



**Benefits**

- Precision position, heading, heave, pitch and roll in a single compact unit
- NEW All systems are fully GLONASS capable for position and heading seeding
- NEW Improved heading lock stabilisation
- Maximum performance and accuracy under conditions of poor GNSS reception
- Adherence to International Hydrographic Organization (IHO) survey standards
- F180 series directly supported in leading Hydrographic Survey applications
- Reduced Installation time
- Applicable for slow or non-moving platforms through use of Pre-Calibrated Housing
- Easy to use MOTION control software
- Highly competitive price
- Expert 24x7 Technical Support



# Accurate, reliable MOTION and positioning data in a compact package

**The F180® series of GNSS aided inertial attitude and positioning systems are high quality, robust packages for the marine hydrographic and laser survey market.**

Defined to meet the exacting requirements of the multibeam survey market, the F180® series systems are easy to install, easy to use and produce very accurate positioning, heading and MOTION data in the most dynamic offshore conditions.

The light, yet robust equipment has proved to be a reliable and cost effective solution on marine survey vessels of all sizes.

All systems are GPS enabled. GLONASS capability can be added for improved constellation coverage and heading lock stabilisation.

MOTION Control software provides configuration, control and processing functionality including iHeave (Intelligent Heave) processing to measure swell amplitudes with up to a 70 second period.

Additionally, for extremely rapid vessel deployments, a Pre-Calibrated housing accessory is available to significantly reduce the installation and calibration phases of operation.

**Features**

- Survey grade GNSS, gyro, attitude and heave sensor in one box
- High accuracy position, heading, heave, pitch and roll at up to 100Hz
- Tightly integrated GNSS and inertial components result in increased accuracy and reduced setting times when compared to outputs from separate sensors
- Enhanced performance under conditions of poor GNSS reception
- Compatible with HYPACK, QINSy, CARIS and other navigation packages
- Industry standard formats and interfaces
- iHeave (intelligent heave processing) available as standard for improved heave accuracy
- Intuitive MOTION Control software included as standard
- Optional INSight software allows for generation of post processed solution

**Applications**

- Hydrographic survey
- Bridge, dam, harbour inspection
- Dredging
- Offshore renewable energy
- Environmental survey
- Shipping channel survey
- Marine laser scan survey





### F180<sup>®</sup> series systems

F180	Entry level L1 system with DGPS capability (30cm positional accuracy) and SBAS (0.8m positional accuracy). RTK 0.2 m post-processing available with INSight product.
F185	As F180 <sup>®</sup> with addition of dual-frequency GPS on primary receiver to allow a maximum positional accuracy of 1cm with RTK corrections.
F185+	As F185 with addition of dual-frequency GPS on secondary receiver for faster heading lock.
F190	As F185 with addition of Atlas™ Global Correction Service via AtlasLink™ GNSS Smart Antenna. (L-Band)
F190+	As F185+ with addition of Atlas™ Global Correction Service via AtlasLink™ GNSS Smart Antenna. (L-Band)

Upgrades available between models at any time. Upgrades are available to F180R series Remote IMU system – see separate data sheet. Pre-calibrated housing upgrades can be applied to any model. GLONASS upgrades are available on all systems for improved constellation coverage and heading lock stabilisation.

### Dynamic Performance

Positional Accuracy (RMS)	0.01m with L1/L2 RTK correction (F185/F185+/F190/F190+) 0.04m with Atlas™ Global Correction Service (F190/F190+) 0.30m with DGPS correction (all models) 0.80m with SBAS correction (all models) 1.20m no correction (all models)
Roll and Pitch (1σ)	0.025°
True Heading (1σ)	0.05° (2m baseline) 0.025° (4m baseline)
Heave (1σ)	5cm or 5% (on-line) 3.5cm or 3.5% (iHeave)
Velocity (1σ)	0.014 m/s

### Physical

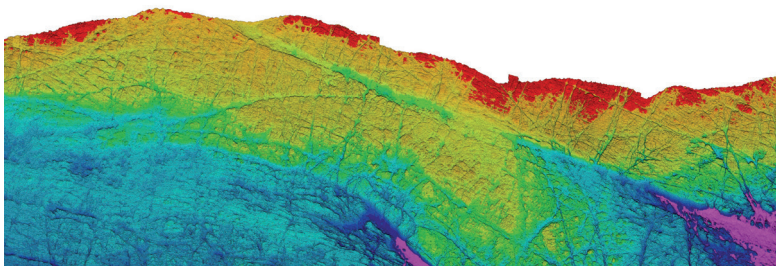
Dimensions	120x234x80mm (4.73 x 9.2 x 3.15")
Weight	2.5kg (5.5 lb)
Power	9-18Vdc, 25 watts (110-240Vac adapter supplied)
Antenna Cables	15m standard (30m optional)
Operating Temperature	-10 to 60°C
Humidity	Splash proof
Vibration	0.1g <sup>2</sup> /Hz, 5-500 Hz

### Interfaces

Ethernet 100MBit	Full control and configuration, high speed data output (MCOM) with direct output to QINSy and HYPACK
Serial Port 1	User configurable for position, heading and attitude strings. Choose from: TSS1, TSSHHRP, EM1000, EM3000, MCOM, GGA, GKG, GST, HDT, PASHR, PRDID, RMC, ROT, VTG, UTC, ZDA
Serial Port 2	As Serial Port 1
Serial Port3	Correction input (DGPS, RTK) Formats: RTCM 2.1/2.2/2.3/3.0/3.1; CMR; CMR+
Other	1 PPS on BNC

### PC System Requirements

Operating System	Windows® 8.1 / 10 both 32 and 64-bit
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Beautiful rocky coastline off the west coast of Scotland. Data collected using an F185R+ and an R2Sonic 2024. This data was acquired in very challenging conditions - a sea state 4 with typical swell of 4.0m with up to +/- 16 degrees of pitch and roll. The extremely accurate performance of the F185R+ meant no editing of MBES data required. Image courtesy of Aspect Land & Hydrographic Surveys.



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