

FOG INERTIAL NAVIGATION SYSTEM

PolyNav 2000F/F1



The PolyNav 2000F/F1 is an ultra high-performance, GNSS aided inertial navigation system (INS) designed and built by PolyExplore. The system features dual frequency RTK with centimeter-level accuracy, a fiber optic gyro (FOG) based inertial sensor and a compact, robust design. The PolyNav 2000F/F1 provides superior performance during GNSS signal outages through its tightly coupled GNSS and INS systems. Furthermore, the system is capable of continuously generating highly accurate attitude measurement regardless of whether the platform is moving or static. It also includes a digital quadrature counter, an odometer, which can be used as a distance measurement instrument (DMI) to improve the performance in GNSS challenged environments. A heave message for the marine application is also included.

FEATURES

- Highly accurate position, velocity, acceleration, attitude (roll, pitch, heading), heave and angular rate
- GPS, GLONASS, Beidou, Galileo and SBAS
- Dual frequency (L1/L2) RTK
- Dual antenna for accurate heading
- 100 Hz navigation solution and raw IMU measurement output
- Accurate attitude measurement whether the platform is static or moving
- Fiber optic gyroscope (FOG)
- ROS driver ready
- Heave message

BENEFITS



NETWORK BASED RTK



FOG IMU



MULTI I/O INTERFACE



RUGGED



Visit www.polyexplore.com for more information.

High-Performance, Cost-Effective Navigation & Mapping Solutions.

PolyExplore Inc.

2210 O'Toole Ave, San Jose, CA 95131
contact@polyexplore.com

REV. 4.01

SYSTEM SPECIFICATIONS

FOG INERTIAL NAVIGATION SYSTEMS

PolyNav 2000F/F1

HARDWARE SPECIFICATIONS

Electrical	
Input Voltage	12 VDC
Power Consumption	10 W
Interface	Ethernet, CAN, 2 Serial Ports, Odometer
Environmental	
Operating Temperature	-40°C to 75°C
Mechanical	
Dimension	177 x 115 x 109 mm
Weight	1455 g

GNSS PERFORMANCE

Time to First Fix (TTFF)

Cold start: < 60 seconds

Warm Start: < 45 seconds

Hot Start: < 11 seconds

Signal re-acquisition: < 2 seconds

Velocity Accuracy

0.02 m/sec HRMS

Precise Positioning Performance (RTK fixed solution)

Accuracy (HRMS): < 8 mm + 1 ppm

Initialization time: < 1 min typical

Operating range: < 40 km

PolyNav 2000F/F1 CHARACTERISTICS

Constellation	GPS/GLONASS/Beidou/Galileo
Satellite signals	L1 & L2
Position accuracy	1.6 m CEP SPS, 0.02 m RTK
Velocity Accuracy	1 cm/s
Roll/Pitch	0.005°
Heading	0.01° (5 m base)
Measurement rate	100 Hz
Sensitivity	-160 dBm

INERTIAL SENSORS

PolyNav 2000F

Type	Gyros	Accelerometers
Dynamic Range	490 °/s	10 g
Bias Instability	0.05 °/h	15 µg
Random Walk	0.017 °/√h	0.02 m/s/√h

PolyNav 2000F1

Type	Gyros	Accelerometers
Dynamic Range	490 °/s	10 g
Bias Instability	0.05 °/h	15 µg
Random Walk	0.012 °/√h	0.02 m/s/√h



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