

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	_____	0.03 m/s RMS
Heave	_____	< 5 cm < 6 cm
Strapdown Integration (SDI)	_____	Yes

Gyroscope

Standard full range	_____	±300°/s
In-run bias stability	_____	7°/h
Bandwidth (-3dB)	_____	400 Hz
Noise density	_____	0.003°/s/√Hz
g-sensitivity (calibr.)	_____	0.08°/s/g

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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