Xsens

Sirius RTK GNSS/INS

Centimeter-level positioning and orientation in the most challenging environments

Next-generation RTK GNSS/INS delivering robust positioning and heading, even under degraded GNSS conditions

Xsens Sirius RTK GNSS/INS combines a quad-band GNSS receiver with advanced sensor fusion and RTK capability to deliver centimeter-level positioning and highly stable orientation, even in environments where GNSS signals are degraded or obstructed.

Engineered for high-precision performance in harsh and GNSS-challenged environments

Xsens Sirius RTK GNSS/INS is designed for applications that require the highest positioning accuracy and reliability. It improves RTK fix availability, convergence time, and re-acquisition, ensuring consistent performance in real-world conditions.

- **Quad-band GNSS receiver (u-blox ZED-X20P) for maximum satellite visibility**
- **RTK capability for centimeter-level positioning accuracy**
- **Improved RTK convergence time and re-acquisition after signal loss**
- **Support for modern high-precision services (PointPerfect, Galileo HAS)**
- **Reliable performance in urban canyons and partially obstructed environments**
- **Advanced sensor fusion for stable orientation and reduced drift**
- **MIL-STD-202 tested for shock, vibration, and environmental robustness**
- **Flexible interfaces: RS232, RS422, CAN, CAN-FD**
- **Heave output for marine and offshore applications**
- **Uncertainty output for real-time data quality assessment**
- **Future-proof support for next-generation GNSS signals**

Applications

- **Autonomous vehicles requiring high-precision navigation**
- **Robotics and industrial automation with precise positioning needs**
- **Surveying, mapping, and geospatial data collection**
- **Marine and offshore operations requiring precise positioning and heave**
- **Construction, mining, and agriculture (AgTech)**
- **Infrastructure inspection and asset tracking**
- **Aerospace and defense platforms**

Sensor fusion performance

Accelerometer	Calibrated
Gyroscope	Calibrated
Roll, Pitch	0.2° RMS
Yaw/Heading	0.8 deg RMS
Position	0.6 cm + 1 ppm CEP
Velocity	0.05 m/s RMS
Heave	< 5 cm < 6 cm
Strapdown Integration (SDI)	Yes

Gyroscope

Standard full range	±3000°/s
In-run bias stability	7°/h
Bandwidth (-3dB)	400 Hz
Noise density	0.003°/s/√Hz

Accelerometer

Standard full range	±8 g
In-run bias stability	15 µg
Bandwidth (-3dB)	470 Hz
Noise Density	15 µg/√Hz

Magnetometer

Standard full range	±8 G
Total RMS noise	1 mG
Non-linearity	0.2%
Resolution	0.25 mG

RTK GNSS Receiver

Brand	u-blox
Model	ZED-X20P
RTCM input port	RS232 (38K4-921K6 bit/s)
RTK correction input	RTCM 3.x

Mechanical

IP-rating	IP68
Operating Temperature	-40 to 85 °C
Casing material	Aluminum
Mounting orientation	No restriction, full 360° in all axes
Dimensions	56.50x40.9x36.75 mm
Connector	Main: ODU (AMC HD 12 pins)
Weight	103 g
Certifications	CE, FCC, RoHS, MIL-STD-202

Electrical

Input voltage	4.5 V to 24 V
Power consumption (typ)	<1 W

Interfaces / IO

Interfaces	CAN, CAN-FD, RS232, RS422
Sync Options	SyncIn, SyncOut, ClockSync
Protocols	Xbus, ASCII (NMEA), CAN, CAN-FD
Clock drift	1 ppm
Output frequency	Up to 2kHz, 400 Hz SDI
Built-in-self test	Gyr, Acc, Mag, GNSS

Software Suite

GUI (Windows/Linux)	MT Manager, Firmware updater, Magnetic Field Mapper
SDK (Example code)	C++, C#, Python, Matlab, Public source code
Drivers	LabVIEW, ROS, GO
Support	Online manuals, community and knowledge base

Unless stated otherwise, all specifications are typical. Specifications subject to change without notice. This document is informational and not binding.
Complete and detailed specifications are available at mtidocs.xsens.com. **Scan QR code for quick access.**

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