



F180 Attitude and Positioning System

Precise, reliable, dynamic attitude and positioning for the marine environment

The Octopus F180 provides the user with highly accurate and reliable motion and position data, in a cost-effective solution that benefits from minimal export restrictions worldwide.

Delivering precise heave, roll, pitch, heading and positioning information in real time, it is a simple, easy-to-use 'plug and play' package.

The F180 is available in flexible 'wet pod', 'one box' or OEM configurations, depending upon your application.

Originally developed for the high-speed world of motor racing, the proven technology in the F180 has been modified and enhanced to produce a commercial-off-the-shelf product that is designed for the most dynamic offshore conditions and any precision marine survey application.

TRIED AND TESTED PERFORMANCE

The F180's performance has been documented and the system tried and tested by leading multibeam manufacturers and survey contractors who require reliable and accurate measurements for their marine survey requirements. The F180 is designed to meet and exceed the demands of IHO (International Hydrographic Organisation) Special Order requirements.

HEAVE ERROR REDUCTION

The F180 has the optional ability to output processed heave in near real-time allowing compensation of heave errors from very long swell periods. To allow easy installation, the outputs of the F180 can be mapped to a remote position (e.g. transducer mounting) to give accurate heave, attitude, position and heading at the critical location.

NOISE FREE, ACCURATE AND RELIABLE

The F180 uses an advanced 23-state Kalman filter to combine the best qualities of Inertial Navigation Systems (INS) with those of GPS to give noise free, accurate and reliable measurements even during short GPS dropouts. This is very important in high multipath conditions or in survey areas such as ports and harbours, riverbanks, near-shore coastal waters and around offshore structures.



FEATURES

- High accuracy GPS aided inertial navigation system
- Compatible with all leading multibeam sonars
- Plug and play with automatic alignment routine
- Sub 5 minute initialisation
- Zero data degradation and zero drift in all survey dynamics
- Available as one-box 2.5kg, wet pod or OEM package
- Remote location (lever-arm) output of heave, attitude, position and heading
- Optional processed heave output for long swell periods
- Unique WGS84 intelligent strap down navigation module
- Accepts RTK and differential corrections as standard
- Standard data o/p formats
- Flexible ownership plans

BENEFITS

- Easy to export worldwide – minimal restrictions
- Precise and reliable dynamic, attitude, heading and position
- Replaces standalone motion sensor, marine gyrocompass and GPS
- Lower cost of ownership
- Simple to operate – no precision alignment necessary
- Less weather down-time
- Greater survey productivity
- Premier 24/7 worldwide technical support



F180 Attitude and Positioning System

Precise, reliable, dynamic attitude and positioning for the marine environment

TECHNICAL SPECIFICATION

PERFORMANCE	RTK	DGPS
Position (m CEP)	0.02	0.5 – 4.0
Velocity (minus 1)	0.03	0.03
Roll and pitch	<0.025°	<0.025°
True heading	1m baseline – 0.1° 2m baseline – 0.05° 4m baseline – 0.025° Heave 5% of heave amplitude or 5 cm	1m baseline – 0.1° 2m baseline – 0.05° 4m baseline – 0.025° 5% of heave amplitude or 5 cm
PHYSICAL		
Weight	F180 one-box solution Remote / wet pod IMU Surface interface	2.5kg 2.2kg 3.0kg
Power	F180 one-box solution Remote / wet pod IMU Surface interface	9 – 18Vdc, 25 Watts 110 – 240 Vac, 60 Watts max
Temperature	IMU Antennas Surface rack	-10 to 60°C -40 to 60°C 0 to 60°C
Humidity	IMU (single box and wet pod) Antennas	100% 100%
Vibration	Surface rack F180 one-box solution and remote / wet pod IMU	5 to 95% RH none condensing 0.1g ² /Hz 5–500 Hz
Cables	F180 one-box solution Remote / wet pod IMU to surface Antenna	5m standard power, serial and ethernet ethernet combined 25m standard, others to order 15m / 30m standard, others to order
INTERFACES		
	Function	Output
Ethernet Interface (100base-T)	Control, set-up and diagnosis of F180 using F180 windows application software.	High data rate output packet (100 Hz) for high speed interfacing. Outputs include, position, attitude, heading, velocity, track, speed, acceleration, status, performance and raw data.
Serial 1	Attitude data	TSS1, Simrad EM3000 and other standard attitude strings. RS232 (DB9) up to 100Hz at 115k baud.
Serial 2	NMEA position data	GGA position, HDT heading. RS232 (DB9) up to 115k baud
Serial 3	RTK/Differential correction input	RS232 (DB9) up to 115k baud
Other	1 PPS	
Optional	Up to 4 additional serial outputs and format types analogue heave pitch and roll outputs	
Software	Windows application allowing real time display of all output parameters and status messages. Allows reconfiguration of key variables including o/p formats and antenna baselines etc.	

Note: Dynamic Positioning Services reserve the right to amend this specification without prior notice.