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

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
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.

**F180® series Systems**

**F180-LTM** Entry level system with L1, DGPS, WAAS and EGNOS to allow maximum 60cm positional accuracy

**F180™** As F180-LTM but with RTK on primary antenna to allow maximum positional accuracy of 20cm

**F185™** As F180™ but with L1 and L2 on primary antenna to allow maximum positional accuracy of 1cm

**F185+™** As F185™ but with L1 and L2 on both antennas for rapid heading initialisation

**F190™** As F185™ but with integrated Marinestar receiver providing global corrections of 10cm where 1cm RTK is not available

**F190+™** As F180™ but with L1 and L2 on both antennas for rapid heading initialisation

Upgrades are available between models at any time. Upgrades are available to F180RTM series Remote IMU system – see separate data sheet. GLONASS and Pre-calibrated housing upgrades can be applied to any model.

**Dynamic Performance**

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

**Physical**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
<th>Power</th>
<th>Antenna Cables</th>
<th>Operating Temperature</th>
<th>Humidity</th>
<th>Vibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>120x234x80mm</td>
<td>2.5kg (5.5 lb)</td>
<td>9-18Vdc, 25 watts (110-240V ac adapter supplied)</td>
<td>15m standard (30m optional)</td>
<td>-10 to 60°C</td>
<td>Splash proof</td>
<td>0.1g/Hz, 5-500 Hz</td>
</tr>
</tbody>
</table>

**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, TSSHHHRP, EM1000, EM3000, MCOM, GGA, GGK, GST, HDT, PASHR, PRDID, RMC, ROT, VTG, UTC, ZDA
- Serial Port 2: As Serial Port 1
- Serial Port 3: 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 / 7 / Vista / XP SP2 both 32 and 64 bit

The information in this publication was correct when it was published but specifications may change without notice. Photos are included for illustrative purposes only and actual items may differ in appearance. Coda Octopus does not assume responsibility for typographical or photographic errors. Issue 1 (03-13). Sales: +44 131 553 1380 | Sales Americas: +1 888 340 2627 | Technical Support Americas: +1 888 340 2632 | Technical Support: +44 131 553 7003 | More Information: sales@codaoctopus.com | www.codaoctopus.com