Coda Octopus
Sound Underwater Intelligence

# /F180R series


## Benefits

Precision position, heading, heave, pitch and roll in a remote subsea housing unit

Allows the motion and position to be measured at the sonar head

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

F180R™ series directly supported in leading Hydrographic Survey applications

Reduced Installation time

Easy to use MOTION control software

Highly competitive price

Expert 24x7 Technical Support

# Accurate, reliable MOTION and positioning data at sonar head

**The F180R™ series of GNSS aided inertial attitude and positioning systems are high quality, robust packages for the marine hydrographic and laser survey market.**

Housed in a waterproof pod, the remote IMU can be mounted exactly at the point of measurement interest, for example a multibeam transducer head.

Defined to meet the exacting requirements of the multibeam survey market, the F180R™ 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.

## Features

- Waterproof housing for the Inertial Measurement Unit - measure the motion and position at the multibeam head
- Survey grade GNSS, gyro, attitude and heave sensor in a tightly integrated solution
- 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
- 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

## Applications

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

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## F180R Series systems

| | |
|---|---|
| F180R | Entry level L1 system with DGPS capability (30cm positional accuracy) and SBAS (0.8m positional accuracy). |
| F185R | As F180R with addition of dual-frequency GPS on primary receiver to allow a maximum positional accuracy of 1cm with RTK corrections. |
| F185R+ | As F185R with addition of dual-frequency GPS on secondary receiver for faster heading lock. |
| F190R | As F185R with addition of Atlas™ Global Correction Service via AtlasLink™ GNSS Smart Antenna. (L-Band) |
| F190R+ | As F185R+ with addition of Atlas™ Global Correction Service via AtlasLink™ GNSS Smart Antenna. (L-Band) |

Upgrades available between models at any time. 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 (F185R™/F185R+™/F190R™/F190R+™)<br>0.04m with Atlas™ Global Correction Service (F190R™/F190R+™)<br>0.30m with DGPS correction (all models)<br>0.80m with SBAS correction (all models)<br>1.20m no correction (all models) |
| Roll and Pitch (1σ) | 0.025° |
| True Heading (1σ) | 0.05° (2m baseline)<br>0.025° (4m baseline) |
| Heave (1σ) | 5cm or 5% (on-line)<br>3.5cm or 3.5% (iHeave) |
| Velocity (1σ) | 0.014 m/s |

## Physical

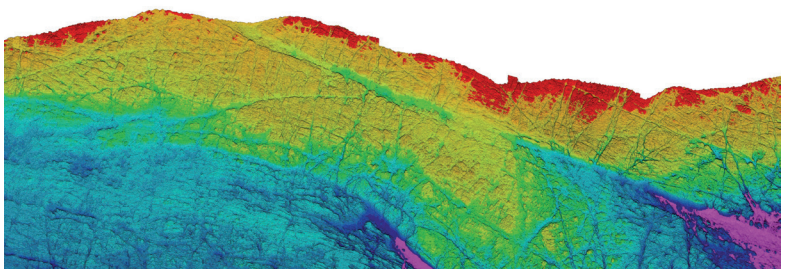
| | |
|---|---|
| Pod Dimensions | 120mm (4.72") diameter<br>180mm (7.09") length |
| Pod Weight | 6.7kg (14.8 lb) |
| Pod Material | Stainless Steel |
| Processor Dimensions | 120x234x80mm<br>(4.73 x 9.20 x 3.15") |
| Wet Cable Length | 15m (50 feet) |
| Connector | Burton multi-pin waterproof |
| Power | 9-18Vdc, 25 watts<br>(110-240Vac adapter supplied) |
| Antenna Cables | 15m standard (30m optional) |
| Operating Temperature | -10 to 60°C |
| Humidity | Splash proof |
| Vibration | $0.1g^2$/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, 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® 8.1 / 10 both 32 and 64-bit |



*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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