

Satelcom IMU / INS / GPS

Navigation System

OVERVEIW

Satelcom IMU/INS/GPS includes;

- Heading
- Complete Position
- Velocity
- Attitude

Satelcom IMU/INS/GPS designed to combine two navigation sensor Technologies, a highly accurate GPS receiver and new-tech MEMS based inertial measurement unit (IMU) within a single enclosure. Through its seamless integration of these two navigation systems, Satelcom IMU/INS/GPS provides minimal solution for 3D positioning, velocity, heading and attitude measurement with low-cost benefit.

Precise Navigation due to GPS Blockage

Satelcom IMU/INS/GPS continue to provide navigation information when GPS reception is obstructed, jammed, or unavailable. With GPS-only positioning, navigation becomes unreliable when satellite signals are blocked. Also, There will be drift over time in the IMU without an external reference and correction. Satelcom IMU/INS/GPS overcomes these inconveniences by combining two navigation technologies, so they enhance each other and form a powerful precision navigation / positioning system.

GPS's absolute position, heading and velocity accuracy are used to compensate for IMU drift, while the highly reliable IMU's fixed relative position ability provides superior combining capability between the two technologies.

High speed response – Data output rate

Although the data rate of GPS system is 100 Hz, Satelcom IMU/INS/GPS can provide 2000 Hz data rate for position, velocity, heading and altitude, thanks to high speed IMU.

Applications

- ✓ Navigation Systems
- ✓ Autonomous Vehicle
- ✓ Pointing and Tracking Systems
- ✓ Antenna Platform Stabilization
- ✓ Camera Gimbals
- ✓ Vibration Control and Stabilization



KEY FEATURES

- 2000 Hz position, velocity, heading and attitude sensing,
- IMU with GNSS for high reliability and stable performance,
- GPS-aided Continuous Navigation System in a single enclosure
- Key Technologies: inertial measurement technology and GNSS receiver
- RTK, L-band, and SBAS positioning Modes,
- Optional dual antenna for precise Heading,
- Rugged COTS design for demanding Environments,
- Provides continuous, precision positioning and orientation, even when GPS signals are blocked or unavailable

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Revised | October 2020 (V1)

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Gyroscope Specifications

Gyro Technology	MEMS
Dynamic Range	±450 °/sec
Noise Density	0.0013(deg/s)/√Hz, rms
In-Run Bias Stability	0.8 deg/hr
Repeatability	0.01 deg/s
Angular Random Walk	0.06 deg/√hr
Bandwidht (-3db)	189 Hz

Accelerometer Specifications

Dynamic Range	±10 G
Noise Density	60 uG/√Hz, rms
In-Run Bias Stability	10 uG
Repeatability	2 mG
Velocity Random Walk	0.025(m/sec)/√hr
Bandwidth (-3 dB)	167 Hz

*Ta=25°C, VCC=3.3V, angular rate=0 deg/s, ≤±1G, unless otherwise noted.

Data Rates

GPS Measurement	100 Hz
GPS Position	100 Hz
IMU Measurement	2000 Hz
INS Solution	2000 Hz
Time Accuracy	20ns RMS
Maximum Velocity	515 m/s

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
SBAS	60 cm
DGPS	40 cm
TerraStar-L	40 cm
TerraStar-C PRO	2.5 cm
TerraStar-X	2 cm
RTK	1 cm + 1 ppm

GNSS System Performance

Signal Tracking (Primary RF)

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS	L1 C/A, L2 C/A, L2P, L3, L5
Galileo	E1, E5 AltBOC, E5a, E5b
BeiDou	B1I, B1C, B2I, B2a
QZSS	L1 C/A, L1C, L2C, L5
NavIC (IRNSS)	L5
SBAS	L1, L5
L-band	up to 5 channels

Signal Tracking (Secondary RF)

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS	L1 C/A, L2 C/A, L2P, L3, L5
Galileo	E1, E5 AltBOC, E5a, E5b
BeiDou	B1I, B1C, B2I, B2a
QZSS	L1 C/A, L1C, L2C, L5
NavIC (IRNSS)	L5

Physical/Electrical/Environmental

Dimensions (max)	116x85x41mm
Weight (max)	750 gram
Power Consumption	5 watt
Input Voltage	+9 to +36 VDC
Temperature (operating)	-40°C to +85°C
Shock	MIL-STD-810G (CH1), Method 516.7 (40 g)
Vibration	MIL-STD-810G (CH1) Method 514.7 (Cat 24, 20 g RMS)
Humidity	95% non-condensing

Connectors

Power and I/O	MIL-DTL-38999 Series 3
Antenna Inputs	2x TNC Female

Communication Ports

EtherCAT (Optional)	2
CAN Bus	1 (1 Mbps)
USB 2.0 (Device)	1
Ethernet (Optional)	10/100 Mbps

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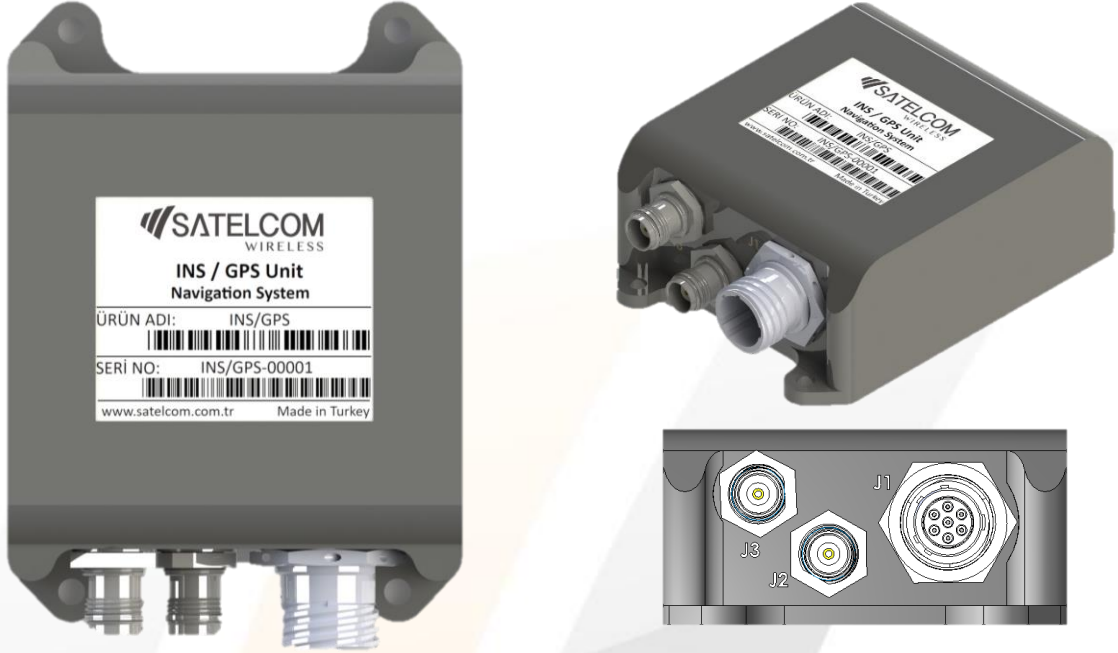
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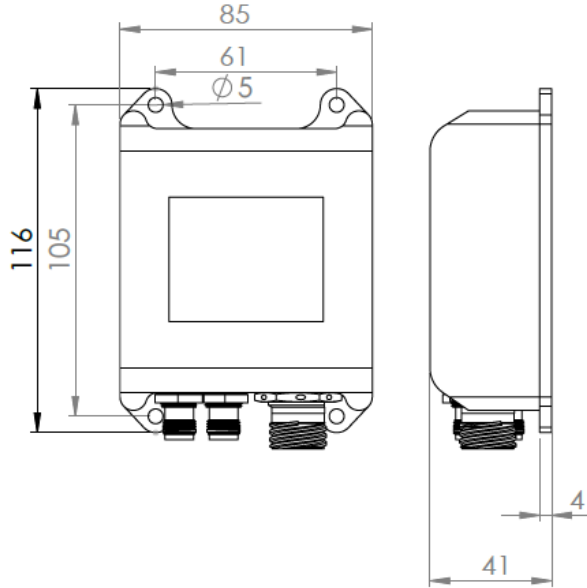
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Picture



Dimensions



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