



# Coda Octopus:MOTION

Precision Attitude & Positioning

/F180® series

Lower Price for 2013



## Benefits

Precision position, roll, pitch, heading and heave in a single compact unit

Maximum accuracy under all conditions

Continuous output during GNSS dropouts

Adherence to International Hydrographic Organization (IHO) survey standards

Reduced installation time

Easy to use

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, compact packages for the hydrographic survey market.**

Refined to meet the exacting requirements of the multibeam survey market, the F180® series systems are easy to install, easy to use and produce highly 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.

iHeave™ (Intelligent Heave) processing is included as standard to accurately measure swell amplitudes of up to 70 seconds period.

A GLONASS upgrade is available to allow your F180® series system to utilise additional satellites, especially useful in areas where the sky view is partially obscured.

Additionally, for extremely rapid vessel deployments, we produce a Pre-Calibrated housing accessory 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 settling times when compared to outputs from separate sensors
- Continuous output during GNSS dropouts
- Compatible with HYPACK®, QINSy and other navigation packages
- Standard formats and interfaces
- iHeave™ (intelligent heave processing) available as standard for improved heave accuracy
- Intuitive MOTION Control software included as standard
- Optional upgrade to GLONASS or Pre-calibrated housing
- 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



**Coda Octopus**

Sound Underwater Intelligence

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## F180<sup>®</sup> series Systems

F180-LT <sup>™</sup>	Entry level system with L1, DGPS, WAAS and EGNOS to allow maximum 60cm positional accuracy
F180 <sup>®</sup>	As F180-LT <sup>™</sup> but with RTK on primary antenna to allow maximum positional accuracy of 20cm
F185 <sup>™</sup>	As F180 <sup>®</sup> but with L1 and L2 on primary antenna to allow maximum positional accuracy of 1cm
F185+ <sup>™</sup>	As F185 <sup>™</sup> but with L1 and L2 on both antennas for rapid heading initialisation
F190 <sup>™</sup>	As F185 <sup>™</sup> but with integrated Marinestar receiver providing global corrections of 10cm where 1cm RTK is not available
F190+ <sup>™</sup>	As F190 <sup>™</sup> but with L1 and L2 on both antennas for rapid heading initialisation

Upgrades are available between models at any time. Upgrades are available to F180R<sup>™</sup> series Remote IMU system – see separate data sheet. GLONASS and Pre-calibrated housing upgrades can be applied to any model.

## Dynamic Performance

Positional Accuracy (CEP)	0.01m with L1/L2 RTK correction (F185 <sup>™</sup> /F185+ <sup>™</sup> /F190 <sup>™</sup> /F190+ <sup>™</sup> )
	0.10m with Marinestar subscription (F190 <sup>™</sup> /F190+ <sup>™</sup> )
	0.20m with L1 RTK correction (F180 <sup>®</sup> )
	0.40m with DGPS correction (all models)
	0.60m with SBAS correction (all models)
	1.50m no correction (all models)
Roll and Pitch (1 $\sigma$ )	0.025 °
True Heading (1 $\sigma$ )	0.05 (2m baseline)
	0.025 (4m baseline)
Heave (1 $\sigma$ )	5cm or 5% (on-line)
	3.5cm or 3.5% (iHeave <sup>™</sup> )
Velocity (1 $\sigma$ )	0.014 m/s

## Physical

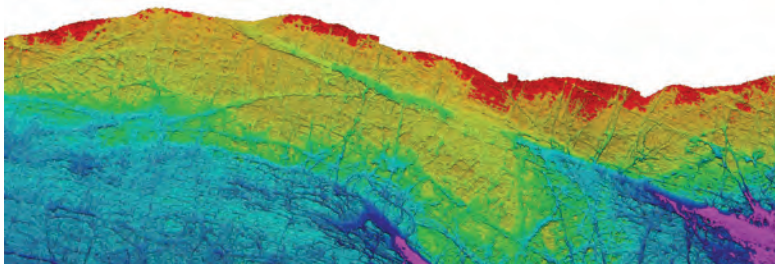
Dimensions	120x234x80mm (4.73 x 9.2 x 3.15")
Weight	2.5kg (5.5 lb)
Power	9-18Vdc, 25 watts (110-240Vac adapter supplied)
Antenna Cables	15m standard (30m optional)
Operating Temperature	-10 to 60°C
Humidity	Splash proof
Vibration	0.1g <sup>2</sup> /Hz, 5-500 Hz

## Interfaces

Ethernet 100MBit	Full control and configuration, high speed data output (MCOM) with direct output to QINSy and HYPACK <sup>®</sup>
Serial Port 1	User configurable for position, heading and attitude strings. Choose from: TSS1, TSSHHRP, EM1000, EM3000, MCOM, GGA, GGK, 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 <sup>®</sup> 8 / 7 / Vista / XP SP2 both 32 and 64 bit
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Beautiful rocky coastline off the west coast of Scotland. Data collected using an F185R+<sup>™</sup> 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+<sup>™</sup> meant no editing of MBES data required. Image courtesy of Aspect Land & Hydrographic Surveys.



F180<sup>®</sup> (Reg, Us Pat & TM off), F180-LT<sup>™</sup>, F185<sup>™</sup>, F185+<sup>™</sup>, F190<sup>™</sup>, F190+<sup>™</sup>, iHeave<sup>™</sup> & INSight<sup>™</sup> are trademarks of CodaOctopus. HYPACK<sup>®</sup> is a registered trademark of HYPACK, Inc. Windows<sup>®</sup> is a registered trademark of Microsoft<sup>®</sup>

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