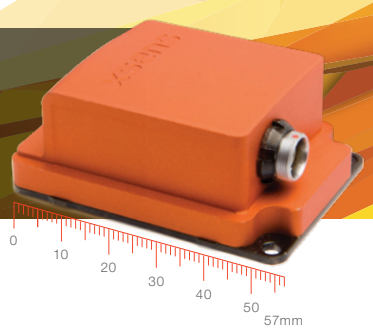
MTi 100-series

The most accurate and complete MEMS based IMU, VRU and AHRS

- ✔ Highest performance with resistance to magnetic distortions
- ✔ Vibration-rejecting gyroscopes and accelerometers
- ✔ Configurable output settings, synchronizes with any 3rd party device



Innovative Xsens sensor fusion algorithm

- Superior heading tracking using Active Heading Stabilization (AHS)
- In-run Compass Calibration (ICC)
- State-of-the-art XEE sensor fusion algorithm
- Selectable filter profiles for range of applications
- Tuned for performance under vibrations and magnetic distortions

Best-in-class hardware design

- Highest quality industrial grade components
- Vibration-rejecting gyroscopes and accelerometers
- Low latency for real-time applications
- 10 kHz simultaneous sampling, 2 kHz SDI algorithm with coning/sculling compensation
- Wide array of synchronization options

Easy software integration

- Extensive suite of configurable output formats, calculated onboard the MTi
- MT Software Suite with intuitive GUI
- Complete SDK for all operating systems
- Support for Robotic Operating System (ROS)
- Xsens Xbus protocol or ASCII (NMEA)
- Access to BASE (by Xsens), an extensive knowledge base and community forum

Specification highlights

- Available as IP67 encased MTi or OEM board
- Choice of several interfaces and onboard USB
- All Xsens products are fully interchangeable
- Cost-effective system integrator solution
- Internal low-noise barometer

Product overview

		MTi-100 IMU	MTi-200 VRU	MTi-300 AHRS
Calibrated Sensor Data		yes	yes	yes
Roll/pitch	Static	-	0.2°	0.2°
	Dynamic	-	0.3°	0.3°
Yaw	In homogenous magnetic field	-	Active Heading Stabilization (AHS)	1.0°

All above specifications based on typical application scenarios

Sensor specification

	Gyroscopes	Accelerometers
Standard full range *	+/- 450 °/s	+/- 20 g
Initial bias error	0.2 °/s	5 mg
In-run bias stability	10 °/h	15 µg
Bandwidth (-3 dB)	415 Hz	375 Hz
Noise density	0.01 °/s/√Hz	60 µg/√Hz
g-sensitivity (calibrated)	0.003 °/s/g	N/A
Non-orthogonality	0.05 deg	0.05 deg
Non-linearity	0.01%	0.1%

	Magnetometer	Barometer
Standard full range	+/- 8 G	300-1100 hPa
Total RMS noise	0.5 mG	3.6 Pa
Non-linearity	0.2%	N/A
Resolution	0.25 mG	8 cm (sea level, 15 °C)

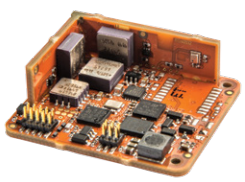
* Optional +/- 1000 °/s available on request.

System specifications

Input voltage	4.5 to 34V or 3V3	Output frequency	Up to 2 kHz
Typical power consumption	600 mW @ 5V	Interfaces	RS232/RS422/RS485/USB UART
IP-rating	IP67 (encased)	Latency	<2 ms
Temperature (in use)	-40 to 85 °C	Sync options	SyncIn, SyncOut, Clock sync
Vibration	MIL-STD-202-201A/204C/214A	Interface protocol	Xbus or ASCII (NMEA)
Casing material	Anodized aluminum 6082	Mounting orientation	No restriction, full 360° in all axes
Sampling frequency	10 kHz/channel (60 kS/s)	Built-in self test (BIT)	Gyroscopes, accelerometers, magnetometer
Clock drift	10 ppm or external reference	MTBF	300,000 hours

MTi 100-series
Development Kit:
MTi, software and cabling

MTi encased:
57x42x23.5 mm, 52g,
9-pins push-pull connector



MTi OEM:
37x33x12 mm, 11g,
16-pins header