\text{g}$ (accel), < 0.5 °/hr (gyro)
Enclosure	Standard, subsea (up to 6,000m)

## SIRI MRU-N

*MRU with internal GNSS receiver*

Roll/Pitch	0.1°
Heading	0.5° (internal GNSS based)
Heave (real-time)	5cm or 5%
	0 – 15s heave period (auto adjusting)
Random walk	57 $\mu\text{g}/\sqrt{\text{Hz}}$ (accel), 0.15 °/ $\sqrt{\text{hr}}$ (gyro)
Bias in-run stability	14 $\mu\text{g}$ (accel), 7 °/hr (gyro)
Enclosure	Standard

## SBG APOGEE SERIES

*Ultimate accuracy MRU/AHRS/INS*

Roll/Pitch	Up to 0.008° when using RTK aiding
Heading	Up to 0.025° (dual-antenna GNSS based)
Heave (real-time)	5cm or 5%
	0 – 20s heave period (auto adjusting)
Heave (delayed)	2cm or 2% (450s delay)
	0 – 40s heave period
Random walk	< 15 $\mu\text{g}/\sqrt{\text{Hz}}$ (accel), < 0.012 °/ $\sqrt{\text{hr}}$ (gyro)
Bias in-run stability	< 2 $\mu\text{g}$ (accel), < 0.08 °/hr (gyro)
Enclosure	Standard, subsea (up to 6,000m)