

# POS MV™

## OCEANMASTER SPECIFICATIONS

### MAXIMIZE YOUR ROI WITH POS MV OCEANMASTER

POS MV OceanMaster is a user-friendly, turnkey system designed and built to provide accurate attitude, heading, heave, position, and velocity data of your marine vessel and onboard sensors. POS MV is proven in all conditions, and is the georeferencing and motion compensation solution of choice for the hydrographic professional.

POS MV blends GNSS data with angular rate and acceleration data from an IMU and heading from the GPS Azimuth Measurement System (GAMS) to produce a robust and accurate full six degrees-of-freedom position and orientation solution.



#### PERFORMANCE SUMMARY - POS MV OCEANMASTER ACCURACY<sup>1</sup>

|                              | DGPS   | Fugro<br>Marinestar®                            | IARTK  | POSPac MMS<br>PPP                                  | POSPac MMS<br>IAPPK   | Accuracy During<br>GNSS Outage (60<br>s total)                  |
|------------------------------|--|---|--|--|---|---|
| Position                     | 0.5 - 2 m <sup>2</sup>                             | Horizontal: 10 cm<br>95%<br>Vertical: 15 cm 95% | Horizontal: +/- (8 mm<br>+ 1 ppm x baseline<br>length) <sup>3</sup><br>Vertical: +/- (15 mm + 1<br>ppm x baseline length) <sup>3</sup> | Horizontal: <<br>0.1 m<br>Vertical: < 0.2 m        | Horizontal: +/- (8 mm + 1<br>ppm x baseline length) <sup>3</sup><br>Vertical: +/- (15 mm + 1<br>ppm x baseline length) <sup>3</sup> | ~ 6 m (DGPS)<br>~ 3 m (RTK)<br>~ 2 m (PPDGNSS)<br>~ 1 m (IAPPK) |
| Roll &<br>Pitch <sup>4</sup> | 0.02°  | 0.01°   | 0.01°  | <0.01°   | 0.008°  | 0.03°   |
| Heading <sup>4</sup>         | 0.01° (4 m<br>baseline)<br>0.02° (2 m<br>baseline) | 0.01° (4 m baseline)<br>0.02° (2 m baseline)    | 0.01° (4 m baseline)<br>0.02° (2 m baseline)   | 0.01° (4 m<br>baseline)<br>0.02° (2 m<br>baseline) | 0.01° (4 m baseline)<br>0.02° (2 m baseline)  | 1° per hour degrada-<br>tion (negligible for<br>outages <60 s)  |

#### PCS OPTIONS

| COMPONENT                | DIMENSIONS                     | WEIGHT | TEMPERATURE      | HUMIDITY    | POWER                                  |
|--------------------------|--------------------------------|--------|------------------|-------------|--|
| Rack Mount PCS           | L = 442mm, W = 356mm, H = 46mm | 3.9 kg | -20 °C to +70 °C | 10 - 80% RH | AC 120/230 V, 50/60 Hz, auto-switching |
| Small Form Factor<br>PCS | L = 167mm, W = 185mm, H = 68mm | 2.5 kg | -20 °C to +60 °C | 0- 100% RH  | DC 10-34 V, 35 W (peak)                |

#### INERTIAL MEASUREMENT UNIT (IMU)

| ENCLOSURE     | DIMENSIONS   | WEIGHT | TEMPERATURE      | IP RATING |
|---------------|--|--------|------------------|-----------|
| Between Decks | L = 158 mm, W = 158 mm, H = 124 mm                 | 2.5 kg | -40 °C to +60 °C | IP65      |
| Between Decks | L = 150 mm, W = 130 mm, H = 148 mm                 | 2.8 kg | -40 °C to +60 °C | IP65      |
| Submersible   | Ø172 mm X 206 mm (base plate Ø209 mm)              | 3.9 kg | -40 °C to +60 °C | IP68      |
| Submersible   | Ø100 mm X 104 mm <sup>7</sup> (base plate Ø132 mm) | 2.7 kg | -40 °C to +60 °C | IP68      |

#### GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)

| COMPONENT    | DIMENSIONS         | WEIGHT  | TEMPERATURE      | HUMIDITY  |
|--------------|--------------------|---------|------------------|-----------|
| GNSS Antenna | Ø178 mm, W = 73 mm | 0.45 kg | -50 °C to +70 °C | 0-100% RH |

<sup>1</sup> 1 sigma unless otherwise stated

<sup>2</sup> Depending on quality of differential corrections

<sup>3</sup> Assumes 1 m IMU-GNSS antenna offset

<sup>4</sup> No range limit

<sup>5</sup> Whichever is greater, for periods of 20 seconds or less

## 1. ETHERNET INPUT OUTPUT

|                |  |
|----------------|--|
| Ethernet       | (10/100 base-T)  |
| Parameters     | Time tag, status, position, attitude, heave, velocity, track and speed, dynamics, performance metrics, raw IMU data, raw GNSS data |
| Display Port   | Low rate (1 Hz) UDP protocol output  |
| Control Port   | TCP/IP input for system commands   |
| Primary Port   | Real-time (up to 200 Hz) UDP protocol output   |
| Secondary Port | Buffered TCP/IP protocol output for data logging to external device  |

## 2. SERIAL RS232 INPUT OUTPUT

|             |  |
|-------------|--|
| 5 COM Ports | User assignable to: NMEA output (0-5), Binary output (0-5), Auxiliary GNSS input (0-2), Base GNSS correction input (0-2) |
|-------------|--|

## 3. NMEA ASCII OUTPUT

|               |   |
|---------------|---|
| Parameters    | NMEA Standard ASCII messages: Position (\$INGGA), Heading (\$INHDT), Track and Speed (\$INVTG), Statistics (\$INGST), Attitude (\$PASHR, \$PRDID), Time and Date (\$INZDA, \$UTC) |
| Rate          | Up to 50 Hz (user selectable)   |
| Configuration | Output selections and rate individually configurable on each assigned com port  |

## 4. HIGH RATE ATTITUDE OUTPUT

|               |  |
|---------------|--|
| Parameters    | User selectable binary messages: attitude, heading, speed                      |
| Rate          | Up to 200 Hz (user selectable)   |
| Configuration | Output selections and rate individually configurable on each assigned com port |

## 5. AUXILIARY GNSS INPUTS

|            |  |
|------------|--|
| Parameters | NMEA Standard ASCII messages: \$GPGGA, \$GPGST, \$GPGSA, \$GPGSV<br>Uses Aux input with best quality |
| Rate       | 1 Hz   |

## 6. BASE GNSS CORRECTION INPUTS

|            |  |
|------------|--|
| Parameters | RTCM V2.x, RTCM V3.x, CMR and CMR+, CMRx input formats accepted. Combined with raw GNSS observables in navigation solution |
| Rate       | 1 Hz   |

## 7. DIGITAL I/O

|                 |  |
|-----------------|--|
| 1PPS            | 1 pulse-per-second Time Sync output, normally high, active low pulse                             |
| Event Input (2) | Time mark of external events. TTL pulses > 1 msec width, rising or falling edge, max rate 200 Hz |

## 8. USER SUPPLIED EQUIPMENT

- PC for POSView Software (Required for configuration): Pentium 90 processor (minimum), 16 MB RAM, 1 MB free disk space, Ethernet adapter (RJ45 100 base T), Windows 98/2000/NT/XP/Windows 7
- PC for POSpac MMS Post-processing Software: Pentium III 800Mhz or equivalent (minimum), 512 MB RAM, 400 MB free disk space, USB Port (For Security Key), Windows XP or Windows 7

Scan the QR Code on your mobile device to access information on POS MV



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