Coda Octopus:MOTION
Precision Attitude & Positioning

/F285

Benefits

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

All systems are GPS, GLONASS, and BeiDou capable for position and heading seeding

Improved heading lock stabilization

Built-in NTRIP Client

Maximum performance and accuracy under conditions of poor GNSS reception

Adherence to International Hydrographic Organization (IHO) survey standards
F280 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 Web Interface

Highly Competitive Price

Expert 24x7 Technical Support

Waterproof housing rated to IP67 standards

Accurate, reliable MOTION and positioning data in a compact ruggedized IP67 Rated Housing

The F285 GNSS-aided (inertial) attitude and positioning systems are high quality, robust packages for the marine hydrographic and laser survey market. This new generation of GNSS-Aided INS systems embeds high accuracy components (accelerometers and gyros) and smart algorithms.

Defined to meet the exacting requirements of the multibeam survey market, the F285 systems are easy to install, easy to use and produce very accurate positioning, heading and MOTION data in the most dynamic offshore conditions.

Includes built-in NTRIP Client that allows receiving GNSS RTK quality GNSS Corrections over the internet without need of any PC. F280 Series® must be connected to Ethernet network with Internet access and a separate NTRIP subscription.

The light yet rugged F285 is a reliable and cost-effective solution on marine survey vessels of all sizes. All systems are GPS, GLONASS, and BeiDou enabled to improve constellation coverage and heading lock stabilization.

Easy-to-use web interface provides configuration, control and processing functionality including iHeave (intelligent heave).

In addition to real-time heave measurement and output, the F285 now directly computes and outputs our long-standing and proven iHeave (intelligent Heave) solution without the need for top-side processing or software. iHeave is a tailored solution specifically for long period ocean swell compensation and is fully integrated with the F285 Precision Attitude and Positioning Systems. In many parts of the world, hydrographic survey is severely affected by low frequency ocean swells often up to 70 seconds long, resulting in distortions in bathymetric measurements. Conventional techniques for real-time heave measurement can only offer limited accuracy and are insensitive to ocean swells exceeding 10 to 20 seconds. The inbuilt iHeave algorithm analyzes the raw motion data and allows a more accurate determination of the real heave motion experienced by a vessel, and enables the output of precise heave values for all ocean swells.

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, attitude and heave sensor in one box
- High accuracy position, heading, heave, pitch and roll at up to 100 Hz
- Multi-GNSS support (GPS, GLONASS, BeiDou, GALILEO, QZSS)
- Built-in NTRIP Client capable of receiving GNSS Corrections over Internet
- Connectivity to multiple sensors simultaneously over Ethernet and Serial
- Multiple lever arms to support precise INS positioning for multiple platform locations or sensors
- Explicit vessel Centre of Gravity (COG) support for improved heave accuracy
- Rapid Heading initialization (Under 30 secs typically)
- Web based setup and monitoring - ability to store multiple different profiles and recall these instantly - ideal for survey teams with multiple vessels
- 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

Applications

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

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F285	The F285 is a Multi Frequency multi GNSS system with RTK, DGPS and SBAS GNSS corrections capabilities (1cm positional accuracy). Higher accuracy models also available. All systems are GPS, GLONASS, and BeiDou capable for position and heading seeding

Models within F280 Series® are field-upgradable. Pre-calibrated housing upgrades can be applied to any model.

Dynamic Positioning

Positional Accuracy (RMS)	0.008m + 1ppm with L1/L2 RTK Correction 0.30m with DGPS correction 0.30m with SBAS correction 1.20m no correction
Roll and Pitch (1σ)	0.02°
True Heading (1σ)	0.04° (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	127mm x 155mm x 113mm (5in x 6.1in x 4.4in)
Weight	2.2kg (4.9 lbs)
Power	9-36Vdc, 15 Watts (110-240Vac adapter supplied)
Power and Data Cable	5m standard, or 20m, or 50m optional (16.40ft standard, or 65.62ft or 164.04ft optional)
Antennas	Multi-Frequency, Multi-GNSS, SBAS and Atlas corrections capable
Antenna Cables	15m (49.2ft) standard 30m (98.4ft) optional
Operating Temperature	-10° to 60° C (14° to 140°F)
Waterproof	IP67 Rated Maximum depth of 1 meter up to 30 minutes. When Power and Antenna connectors are mated
Vibration	$0.1g^2$/Hz, 5-500 Hz

Interfaces

Ethernet 100Mbit	Full control and configuration, high speed data output (COMPAC), NTRIP corrections
Serial Port 1	User-configurable for position, heading and attitude strings. Choose from: TSS1, TSSHHRP, EM1000, EM3000, COMPAC, GGA, GSA, GST, GSV, GGK, HDT, PASHR, PRDID, PTCF, RMC, ROT, VTG, UTC, ZDA, PPS and SPD.
Serial Port 2 & 3	As Serial Port 1
GNSS Correction Port	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

Web Interface	Compatible with all major browsers

Coda Octopus
Sound Underwater Intelligence

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