



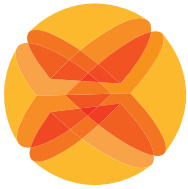
xsens



Orientation. Position. Xsens.

MTi 10-series

The reliable industry standard for MEMS Attitude and Heading Reference Systems



Xsens

The 4th generation MTi sets the new industry standard for reliable MEMS based AHRS, VRU, and IMUs. The MTi 10-series gives the system integrator a choice of three different integration levels (IMU, VRU, AHRS). The MTi 10-series and the high performance MTi 100-series share a common range of mechanical, electrical and communication/API interfaces to enable easy integration across a wide range of 3D motion tracking requirements.

MTi 10-series

- Proven XKF3 sensor fusion algorithm
- Cost effective system integrator solution
- Low latency
- Excellent vibration rejection
- Coning and sculling algorithms @ 2 kHz
- Choice of integration levels
- Comprehensive SDK and straightforward system integration



	IMU	Δq Δv	Roll/Pitch	Yaw	Position & Velocity	Sensor fusion core
MTi 10-series						
MTi-10 IMU	18°/h	•				
MTi-20 VRU	18°/h	•	0.4 deg	Unreferenced		XKF
MTi-30 AHRS	18°/h	•	0.4 deg	1.0 deg		XKF
MTi 100-series						
MTi-100 IMU	10°/h	•				
MTi-200 VRU	10°/h	•	0.25 deg	Unreferenced		XEE
MTi-300 AHRS	10°/h	•	0.25 deg	1.0 deg		XEE
MTi-G-700 GPS/INS	10°/h	•	0.25 deg	1.0 deg	•	XEE

Market leader

- Industry standard from the undisputed leader in MEMS AHRS's
- Many high-profile companies fully rely on Xsens for control and stabilization, measurement correction and navigation.



Robust and accurate orientation data

- High-quality components, industrial-grade MEMS only
- Low latency (<2 ms), excellent for control and stabilization
- Proven and robust filter design
- Compensation against vibration and transient accelerations



Maximum flexibility and versatility in mechanical and software interfaces

- Available as OEM board and IP67 encased MTi
- 24-pins connector for OEM
- Extensive suite of output formats, available directly from the MTi
- Choice of several interfaces, onboard USB, 2+ GPIO's
- Xsens' industry standard open Xbus protocol or NMEA (e.g. TSS1)
- All products from the MTi 10-series and MTi 100-series are fully interchangeable

System specifications

Input voltage	4.5-36V or 3V3;	Clock drift	10 ppm or external reference
Typical power consumption	480-570 mW	Output frequency	Up to 2 kHz
Start-up time	1.3 sec.	Latency	<2 ms
IP-rating	IP 67 (encased)	Interfaces	RS232/422/UART/USB (no converters)
Temperature (in use)	-40 to 85 °C	GPIO's and options	SyncIn, SyncOut, 2x GPIO, Clock sync
Vibration	TBD	Interface protocol	XBus or NMEA
Shock	TBD	Mounting	Free; orientation alignment available
Sampling frequency	10 kHz/channel (60 kS/s)	Built-in self test (BIT)	gyroscopes, accelerometers, magnetometer

Orientation accuracy MTi 10-series

		20-VRU	30-AHRS
Orientation			
Roll/pitch	Static [max]	0.4 deg	0.4 deg
	dynamics [1σ RMS]	1.5 deg	1.5 deg
Yaw	In homogenous magnetic field	Unreferenced 18 deg/h	1.0 deg

*Details on orientation specification can be found in the MTi Technical Datasheet (MT0503P)

Mechanical specifications



Encased:
57x42x23 mm
52g
9-pins push-pull connector



OEM:
37x33x12 mm
11g
24-pins header

Sensor specifications MTi 10-series

	Gyroscopes		Accelerometers	
	Typ	Max	Typ	Max
Standard full range	450°/s	-	50m/s ²	-
Bias repeatability (1 yr)	0.2°/s	0.5°/s	0.03m/s ²	0.05m/s ²
In-run bias stability	18°/h		40 µg	
Bandwidth (-3 dB)	415 Hz	N/A	375Hz	N/A
Noise density	0.03°/s/√Hz	0.05°/s/√Hz	80 µg/√Hz	150 µg/√Hz
g-sensitivity (calibrated)	0.006°/s/g	0.02°/s/g	N/A	N/A
Non-orthogonality	0.05 deg	-	0.05 deg	-
Non-linearity	0.03% FS	0.1% FS	0.03% FS	0.5% FS

Magnetometer	
Typ	Max
Standard full range	+/- 2 Gauss
Noise density	200 µG/√Hz
Non-linearity	0.1% FS

* Typical values @ 25 °C

