

- ✓ Uniform software/hardware interface over product lifetime (no EOL)
- ✓ Always best-in-class inertial sensors incorporated
- ✓ Industry-leading signal processing pipeline and orientation algorithm
- ✓ API-compatible with all Xsens Motion Trackers

The MTi 1-series is a self-contained Attitude Heading and Reference System (AHRS), Vertical Reference Unit (VRU) and Inertial Measurement Unit (IMU) as a 12.1 x 12.1 mm module. The Xsens-optimized strapdown algorithm (AttitudeEngine™) performs high-speed dead-reckoning calculations at 1 kHz allowing accurate capture of high frequency motions. Xsens' industry-leading sensor fusion algorithm (XKF3™) provides high accuracy and sensor auto-calibration in a cost-effective module for a wide range of (embedded) applications. It relieves users from the design, integration and maintenance of gyroscopes, accelerometers and other sensors. The roll and pitch accuracy of 1.0 deg under dynamic conditions allow for integration in demanding applications.

Miniature aerial vehicles

- Delivery drones
- Video drones
- Agricultural UAVs



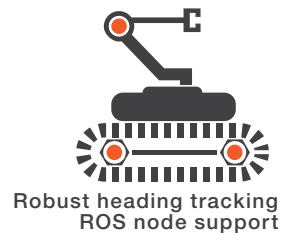
Machinery

- Satcom in the Marine (S™)
- Construction machinery
- Ship monitoring



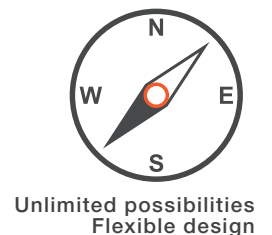
Robotics

- Autonomous agriculture
- Warehouse automation
- Robotic arms



Other applications

- Handheld devices
- Pedestrian navigation
- VR/AR and HMDs
- Navigation aiding



Ordering information

Part Number	Output	Packing Method
MTi-1-8A7G6T	IMU; inertial data	Tray (containing 20 modules)
MTi-2-8A7G6T	VRU; inertial data, roll/pitch, heading tracking	Tray (containing 20 modules)
MTi-3-8A7G6T	AHRS; inertial data, roll/pitch/yaw	Tray (containing 20 modules) Reels available from 250 units
MTi-3-8A7G6-DK	Development kit for MTi 1-series - MTi-3-8A7G6 module, incl. cabling - MT Software Suite for Windows/Linux	Development Kit

Specifications MTi 1-series

Orientation accuracy

Roll/pitch (dynamic)	1.0° 1 σ RMS
Yaw (dynamic)	2° 1 σ RMS

Inertial sensor performance

Gyroscopic full-scale range	$\pm 2000^\circ/s$
Gyroscopic bias stability	10 deg/hr
Gyroscopic noise density	0.01 $^\circ/s/\sqrt{Hz}$
Gyroscopic non-linearity	0.1% FS
Accelerometer full-scale range	$\pm 16 g$
Accelerometer bias stability	0.1 mg
Accelerometer noise density	200 $\mu g/\sqrt{Hz}$
Accelerometer non-linearity	0.5% FS

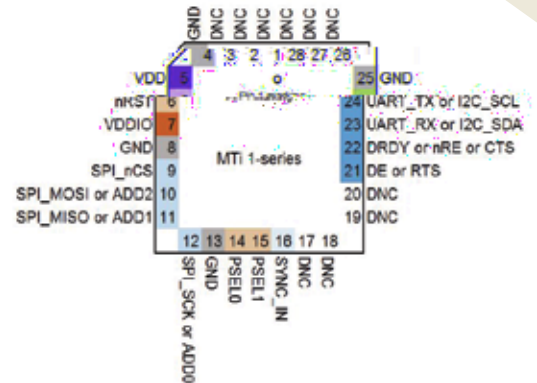
System specifications

Power consumption	44 mW @ 3V
Input voltage	2.16 to 3.45V
Package	28 pads 12.1 x 12.1 mm SMD, compatible with JEDEC PLCC-28
Size	12.1 x 12.1 x 2.55 mm
Weight	0.66g
Packaging	Tray (20 modules) Reel (250 modules)

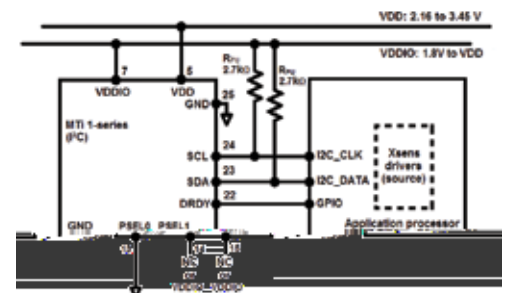
Interfacing

Hardware interface	I ² C, SPI, UART (selectable)
Software interface	Xsens Xbus binary protocol Drivers source code supplied
Output data rate	0-1000 Hz

PIN LAYOUT



TYPICAL APPLICATION



DEVELOPMENT KIT

In order to get started with the MTi 1-series, an extensive development kit for characterization and prototyping is available:

- Easy to use connection (RS232, micro USB), access to I²C/SPI/UART
- Full functionality and pin configuration
- Intuitive MT Software Suite (Linux / Windows GUI)
- SDK with drivers and embedded software examples
- Drivers and examples on ARM[®] mbed[™]

