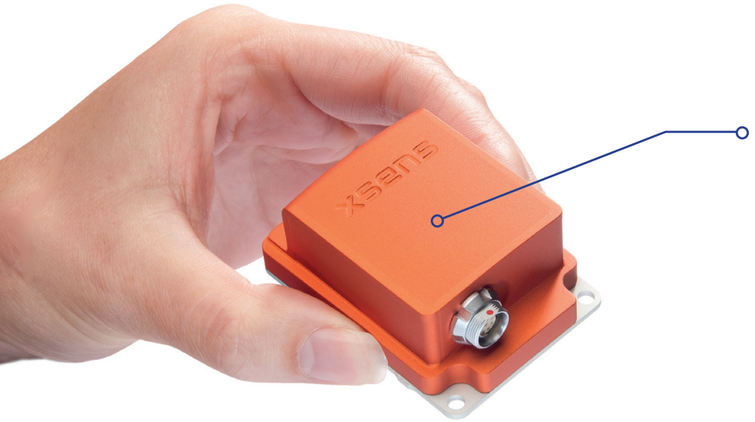
MTi 10-series

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°
Roll/pitch (Dynamic)	-	0.5°	0.5°
Yaw	-	Active Heading Stabilization (AHS)	1.0°

Proven Xsens sensor fusion algorithm

- Superior heading tracking using Active Heading Stabilization (AHS)
- In-run Compass Calibration (ICC)
- XKF3 sensor fusion algorithm trusted by highprofile 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 knowledge 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 algorithm 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	

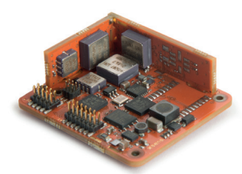
* Optional +/- 1000 °/s available on request.

System specifications

Input voltage	4.5 to 34V or 3V3	Interfaces	RS232/RS422/RS485/USB/ UART
Typical power consumption	550 mW @ 5V	Latency	<2 ms
IP-rating	IP67 (encased)	Sync options	SyncIn, SyncOut, Clock sync
Temperature (in use)	-40 to 85 °C	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	141.000h
Output frequency	Up to 2 kHz		

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