FOG100

GNSS + INS RECEIVER

GNSS Inertial Navigation, No Fear of Signal Outages

ADVANCED GNSS+INS FUSION TECHNOLOGY

In order to combat satellite signal obstruction in urban canyons, forests, and multipath interference, the FOG100 leverages cutting-edge multi-sensor data fusion, integrating full-constellation GNSS with fiber optic gyroscope (INS) to deliver centimeter-level accuracy and reliability. This combination allows for precise position, attitude, speed, and raw sensor data output in challenging environments, making it suitable for a wide range of applications.

USER-FRIENDLY & HIGH-CAPACITY DESIGN

The FOG100 features an integrated web service for easy configuration and monitoring, a high-capacity lithium battery* with up to 10 hours of operation, and USB2.0 for high-speed data transfer. Its compact, lightweight design makes it ideal for various applications. With multiple communication interfaces, the FOG100 is designed for ease of integration and high performance in demanding environments.

PRECISE POST-PROCESSING SOFTWARE

To guarantee the accuracy during GNSS outages, the FOG100 comes with the SingularFusion post-processing software, using GNSS and INS tightly coupled technology to provide users with high precision and reliable 3D position, attitude and speed. The software also supports data format conversion, data track display and various sports models such as vehicle, airborne, ship, backpack and more.

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FOG100 GNSS + INS RECEIVER

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SATELLITES TRACKING

Channels	1408
BDS	B1I, B2I, B3I, B1C, B2a, B2b
GPS	L1C/A, L1C, L2C, L2P(Y), L5
GLONASS	G1, G2, G3
Galileo	E1, E5a, E5b, E6
QZSS	L1C/A, L1C, L2C, L5
NavIC	L5
SBAS	WAAS, EGNOS, SDCM, BDSBAS, GAGAN
L-Band	Support
Cold start	<30s
RTK Initialization Time	<5s(typical)
RTK initialization reliability	>99.9%
Re-acquisition	<1s

IMU PERFORMANCE

Gyroscope	- Bias Instability: 0.25°/h - Range: ±400°/s
Accelerometer	- Range: ±20g
IMU data update rate	100Hz

INTERFACES

IOIO1	- 2 RS232 serial port - 1 CAN - 1 Event input - 1 Event output - 1 wheel speed sensor input[1], achieving 0.3R‰ accuracy during GNSS outages
IOIO2	- 1 USB - 1 Ethernet - 1 DC power port
GNSS Antenna Interface	- Default: TNC Connector *1, single-antenna - Optional: TNC Connector *2, dual-antenna

DATA UPDATE RATE

GNSS data	1Hz
IMU raw data	100Hz
INS positioning & heading	250Hz

ELECTRICAL

Input	9-26V DC
Power consumption	6W, typically
Antenna interface feed	- Voltage: 5V DC ±5% - Maximum current: 300mA

PHYSICAL

Size	146mm*91mm*68mm
Weight	1 kg
Storage	32 GB
User Interaction	- 4 LEDs indicating power/charge status, data recording status, satellite tracking status & storage status - 1 button for turn on/off device or start/stop recording

ENVIRONMENTAL

Working temperature	-40 °C to + 70 °C
Humidity	95% non-condensing
Waterproof & dustproof	IP67
Vibration	MIL-STD-810 (20g)
Shock	IEC-60028-2-27 (10g)

1.The wheel speed sensor is reserved for future upgrade.R refers to the traveled distance during GNSS outages.
2.The performance is after post-processing.

All specifications are subject to change without notice.

PERFORMANCE DURING GNSS OUTAGES[2]

GNSS Outages (s)	Position mode	Position Accuracy(m)RMS		Velocity Accuracy(m/s)RMS		Attitude Accuracy (°) RMS		
		Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Yaw
0	GNSS/INS	0.01	0.02	0.015	0.01	0.003	0.003	0.020
	GNSS	0.02	0.03	0.015	0.01	0.010	0.010	0.030
10	GNSS/INS	0.01	0.02	0.015	0.01	0.003	0.003	0.020
60	GNSS/INS	0.10	0.05	0.018	0.01	0.004	0.004	0.025
120	GNSS/INS	0.20	0.10	0.020	0.02	0.005	0.006	0.003
180	GNSS/INS	0.50	0.25	0.025	0.50	0.006	0.008	0.040

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