Xsens
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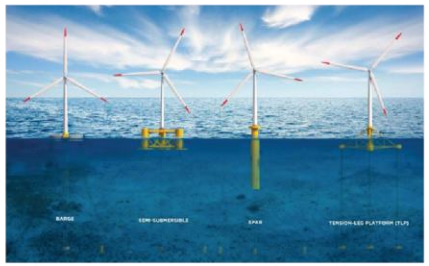
Introducing **Xsens Sirius**

A giant leap in sensor technology

Enabling true autonomy in harsh environments



- **Accuracy:** Precise and real-time 3D orientation data (roll/pitch/heading), even under harsh conditions.
- **Yaw/Heading:** Reliable heading, even in strong distorted magnetic field environments.
- **Endurance:** Sensors must withstand shock, vibration, and extreme environments over long period of time.
- **Efficiency:** Easy-to-use, cost-effective integration into your moving platform, saving precious development time.

Xsens Sirius delivers in the most demanding environments.

Xsens **Sirius** Series

Xsens **Sirius** delivers in demanding environments

Robust accuracy

Accurate orientation data, supporting navigation everywhere.

Vibration and shock rejecting gyroscopes

Accurate measurements even in extreme vibration conditions.

Free technical support

Free global assistance from expert Field Application Engineers.

Rugged & reliable

MIL-standard IP68 housing, resistant temperature extremes, humidity, salt spray, sand & dust, shock & vibration, pressure and electromagnetic interference.

Easy-to-integrate

Compact plug-and-play, comprehensive software application suite, user-friendly SDK, and seamless integration.

Ecosystem & support

Backed by a strong partner network and compatibility (NVIDIA/HESAI/ROS/Matlab/...)

IMU, VRU and AHRS Capabilities

Xsens Sirius IMU

High-performance StrapDown Integration (SDI) delivering accurate, calibrated, raw inertial sensor data, including 3D rate of turn, acceleration, and magnetic field data.

Xsens Sirius VRU

Reliable 3D orientation tracking achieving exceptional accuracy levels with high-quality calibrated roll, pitch, and (unreferenced) yaw data.

Xsens Sirius AHRS

Unrivaled heading accuracy with drift-free roll, pitch and true-north-referenced yaw, providing heading accuracy <1° RMS.

Xsens Sirius | MTi-600-series | MTi-100-series

Features and specifications

Xsens **Sirius** vs. MTi 600-series | MTi 100-series

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MTi 600-series

MTi 100-series

Sensor Fusion Performance			
Roll, Pitch	VRU/AHRS 0.2º RMS *IMU n.a.	VRU/AHRS 0.2º RMS *IMU n.a.	VRU/AHRS 0.2-0.3º RMS *IMU n.a.
Yaw/Heading	VRU unreferenced, low drift AHRS <1º RMS *IMU n.a.	VRU unreferenced, low drift AHRS 1º RMS *IMU n.a.	VRU unreferenced, low drift AHRS 1º RMS *IMU n.a.
Gyroscope			
Standard full range	±300 º/s	±2000 º/s	±450 º/s
In-run bias stability	7 º/h	8 º/h	10 º/h
Bandwidth (-3dB)	400 Hz	520 Hz	415 Hz
Noise density	0.003 º/s/√Hz	0.007 º/s/√Hz	0.01 º/s/√Hz
g-sensitivity (calibr.)	0.08 º/s/g	0.1 º/s/g	0.003 º/s/g

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MTi 600-series

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	Xsens Sirius	MTi 600-series	MTi 100-series
Accelerometer			
Standard full range	±8 g	±10 g	±10 g
In-run bias stability	15 µg	15 µg	15 µg
Bandwidth (-3dB)	470 Hz	500Hz	375Hz
Noise density	15 µg/√Hz	60 µg/√Hz	60 µg/√Hz
Magnetometer			
Standard full range	± 8 G	± 8 G	± 8 G
Total RMS noise	1 mG	1 mG	0.5 mG
Non-linearity	0.2%	0.2%	0.2%
Resolution	0.25 mG	0.25 mG	0.25 mG

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Mechanical			
IP-rating	IP68	IP68	IP67
Operating temperature	-40 to +85 ºC	-40 to +85 ºC	-40 to +85 ºC
Casing material	Aluminum	Aluminum	Aluminum
Mounting orientation	No restriction, full 360º in all axes	No restriction, full 360º in all axes	No restriction, full 360º in all axes
Dimensions	56.5x40.9x24.75mm	56.5x40.9x24.75mm	57x41.90x23.60 mm
Connector	ODU (AMC HD 12 pins)	ODU (AMC HD 12 pins)	Fischer SV
Weight	78.5g	75g	58g
Certifications	CE, FCC, RoHS, MIL-STD-202, ITAR free	CE, FCC, RoHS, ITAR free	CE, FCC, RoHS, MIL-STD-202, ITAR free
Electrical			
Input voltage	4.5V-24V	4.5V-24V	3V3, 4.5V-34V
Power consumption	<1W[1]	<0.5W	520 mW

[1] The power consumption of all the devices (IMU, VRU, and AHRS) is expected to be below 1W.

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Interfaces / IO			
Interfaces	RS232/RS422, CAN	RS232, CAN	USB, RS232/RS422
Sync options	SyncIn, SyncOut, ClockSync	SyncIn, SyncOut, ClockSync	SyncIn, SyncOut, ClockSync
Protocols	Xbus, ASCII (NMEA)[2], CAN[2]	Xbus, ASCII (NMEA), CAN	Xbus, ASCII (NMEA), CAN
Clock drift	10 ppm (or external)	10 ppm (or external)	10 ppm (or external)
Output frequency	up to 400Hz (SDI)	up to 400Hz (SDI)	up to 400Hz (SDI)
Built-in-self test	Gyr, Acc, Mag	Gyr, Acc, Mag, Baro	Gyr, Acc, Mag
Software suite GUI (Windows/Linux)	MT Manager, Firmware updater, Magnetic Field Mapper	MT Manager, Firmware updater, Magnetic Field Mapper	MT Manager, Firmware updater, Magnetic Field Mapper
SDK (example code)	C++, C#, Python, Matlab, public source code	C++, C#, Python, Matlab, public source code	C++, C#, Python, Matlab, public source code
Drivers	LabVIEW, ROS, GO	LabVIEW, ROS, GO	LabVIEW, ROS, GO
Support	Online manuals, community and knowledge base	Online manuals, community and knowledge base	Online manuals, community and knowledge base

[2] This functionality is expected to be fully supported in the upcoming releases.

Xsens **Sirius** vs. MTi 600-series | MTi 100-series

	Xsens Sirius	MTi 600-series	MTi 100-series
Pin mapping (RS232)			
	ODU connector pin no	ODU connector pin no.	Fisher pin no.
CAN_H	1	1	N/A
CAN_L	2	2	N/A
SYNC_IN1	3	3	5, 7[1]
SYNC_IN2	4	4	5, 7[1]
VIN	5	5	4[2]
RS232_CTS	6	6	N/A
RS232_RxD	7	7	3
RS232_TxD	8	8	2
RS232_RTS	9	9	N/A
GND	10	10	1
SYNC_OUT	11	11	6
GND	12	12	1

[1] SYNC_IN# supports SyncIn as well as ClockSync functionality. [2] MTi 100-series supports a wider supply voltage range (4.5-34V) than the MTi 600-series and Sirius (4.5-24V).

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Integration

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MTi 600-series

MTi 100-series

Pin mapping (RS422)			
	ODU connector pin no	N/A[3]	Fisher pin no.
CAN_H	1		N/A
CAN_L	2		N/A
SYNC_IN1	3		5, 7[1]
SYNC_IN2	4		5, 7[1]
VIN	5		4[2]
RS232_RX-	6		9
RS232_RX+	7		8
RS232_TX-	8		3
RS232_TX+	9		2
GND	10		1
SYNC_OUT	11		6
GND	12		1

[1] SYNC_IN# supports SyncIn as well as ClockSync functionality. [2] MTi 100-series supports a wider supply voltage range (4.5-34V) than the MTi 600-series and Sirius (4.5-24V). [3] MTi 600-seires Rugged does not provide RS422 interface.

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Cable			
	RS232 – USB cable[1]	RS232 - USB converter	USB cable
	12 pin interface cable[1]	12 pin interface cable	

[1] Xsens Sirius DK will come with a USB converter cable which has the USB converter integrated at the end of the cable, as well as a separate 12 pin interface cable which provides access to all 12 pins. This is more practical and robust than the MTi 600-series DK which came with a CA-MP-MTI-12 cable and a separate “converter dongle”.

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Get **Sirius** about navigating the most challenging environments

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Xsens Sirius IMU | Xsens Sirius VRU | Xsens Sirius AHRS

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