

Xsens Sirius GNSS/INS

**High-accuracy positioning and orientation
in the most challenging environments**

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

Xsens Sirius GNSS/INS combines a quad-band GNSS receiver with advanced sensor fusion to provide reliable, high-accuracy positioning and orientation in environments where GNSS performance is limited, such as urban canyons, near structures, or partially obstructed areas.



Engineered for reliable performance in harsh and GNSS-challenged environments

Xsens Sirius GNSS/INS is designed to maintain positioning accuracy and orientation stability where conventional GNSS/INS systems degrade. It provides the consistency and robustness required for autonomous systems and high-performance applications operating in real-world conditions.

- › **Quad-band GNSS receiver (u-blox ZED-X20P) for improved satellite visibility**
- › **Support for modern high-precision services (PointPerfect, Galileo HAS)**

- › **Reliable positioning 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 ground vehicles (AGV, UGV)**
- › **Robotics and industrial automation**
- › **Marine surface and subsea vehicles (USV, ROV, AUV)**
- › **Offshore and marine heave compensation**
- › **Surveying and mapping systems**
- › **Construction, mining, and agriculture (AgTech)**
- › **Aerospace and defense platforms**



Sensor fusion performance

Accelerometer	_____	Calibrated
Gyroscope	_____	Calibrated
Roll, Pitch	_____	0.2° RMS
Yaw/Heading	_____	0.8 deg RMS
Position	_____	1 m 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	_____	n/a

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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