DATASHEET

Applanix POS MV

SurfMaster One

Maximize your ROI with Applanix® POS MV SurfMaster One. SurfMaster One 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.

Applanix POS MV is proven in all conditions, and is the georeferencing and motion compensation solution of choice for the hydrographic professional.

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

Key Features

- Up to 0.03° roll and pitch performance
- IN-Fusion™ 2.0 ensures optimal GNSS aiding for any given conditions
- TrueHeave™ - no requirement to tune filter for specific conditions, no settling time so no run in time
- High accuracy inertial measurement units featuring SmartCal™
- Data time tagged to microsecond accuracy

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PERFORMANCE SUMMARY (APPLANIX POS MV SURFMASTER ONE ACCURACY[1])							
	DGNSS	FUGRO MARINESTAR®	IARTK	POSPac™ MMS PPP	POSPac MMS IAPPK	ACCURACY FOLLOWING GNSS OUTAGE	CENTERPOINT® RTX MARINE[7]
Position	0.5 - 2 m[2]	Horizontal: 10 cm 95% Vertical: 15 cm 95%	Horizontal: +/- (8 mm + 1 ppm x baseline length)[3] Vertical: +/- (15 mm + 1 ppm x baseline length)[3]	Horizontal: < 0.1 m Vertical: < 0.2 m	Horizontal: +/- (8 mm + 1 ppm x baseline length)[3] Vertical: +/- (15 mm + 1 ppm x baseline length)[3]	~ 6 m for 30 s total outages (RTK) ~ 3 m for 60 s total outages (IAPPK)	Horizontal: 2 cm rms Vertical: 5 cm rms
Roll & Pitch[4]	0.04°	0.03°	0.03°	< 0.03°	0.025°	0.05°	0.03°
Heading[4]	0.06° with 4 m baseline 0.08° with 2 m baseline	0.06° with 4 m baseline 0.08° with 2 m baseline	0.06° with 4 m baseline 0.08° with 2 m baseline	0.06° with 4 m baseline 0.08° with 2 m baseline	0.06° with 4 m baseline 0.08° with 2 m baseline	0.2° (IAPPK, 60 second outage) 0.3° (RTK, 60 second outage)	0.06° with 4 m baseline 0.08° with 2 m baseline
Heave TrueHeave	5 cm or 5%[5] 2 cm or 2%[6]	5 cm or 5%[5] 2 cm or 2%[6]	5 cm or 5%[5] 2 cm or 2%[6]	5 cm or 5%[5] 2 cm or 2%[6]	-	-	5 cm or 5%[5] 2 cm or 2%[6]

SYSTEM SPECIFICATIONS					
COMPONENT	DIMENSIONS	WEIGHT	TEMPERATURE	HUMIDITY	POWER
PCS/IMU enclosure	L = 145 mm, W = 160 mm, H = 66 mm	1.3 kg	20 °C to +55 °C	5 -95% RH	10-32 VDC, 17 W
GNSS antenna (540AP)	Ø178 mm, W = 73 mm	0.45 kg	-50 °C to +70 °C	0-100% RH	n/a
GNSS Antenna (GA830)	Ø149 mm, W = 99 mm	0.82 kg	-40 °C to +70 °C	0-100% RH	n/a

ETHERNET INPUT/OUTPUT

Ethernet ..... (10/100 base-T)
Parameters ..... Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU 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) TCP/IP protocol output
Secondary Port ..... Buffered TCP/IP protocol output for data logging to external device

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)

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

HIGH RATE ATTITUDE OUTPUT

Parameter ..... 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

AUXILIARY GNSS INPUTS

Parameter ..... NMEA Standard ASCII messages: $GPGGA, $GPGST, $GPGSA, $GPGSV ..... Uses Aux input with best quality
Rate ..... 1 Hz

BASE GNSS CORRECTION INPUTS

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

DIGITAL I/O

1PPS ..... 1 pulse-per-second Time Sync output, normally high, active low pulse

USER SUPPLIED EQUIPMENT

- PC for POSView™ Software (Required for configuration): Pentium 90 processor (minimum), 256 MB RAM, 2 GB free disk space, Ethernet adapter (10/100 Base-T Ethernet; IEEE 802.3 standard), Windows 7 SP1, Windows 7 Embedded, Windows 8, and Windows 10
- PC for POSPac MMS Post-processing Software: Intel Pentium series 1Ghz or faster 64-bit processor (minimum), 2GB RAM, 2.6 GB free disk space, USB Port (For Security Key), Windows 7 SP1, Windows 8.1, Windows 10

1 One sigma unless otherwise stated
2 Depending on quality of differential corrections
3 Assumes 1 m IMU-GNSS antenna offset
4 No range limit
5 Whichever is greater, for periods of 14 seconds or less
6 Whichever is greater, for periods of 35 seconds or less
7 Real time Trimble Centerpoint® RTX Correction Service. Typical results, subject to regional coverage.

Specifications subject to change without notice.

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