MTi 10-series

The reliable industry standard for
MEMS based IMU, VRU and AHRS

MTi 10-series

- Industry-proven, cost-effective MEMS based orientation sensor
- Full-featured sensor fusion algorithm with easy to use SDK
- 3 integration levels available: IMU, VRU and AHRS

Product Overview

		MTi-10 IMU	MTi-20 VRU	MTi-30 AHRS
Calibrated Sensor Data		yes	yes	yes
Roll/pitch	Static	-	0.2°	0.2°
	Dynamic	-	0.5°	0.5°
Yaw	In homogenous magnetic field	-	Active Heading Stabilization (AHS)	1.0°

All above specifications based on typical application scenarios

Proven Xsens sensor fusion algorithm

- Superior heading tracking using Active Heading Stabilization (AHS)
- In-run Compass Calibration (ICC)
- XKF3 sensor fusion algorithm trusted by highpro-file customers
- Selectable filter profiles for range of applications

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 know-ledge base and community forum

Excellent hardware design

- High quality industrial grade components
- Signal processing pipeline, optimized for industrial applications
- Low latency for real-time applications
- 10 kHz simultaneous sampling, 2 kHz SDI algo-rithm with coning/sculling compensation
- Wide array of synchronization options

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

Sensor specifications

	Gyroscopes	Accelerometers
Standard full range *	+/- 450 °/s	+/- 20 g
Initial bias error	0.2 °/s	5 mg
In-run bias stability	18 °/h	15 µg
Bandwidth (-3 dB)	415 Hz	375 Hz
Noise density	0.03 °/s/√Hz	60 µg/√Hz
g-sensitivity (calibrated)	0.006 °/s/g	N/A
Non-orthogonality	0.05 deg	0.05 deg
Non-linearity	0.03%	0.1%

	Magnetometer	
Standard full range	+/- 8 G	
Total RMS noise	0.5 mG	
Non-linearity	0.2%	
Resolution	0.25 mG	

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

System specifications

Input voltage	4.5 to 34V or 3V3
Typical power consumption	550 mW @ 5V
IP-rating	IP67 (encased)
Temperature (in use)	-40 to 85 °C
Casing material	Anodized aluminum 6082
Sampling frequency	10 kHz/channel (60 kS/s)
Clock drift	10 ppm or external reference
Output frequency	Up to 2 kHz

Interfaces	RS232/RS422/RS485/USB/ UART
Latency	<2 ms
Sync options	SyncIn, SyncOut, Clock sync
Interface protocol	Xbus or ASCII (NMEA)
Mounting orientation	No restriction, full 360° in all axes
Built-in self test (BIT)	Gyroscopes, accelerometers, magnetometer
MTBF	300,000 hours

MTi 10-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

www.xsens.com

ABOUT XSENS

Xsens is the leading innovator in 3D motion tracking technology and products. Its sensor fusion technologies enable a seamless interaction between the physical and the digital world in applications such as industrial control and stabilization, health, sports and 3D character animation. Clients and partners include Electronic Arts, NBC Universal, Daimler, Autodesk, ABB, Siemens and various other leading institutes and companies throughout the world. Xsens is part of mCube, the provider of the world's smallest MEMS motion sensors, key enablers for the Internet of Moving Things. Xsens has offices in Enschede, Los Angeles, Shanghai and Hong Kong.

Visit xsens.com/distributors for an overview of Xsens' worldwide distributor network

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