



# INS1000

RTK INERTIAL NAVIGATION SYSTEM

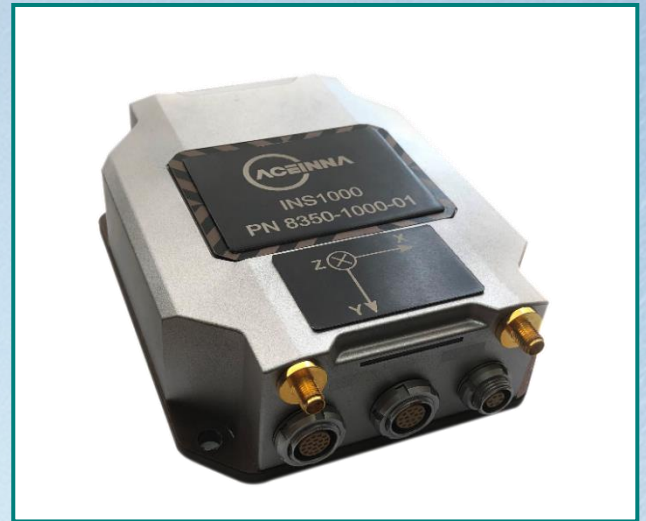


The INS1000 is a state-of-the-art, high performance GNSS with built-in inertial sensors. It offers dual frequency RTK and tight coupling between GNSS and inertial sensors to provide cm-level accuracy, enhanced reliability, and superior performance during GNSS outages. The Automotive Dead Reckoning (ADR) solution delivers strong performance in GNSS challenged urban environments.

The ACEINNA INS1000 is compatible with all major global satellite systems; it supports USB, Ethernet, CAN, and RS-232 interfaces; and it supports dual GNSS antennae for accurate heading in static and dynamic scenarios, and difficult magnetic environments.

### Applications

- Autonomous Vehicles
- Precision Agriculture
- Construction Vehicles
- Automotive testing



### Features

- Tightly coupled GNSS + Inertial solution
- Internal MEMS Gyros and Accelerometers
- GPS, GLONASS, Beidou, Galileo, SBAS
- Dual antennae for accurate heading
- Dual frequency (L1 / L2) RTK
- 100 Hz navigation solution (position, velocity, pitch, roll, heading)
- Calibrated over -40C to +85C
- High Reliability, MTBF > 50k hours

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### Technical Characteristics

Accuracy <sup>1</sup>	
Horizontal Position Accuracy (RMS)	
SPS	1.2 m CEP
SBAS	0.6 m
DGPS	0.4 m
RTK <sup>2</sup>	0.02 m
10s GNSS Outage	0.3 m
Vertical Position Accuracy (RMS)	
SPS	1.8 m CEP
RTK <sup>2</sup>	0.03 m
10s GNSS Outage	0.4 m
Velocity Accuracy (RMS)	
Horizontal	0.01 m/s
Vertical	0.02 m/s
Heading Accuracy (RMS) <sup>3</sup>	
0.1°	
Attitude Accuracy (Roll/Pitch, RMS)	
0.05°	
Operating Limits	
Velocity	515 m/s
Acceleration	8 g
Angular Rate	400°/s
Temperature Calibration Range	
-40°C to +85°C	
Timing	
Time to First Fix <sup>4</sup>	
Cold Start <sup>5</sup>	< 60 s
Warm Start <sup>6</sup>	< 45 s
Hot Start <sup>7</sup>	< 11 s
Signal Re-acquisition	< 2 s
RTK Initialization Time	
< 1 min	
Output Data Rate	
100 Hz (200Hz max)	
Environment	
Operating Temperature (°C)	
-40 to +85	
Non-Operating Temperature (°C)	
-55 to +105	
Enclosure Rating	
IP67	
Vibration	
IEC 60068-2-6 (5g)	
Shock survival	
MIL-STD-810G (40g)	
Electrical	
Input Voltage (VDC)	
12V (10 - 24)	
Power Consumption (W)	
5	
Digital Interface	
Ethernet, CAN, USB, RS-232	
Physical	
Size (mm)	
145 x 120 x 45	
Weight (gm)	
680	

Note 1: Typ values, subject to ionospheric/tropospheric conditions, satellite geometry, baseline length, multipath and interference effects.

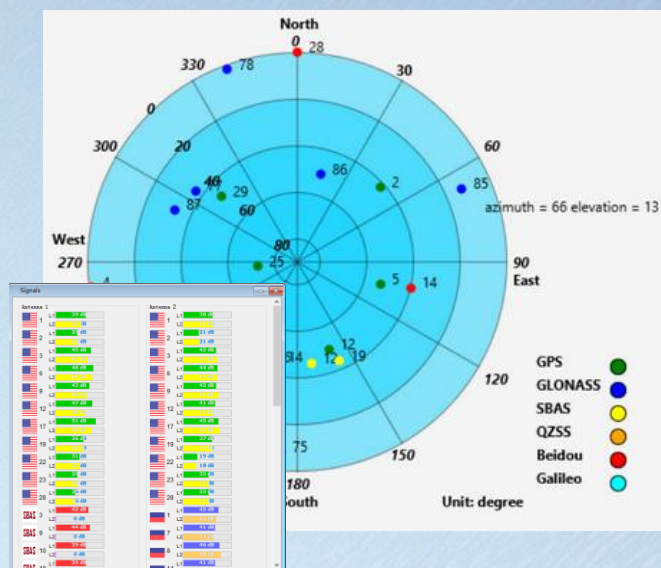
Note 2: Add 1ppm of baseline length.

Note 3: Based on 2m baseline between antennae.

Note 4: Typical values.

Note 5: No previous satellite or position information.

Note 6: Using ephemeris and last known position.



### Ordering Information

Model	Description
INS1000-MT	Inertial Navigation System- Mobile Unit with IMU
INS1000-BASE	Remote Base-station for RTK

### Support

For more detailed information, please refer to the INS1000 Developer Manual. It is available at the following location:

<https://docs-ins1000.readthedocs.io/en/latest/index.html>

AceinnaNav Control Software (ACS) is a graphical user interface for the AceinnaNav integrated navigation system. It displays continuous position, velocity, attitude, and trajectory information from the system. Additionally, it also provides tools to configure the system and log output data from the system.

### Hardware

- INS1000 DEV KIT
    - INS1000 (INS1000 Rover)
    - Antenna GPS (2x Rover GPS Antenna)
    - INS1000-Base (INS1000 Base Station)
    - Antenna-GPSB (High Gain Survey Grade GPS Antenna)
    - INS1000-CKit (Cables/Connectors)
  - INS1000-Pbox (Pelican Box)
- Note: The DEV KIT comes disassembled. Some basic assembly is required.

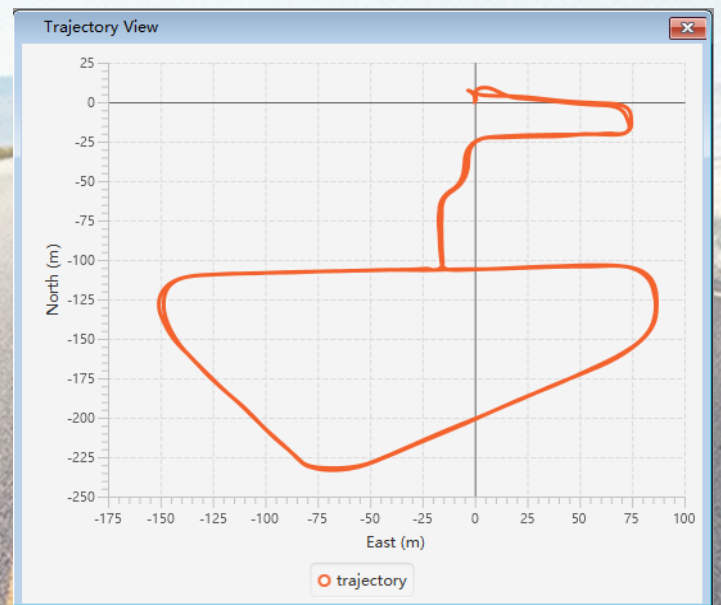
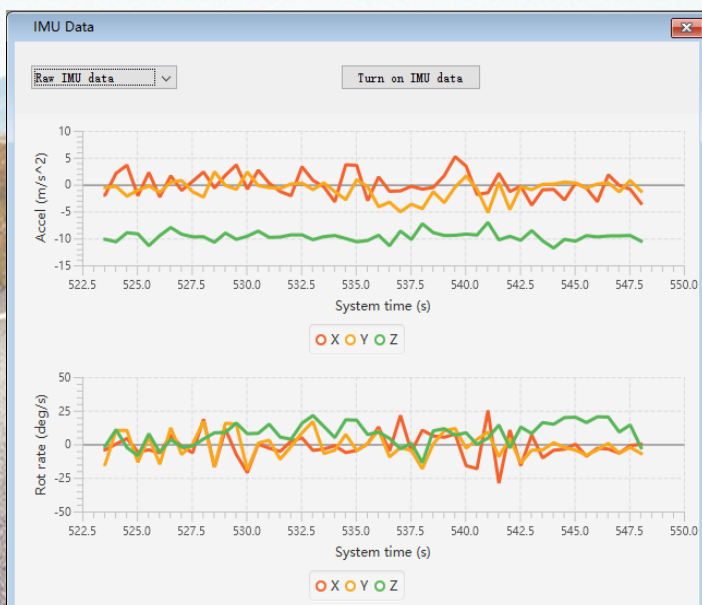


### Developer Tools

- System Setup Guide – How to connect the hardware, install and configure the system.
  - [https://docs-ins1000.readthedocs.io/en/latest/system\\_setup\\_guide.html](https://docs-ins1000.readthedocs.io/en/latest/system_setup_guide.html)
- Base station Guide – How to set up and configure the base station.
  - [https://docs-ins1000.readthedocs.io/en/latest/base\\_outline.html#](https://docs-ins1000.readthedocs.io/en/latest/base_outline.html#)
- Reference Manual – How to use the system.
  - [https://docs-ins1000.readthedocs.io/en/latest/ref\\_outline.html](https://docs-ins1000.readthedocs.io/en/latest/ref_outline.html)
- Software Guide – How to use the GUI.
  - [https://docs-ins1000.readthedocs.io/en/latest/user\\_outline.html#](https://docs-ins1000.readthedocs.io/en/latest/user_outline.html#)

### System Requirements

- Rover Internet connection





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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