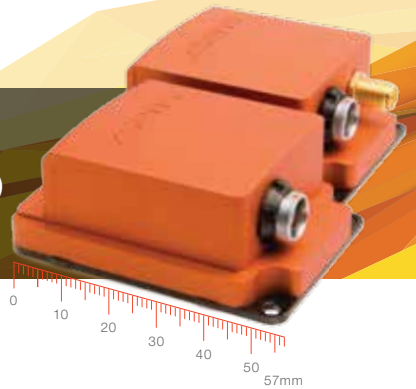
MTi 100-series

The most accurate and complete MEMS based IMU, VRU, AHRS and GNSS/INS

- ✔ Best performing MEMS based sensor on the market
- ✔ High performance vibration resistant MEMS based gyroscopes (10 deg/h)
- ✔ Meets DO-160 specifications, integrated in FAA-certified applications



MTi 100-series

- Breakthrough tracking performance
- Coning and sculling algorithms @ 2kHz
- Motion processing core for multiple sensor inputs and data sources
- High-performance XEE, beyond traditional Kalman Filtering
- Tuned for performance under vibrations and magnetic distortions
- Comprehensive SDK and straightforward system integration

Breakthrough performance from market leader

- Next level MEMS AHRS with vibration rejecting gyroscopes
- Cutting-edge sensor fusion technology
- Market leader serving a large and high-profile customer base

Complete product, with highest accuracy

- Low latency (<2ms) for real-time applications
- Compensation against long-lasting transient accelerations
- Able to cope with GNSS outages and magnetic distortions
- Leading innovator introducing a new class of AHRS's

Maximum flexibility and versatility

- 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 and GPIO's
- Xsens' industry standard open Xbus protocol or NMEA
- All products from the MTi-series are fully interchangeable

Product overview

		100-IMU	200-VRU	300-AHRS	710-GNSS/INS
			Typ | Max	Typ | Max	Typ | Max
Calibrated Sensor Data		yes	yes	yes	yes
Roll/pitch	Static	-	0.2° | 0.25°	0.2° | 0.25°	0.2° | 0.25°
	Dynamic	-	0.3° | 1.0°	0.3° | 1.0°	0.3° | 1.0°
Yaw	In homogenous magnetic field	-	Active Heading Stabilization	1.0°	1.0°
Position and velocity					
Horizontal position	1σ STD (SBAS)	-	-	-	1.0 m
Vertical position	1σ STD (SBAS, baro)	-	-	-	2.0 m
Velocity	1σ RMS	-	-	-	0.05 m/s

Sensor specification

	Gyroscopes		Accelerometers	
	Typ	Max	Typ	Max
Standard full range	+/- 450°/s	-	50 m/s²	-
Bias repeatability (1 yr)	0.2°/s	0.5°/s	0.03 m/s²	0.05 m/s²
In-run bias stability	10°/h	-	40 µg	-
Bandwidth (-3 dB)	415 Hz	N/A	375 Hz	N/A
Noise density	0.01°/s/√Hz	0.015°/s/√Hz	80 µg/√Hz	150 µg/√Hz
g-sensitivity (calibrated)	0.003°/s/g	0.015°/s/g	N/A	N/A
Non-orthogonality	0.05 deg	-	0.05 deg	-
Non-linearity	0.01% FS	-	0.03% FS	0.5% FS

	Magnetometer		Barometer	
	Typ	Max	Typ	Max
Standard full range	-	+/- 80 µT	-	300-1100 hPa
Noise density	200 µG/√Hz	-	0.01 hPa/√Hz	-
Non-linearity	0.1% FS	-	-	-

GNSS receiver (MTi-G-710 GNSS/INS only)

Receiver type	72ch, GPS L1 C/A code, GLONASS L10F	Horizontal accuracy (CEP)	2.0 (2.5 m w/o SBAS)
Update rate	4 Hz	Vertical accuracy (CEP)	5 m
Start-up time cold start	26 s	Velocity accuracy (@30 m/s)	0.05 m/s
Tracking sensitivity	-164 dBm	DGPS	SBAS

System specifications

Input voltage	4.5 to 34V or 3V3;	Clock drift	10 ppm (1 ppm w. GNSS) or ext. ref.
Typical power consumption	675-950 mW @5V	Output frequency	Up to 2 kHz
Start-up time	2.5 sec.	Latency	<2 ms
IP-rating	IP 67 (encased)	Interfaces	RS232/422/485/UART/USB (on board)
Temperature (in use)	-40 to 85 °C	GPIO's and options	SyncIn, SyncOut, 2x GPIO, Clock sync
Vibration and shock	MIL STD 202 / 2000g	Interface protocol	XBus or NMEA
Casing material	Anodized aluminum 6060	Mounting	Free; orientation alignment available
Sampling frequency	10 kHz/channel (60 kS/s)	Built-in self test (BIT)	gyroscopes, accelerometers, magnetometer

MTi-G encased:
57x42x23.5 mm, 55g,
9-pins push-pull connector

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

OEM:
37x33x12 mm, 11g,
24-pins header