

## **ER-7660 FOG Inertial Navigation System**



ER-7660 FOG INS built-in total temperature  $0.3 \text{ }^\circ/\text{h}$  high-precision closed-loop fiber optic gyroscope,  $100 \text{ }\mu\text{g}$  high precision quartz accelerometer. It supports BD function mobile mapping level multi-mode multi-frequency GNSS receiver, which can realize dynamic rapid alignment or GNSS double antenna auxiliary fast high precision orientation, which can be up to  $0.1^\circ$ .

ER-7660 FOG INS support GNSS/odometer/DVL/barometric altitude meter and other external sensors. It has good scalability, by using multi-sensor data fusion technology combining inertial measurement and etc, it also can make the system has been greatly improve regional adaptability and robustness; Products with pure gyro drift free function independently. At the same time, it can be in the absence of any external auxiliary, which can realize the infinite time course hold, especially suitable for unmanned aerial vehicle (UAV), and other kinds of underwater vehicle unmanned aircraft navigation position.



To meet the mobile street, marine surveying, mapping surveying, mapping field application requirements, matching with original data storage, the level of surveying, mapping navigation post-processing software, users can match it according to requirements.

### **Product features**

Military device:

Good compatibility:

Surveying and mapping level GNSS receiver: built-in support beidou B1, B2, the highest support 3 mode frequency point 7

Compass function:

Both Drift Free compass function

Dynamic rapid alignment:

Support the rapid alignment: dynamic accuracy of  $0.1^\circ$ , 1~2 minutes (dynamic maneuvers required)

Double fast directional antenna:

Double satellite antenna auxiliary support low dynamic application environment fast orientation: accuracy of  $0.1^\circ$  (2 m baseline )

High bandwidth:

High bandwidth: 200 hz data update rate

Storage:

The support top 16 g data storage extension, navigation data/raw data/external user data is stored



Rich Interface:

Rich external interface: RS232 / RS422 / LAN/CAN/USB

Excellent extensibility:

Support for multiple external sensor combination (odometer/DVL/barometric altimeter, etc.)

Flexible configuration protocol:

Standard of NMEA0183 protocol output flexibility can match with up to 20 kinds of exclusive agreement

Waterproof and dustproof:

Waterproof and dustproof, protection grade IP67

Customizable options:

Interface, storage, precision grade

## **Application field**

### **Aerial mapping:**

Surveying and mapping | | Unmanned aerial vehicles (uav) | |  
Photoelectric detection stability

High dynamic range measurement bandwidth

Full scale fixed compensation (- 40 °C ~ 60 °C)

Precision vibration environment optimization

INS/GNSS integrated design

Built-in 16 g data storage



**Land-based areas:**

Used for: intelligent unmanned vehicles of surveying and mapping | | city  
high-speed railway track inspection directional | | land-based positioning |  
| vehicle satellite communication

Military-grade level of surveying

Mapping navigation post-processing function

High precision inertial measurement device

Precise UTC time synchronous

Ethernet/CAN interface

Support the car 12 v power supply

SFE multi-sensor fusion technology GNSS/odometer/RTK

**Sea field**

Hydrological measurement | | Channel detection | | Marine compass | |

Unmanned surface craft

Since 0.06 ° north seeking accuracy

Heave measurement accuracy

Supports up to 4 road shipboard equipment connected

IP67 degree of protection

Support the NMEA standard protocol

**Underwater areas**

Underwater vehicle

**Technical index**

<b>Real time precision</b>	
North seeking precision	0.05 ° (1σ) Dynamic alignment
	0.1 ° (1σ) Low dynamic dual antenna auxiliary baseline (2 m)
	0.5° (1σ) Auto north seeking (0.05 ° / hr gyro matching)
Attitude accuracy	0.02° (1σ)
GNSS combination level positioning accuracy	Single point L1/L2: 1.2m (1σ)
	RTK: 2cm+1ppm (1σ)
GNSS combined velocity accuracy	0.02m/s (1σ)
Odometer positioning accuracy	0.5% Range (depending on external odometer accuracy)
Heave measurement precision	5cm or 1%
Startup time	≤ 10s
Dynamic alignment time	1~2min (depending on the dynamic motor form)
Double antenna auxiliary orientation time	≤ 1min
Azimuth Angle measurement range	0°-360°
Pitching Angle	±90°



measurement range		
Rolling Angle measurement range	±180°	
<b>Main part performance</b>		
Gyro	Type	Close-loop fiber optic gyroscope
	Range	±300° /s
	Zero bias stability	0.3° /hr
Accelerometer	Range	±10g
	Bias	≤ 100ug
Serial port	2 path (RS232/RS422 custom configurations), 1 path RS232	
CAN2.0b	1 path	
LAN	1 path	
Pulse	1 path differential signal; 2 path single-ended	
	Support PPS, EVENTMARK Input / output	
Auxiliary sensors	Odometer /DVL/ Atmospheric altimeter interface	
Storage	16GB (Customize)	
Data refresh	200Hz (Adjustable)	
Power supply	24V DC Rated (12-36V DC)	
Power consumption	≤ 24W	
Outside dimension	189mm×169mm×133mm	
Weight	≤ 4.1kg	
Vibration	20~500Hz, Vibration acceleration 5g	
Resistance	15g, 11ms	



Operation temperation	-40° C - +55° C
Protecting level	IP67
MTBF	2000h
Odometer suite	Doppler ladar/wheel speed sensors
Barometric altimeter suite	10~1200Hpa, resolution 0.1Hpa, High accuracy measurement 10m (Max)
RTK differential radio	Digital radio 433 MHz /900MHz/2.4GHz
Navigation post-processing software	The processing results of surveying and mapping level requirement